CIVIL PLANS FOR

I-470 BUSINESS AND TECHNOLOGY CENTER LOT 13A

A REPLAT OF LOTS 13, 14, 21, & 22 OF
I-470 BUSINESS AND TECHNOLOGY CENTER
SECTION 20, TOWNSHIP 48, RANGE 31
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

ADDRESS: 2700 MCBRAINE DR

GENERAL

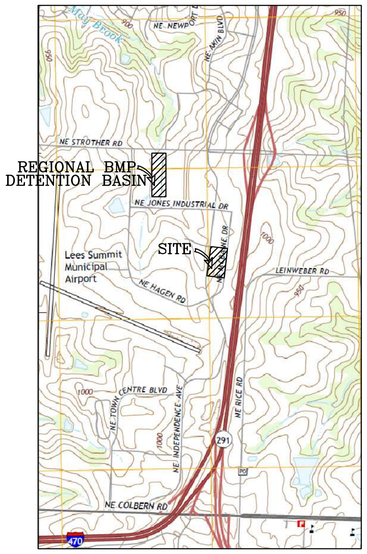
1. Lineal foot measurements shown on the plans are horizontal measurements, not slope measurements. All payments shall be made on horizontal measurements.
2. No geological information is shown on these plans.
3. The utility locations shown on these plans are taken from utility company records and are approximate only. They do not constitute actual field locations. The contractor shall verify the location and depth of all utilities prior to construction.
4. The contractor shall adhere to the provisions of the Senate Bill Number 583,78th General Assembly of the State of Missouri. The bill requires that any person of firm doing excavation on public right-of-way do so only after giving notice to, and obtaining information from, utility companies. State law requires 48 hours advance notice. The names and telephone numbers of utility companies, even if only remotely involved with this project are provided. Prior to commencement of work, the contractor shall notify all those companies which have facilities in the near vicinity of the construction to be performed.
5. All waste material resulting from the project shall be disposed of off-site by the contractor.
6. All excavation shall be unclassified. No separate payment will be made for rock excavation.
7. The contractor shall control the erosion and siltation during all phases construction, and he shall keep the streets clean of mud and debris.
8. All manholes, catch basins, utility valves and meter pits to be adjusted or rebuilt to grade as required. All existing utilities shall be adjusted as required.
9. Subgrade soil for all concrete structures, regardless of the type or location, shall be firm, dense and thoroughly compacted and consolidated: shall be free from muck and mud; and shall be sufficiently stable to remain firm and intact under the feet of the
10. workmen or machinery engaged in subgrade surfacing, laying reinforcing steel, and depositing concrete thereon. In all cases where subsoil is mucky or works into mud or muck during such operation, a seal course of either concrete or rock shall be placed below subgrade to provide a firm base for working and for placing the floor slab.
11. The contractor is responsible for providing all surveying that may be required.
12. Easements indicated on these drawings will be provided for on the final plat and properly dimensions. Easements outside the platted area will be provided for by separate documents prior to issuance of a construction permit.

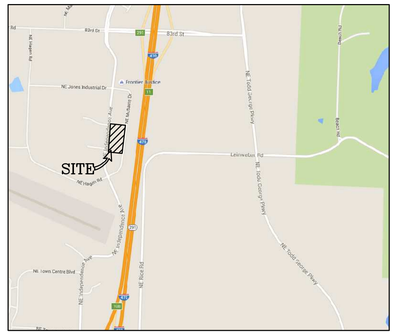
STREETS & STORM SEWER

1. All construction shall follow the City of Lee's Summit Design and Consrtuction Manual as adopted by Ordinace 5813.
2. High Density Plastic Pipe (HDPE) shall conform to A.A.S.H.T.O. M-294.
3. Reinforced Concrete Pipe (RCP) shall conform to ASTM Designation C-76-62T (Class III).
4. Curb Return Radius, 15' minimum unless shown otherwise.
5. The top 6" of roadway subgrade shall be undercut and compacted to minimum 95% of maximum density at optimum moisture as determined by AASHO T99, Method B. Contractor shall provide for moisture-density and relative density tests on roadway subgrade by an accepted testing firm. Contractor shall provide for in-place density test on compacted subgrade by an accepted testing firm. In-place density test shall be conducted every 50-feet along the proposed roadway. Contractor shall provide testing results to Engineer.
6. All Flared End Sections shall be installed with Toe Wall. (See Toe Wall Detail on Storm Sewer Detail Sheet)

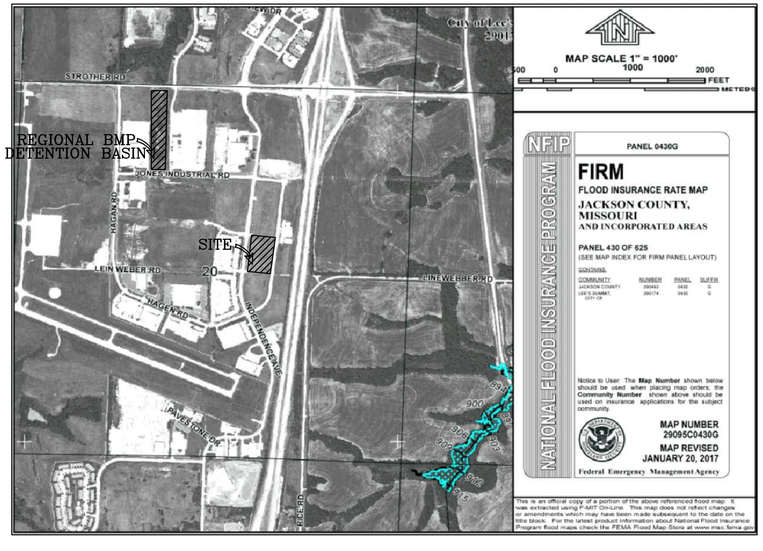
WATER

1. All construction shall follow the City of Lee's Summit Design and Consrtuction Manual as adopted by Ordinace 5813 and with all the requirements of the Missouri Department of Health and Missouri Clean Water Commission.
2. Class 50 Ductile Iron Pipe or C900 pipe shall be used per city specifications
3. All fittings shall be lined inside and out with an asphaltic base or bitumastic coating, and shall be megalug.
4. Fire Hydrants shall be Waterous Pacer WB-67 with non-rising stem or approved equal by the City Engineer. Hydrants shall have 5 1/4" valve with 4 1/2" pumper nozzle and 2-2 1/2" hose nozzles (left hand opening).
5. Gate Valves to be A.P. Smith series 1000 or Mueller No. A 2380-5 hub end "O" ring seal non-rising stem, valves 12 inches and larger shall be Butterfly valves manufactured by the Henry Pratt Company or City Engineer Approved equal Left hand opening minimum 200# testing AWWA.
6. Valve boxes shall be Clay & Bailey # p-108 or approved equal. All boxes to be installed out of pavement areas.
7. Water lines are to be constructed to a depth of 4 feet below and back of street curbs. Street grading is to be complete prior to waterline placement.
8. Easements for water lines located outside the platted area will be provided for by separate documents after the Final Plat is recorded.
9. All tees, bends, plugs, valves and hydrants shall be provided with reaction blocking. Pre-cast blocks shall not be used.
10. After water mains have been laid and partially backfilled, they shall be subject to a hydrostatic pressure test of not less than 150 psi, in accordance with AWWA C605. The line shall be pressurized to test pressure and closed for two hours. At the end of the two-hour period, the line shall be repressurized and the volume of water required to restore pressure shall be measured. The maximum amount of water to restore pressure shall be 0.5 gallons per 1000 feet of tested main. Testing shall be done by Contractor in presence of Engineer.
11. Before connecting to City water mains and prior to wet tap, the new main shall be disinfected in accordance with AWWA C651. A 1 percent solution of chlorine shall be pumped into the water main, such that the water in the line will not have less than 25 mg/l of free chlorine. At the end of a 24 hour period, the water shall be tested to ensure that at least 10 mg/l of free chlorine. After satisfactory testing of chlorination, the main shall be flushed. Disinfection testing and flushing shall be done by Contractor in presence of Engineer.
12. After final flushing and before the pipeline is placed in service, two samples shall be collected and shall be tested for bacteriological quality in accordance with the State Department of Health or other regulatory agency. Satisfactory results for both samples is required for successful completion of bacteriological testing. Contractor shall conduct all testing and provide testing results to Engineer.
13. Sample Taps must be included in the new line, no less than two (2) feet no more than ten (10) feet from where the new water line connects to the existing lines at each end.
14. A representative of the city water deptartment must be present for:
    - i. Disinfecting
    - ii. Pressure Testing
    - iii. Bacteria Testing (a minimum of three required at perscribed locations to be determined by the water dept.)





LOCATION MAP



UTILITIES

LEE'S SUMMIT PUBLIC WORKS
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
(816) 969-1800

KANSAS CITY POWER & LIGHT CO.
P.O. BOX 219330
KANSAS CITY, MO 64121-9330
(816) 471-5275

MISSOURI ONE-CALL
1-800-344-7483

MO GAS ENERGY
P.O. BOX 219255
KANSAS CITY, MO 64141
(816) 756-5252

TELEPHONE COMAPANY
CENTURY LINK
P.O. BOX 2961
PHOENIX, AZ 85062
(800) 788-3600

BEFORE YOU
DIG - DRILL - BLAST

Call
1-800-344-7483 (MISSOURI)
1-800-344-7233 (KANSAS)

DEVELOPER:

BLUE SPRINGS SAFETY STORAGE LLC
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MISSOURI 64029
Ph.# 816-229-8115

SHEET INDEX

LEGAL DESCRIPTION:
I-470 BUSINESS AND TECHNOLOGY CENTER LOT 13A
A REPLAT OF LOTS 13, 14, 21, & 22 OF I-470 BUSINESS AND TECHNOLOGY CENTER A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

UTILITY NOTES:
1. SANITARY SEWER
   NO NEW PUBLIC MAINS ARE PROPOSED.
   CONTRACTOR SHALL LOCATE ALL EXISTING SEWER LATERALS AND CAPED PER CITY REQUIREMENTS.
   A NEW LATERAL SHALL BE INSTALL AS SHOWN
2. STORM SYSTEM
   ALL STORM SEWER WILL REMAIN PRIVATE AND WILL TIE TO EXISTING PUBLIC STORM SYSTEM AT EXISTING INLETS ONLY.
   DOWN SPOUT SHALL BE COLLECTED AND ROUTED TO PRIVATE OF PUBLIC STRUCTURE
3. WATER CONNECTION
   NO NEW WATER MAIN OR HYRANTS ARE PROPOSED
   DOMESTIC METER SHALL BE PLACED AS SHOWN
   FIRE LINE SHALL BE LOCATED AS SHOWN.

PERVIOUS VS IMPERVIOUS CALCULATIONS

LOT SIZE	179,505 SF
IMPERVIOUS SURFACES	
BUILDINGS (PORCHES)	67,575 SF
DRIVES/PARKING	
WALKS/MISC.	78,310SF
TOTAL	145,885SF
CALCULATIONS	
-/- =	81% IMPERVIOUS

19% PERVIOUS (GREEN)

SITE DATA TABLE:
1. EXISTING ZONNING =PMIX
2. LAND USE = INDUSRIAL WARHOUSE USES
3. TOTAL LOT AREA = 179,467 sf =4.12ac
4. TOTAL BULDING FOOTAGE=67,575sf
5. FLOOR AREA RATION (FAR) = 67,575 / 179,467 =0.38=38 %
6. ESTIMATED 15% OFFICE = 10,136sf
7. PARKING STALLS
   REQUIRED STALL = 4 PER 1,000sf OFFICE
   (10,136 / 1,000) 4=40 STALLS
   1 PER 1,000sf WAREHOUSE
   (57,436 / 1,000) 4=57 STALLS
   TOTAL REQUIRED = 97
   PROPOSED STALLS
   STANDARD 20'X9' STALLS = 99
   ADA 20'X9' STALL WITH ISLE = 4
   TOTAL=103 STALLS
8. TOTAL GREENS SPACE 33,620sf = 19%

PRIVATE IMPROVEMENTS NOT FOR BIDS.
1. CURB = 2,247lf
2. CONCRETE HEAVY= 36,645sf
3. CONCRET LIGHT = 16,487sf
4. SITE SIDEWALK / CURB WALK =3,549sf
5. CITY SIDEWALK = 2,436sf

PUBLIC IMPROVEMENTS NOT FOR BIDS.
1. CITY SIDEWALK = 2,436sf
2. PUBLIC FIRE HYDRANT = 1

PROJECT CONTACTS: ROBERT WALQUIST, P.E..
821 NE COLUMBUS ST
LEE'S SUMMIT, MISSOURI 64063
Phone: (816) 550-5675

CIVIL PLANS COVER SHEET

STATE OF MISSOURI
ROBERTA WALQUIST
NUMBER E-20010825
7/24/19
REGISTERED PROFESSIONAL ENGINEER

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Quist Engineering, Inc
Civil Engineering for Residential & Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 550-5675
email: rwalquist@quistengineering.com

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1ST ISSUE
6-20-19

REVISIONS
1 7-24-19

SHEET NO.
C100

JOB NO.
E18-337

30 15 0 30 60

Scale In Feet
1"= 30'

SYMBOL LEGEND

- SET 1/2" REBAR AND CAP RLS-2134, MO.
- FOUND MONUMENT (AS NOTED)
- R/W – RIGHT OF WAY
- GM – GAS METER
- WV – WATER VALVE
- FIRE HYDRANT
- GUY WIRE
- PP – POWER POLE
- SEWER MANHOLE
- FENCE
- G – GAS LINE
- SAN – SANITARY SEWER LINE
- STM – STORM SEWER LINE
- FO – UNDERGROUND FIBER OPTIC LINE
- W – WATER LINE
- OHE – OVERHEAD ELECTRIC LINE
- FO – UNDERGROUND FIBER OPTIC LINE

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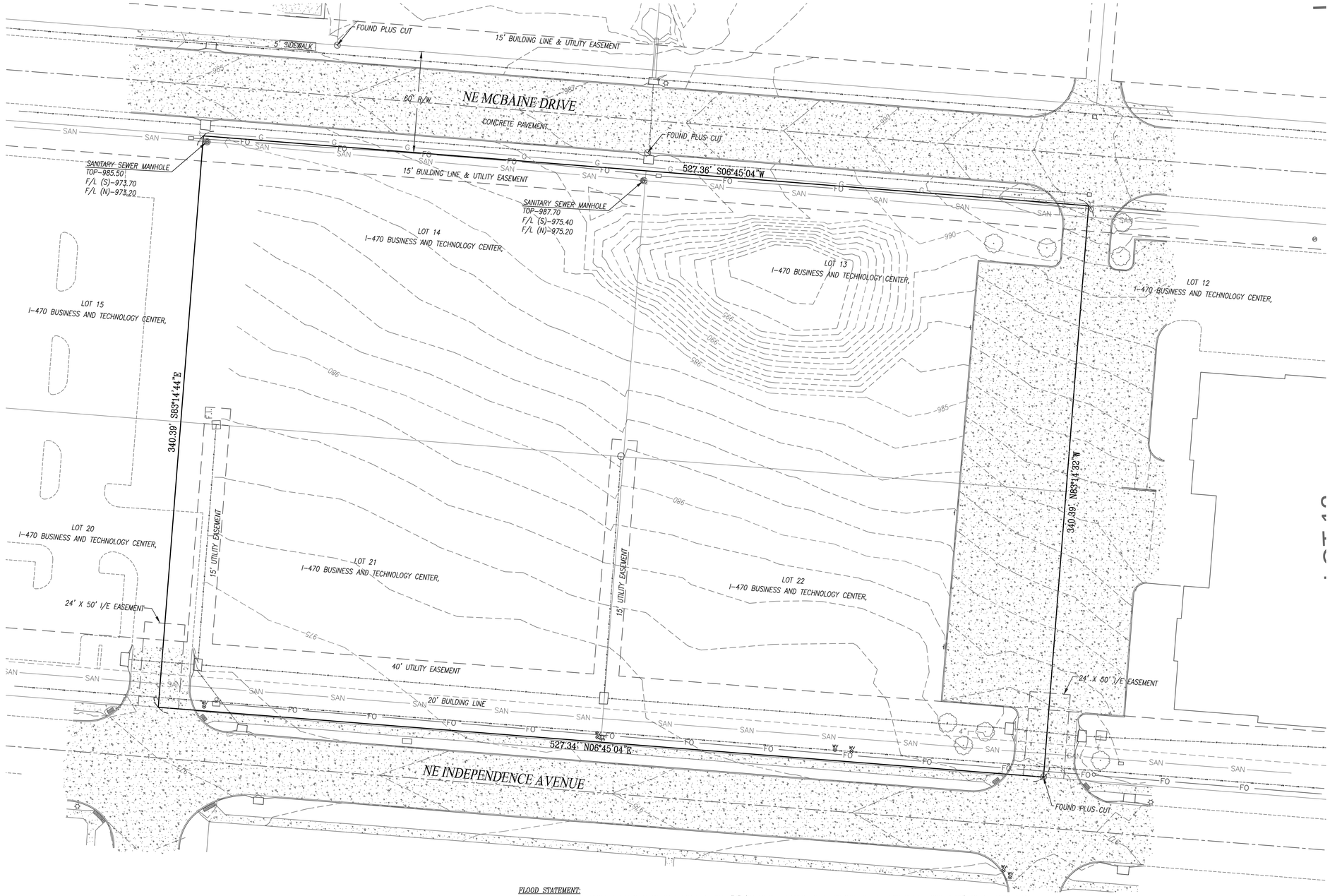
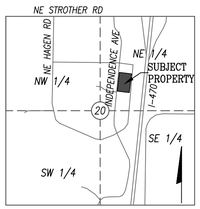
Call
1-800-344-7483 (MISSOURI)
1-800-344-7233 (KANSAS)

UTILITY NOTE:
THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES FOR FIELD LOCATION OF ALL UNDERGROUND UTILITY LINES PRIOR TO ANY EXCAVATION AND FOR MAKING HIS OWN VERIFICATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.





LOCATION MAP
SCALE=1"=2000'
SECTION 20
TOWNSHIP 48 RANGE 31

NOTES:
1. THE SUBJECT PROPERTY CONTAINS 179,505 SQUARE FEET MORE OR LESS
2. ACCESS TO PROPERTY VIA PUBLIC RIGHT OF WAY, NE MCBAINE DRIVE AND NE INDEPENDENCE AVENUE.
3. UTILITY INFORMATION SHOWN HERON IS BASED UPON THE FOLLOWING:
   A. FIELD SURVEY METHODS FOR OBSERVABLE FACILITIES.
4. THERE ARE NO BUILDINGS ON SUBJECT PROPERTY.
5. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT SURVEYED OR CONSIDERED AS A PART OF THIS SURVEY. NO EVIDENCE OR STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONDITIONS THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS PROPERTY.

BASIS OF BEARING:
THE BASIS OF BEARING FOR THIS SURVEY IS GRID BEARINGS AS TAKEN FROM THE PLAT OF "I-470 BUSINESS AND TECHNOLOGY CENTER".

ENCROACHMENT:
THERE ARE NO ENCHROCHMENTS, EXCEPT AS SHOWN ON SURVEY.

ZONING REGULATIONS:
1. ACCORDING TO THE CITY OF LEE'S SUMMIT, MISSOURI THE SUBJECT PROPERTY IS ZONED PMIX (PLANNED MIXED USE DISTRICT)

FLOOD STATEMENT:
ALL OF THE SUBJECT PROPERTY LIES IN AN AREA LABELED ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 500-YEAR FLOOD PLAIN) AS DETERMINED BY THE FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0430G WITH AN EFFECTIVE DATE OF JANUARY 20, 2017.

SURVEY REFERENCE:
NOTE: NO TITLE REPORT WAS PROVIDED BY THE CLIENT. BOUNDARY & CONSTRUCTION SURVEYING, INC. ASSUMES NO RESPONSIBILITY FOR EASEMENTS NOT SHOWN.

DESCRIPTION:
ALL OF LOTS 13, 14, 21, 22, I-470 BUSINESS AND TECHNOLOGY CENTER,
A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI.

CERTIFICATION:
I HEREBY DECLARE THAT AN ACTUAL PROPERTY BOUNDARY RE-SURVEY WAS MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT SURVEY MEETS OR EXCEEDS THE CURRENT MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ROGER A. BACKUES, PLS
LAND SURVEYOR REG. NO. PLS-2134

DATE: DECEMBER 27, 2018

CERTIFICATE OF SURVEY

LOTS 13, 14, 21, & 22
I-470 BUSINESS AND TECHNOLOGY CENTER
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DATE: DECEMBER 27, 2018

CLIENT:

QUIST ENGINEERING
821 NE COLUMBUS ST.
LEE'S SUMMIT, MISSOURI 64063

BOUNDARY & CONSTRUCTION SURVEYING, INC.
821 NE COLUMBUS STREET SUITE 100, LEE'S SUMMIT, MO. 64063
PH.# 816/554-9798, FAX # 816/554-0337

PROJECT NO. 18-329 | SHEET 1 OF 1

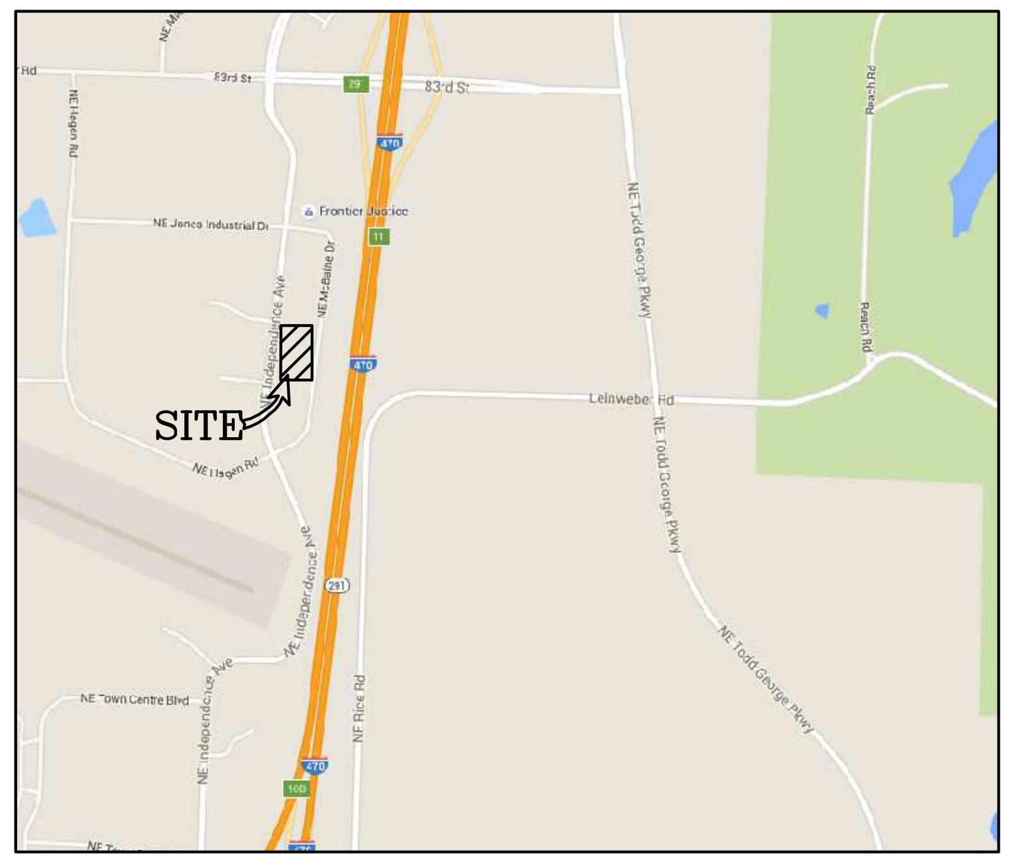
I-470 BUSINESS AND TECHNOLOGY CENTER, LEE'S SUMMIT, MO.

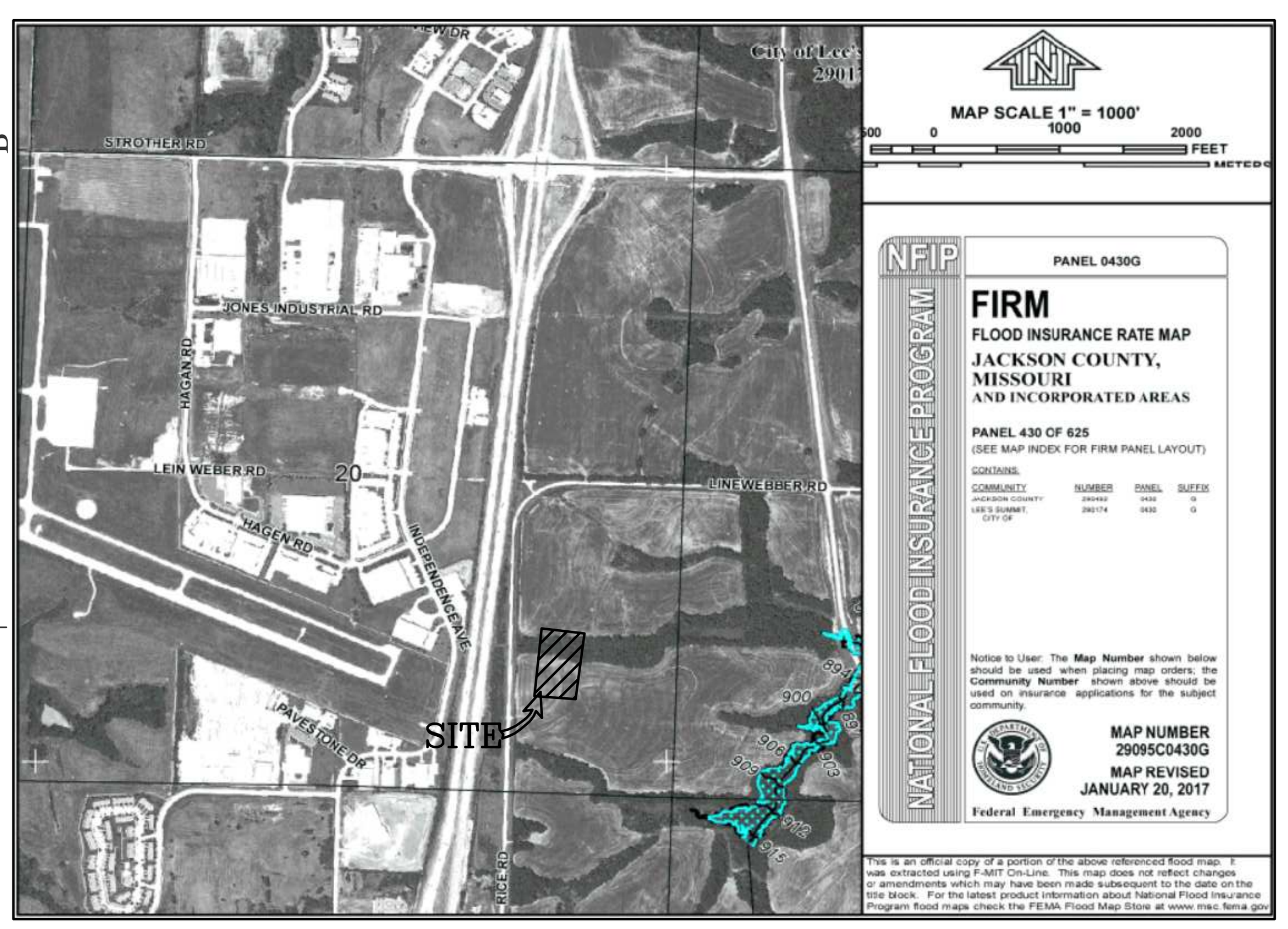
LINE LEGEND

PROPOSED		EXISTING
ST	Storm Line	ST
SAN	Sanitary Line	SAN
WTR	Water Line	WTR
25'BL	Building Line	BL
	Easement Line	
	4' Sidewalk	
	2' Curb	
840	Contour	840
	Tree Line	
X	Fence Line	X
G	Gas Line	G
	Overhead Telephone Line	OHT
	Undergroung Telephone Line	UGT
	Overhead Electrical Line	OHE
	Underground Electrical Line	UGE

SYMBOL LEGEND

PROPOSED		EXISTING
MH	Manhole	MH
C.I.	Curb Inlet	C.I.
JB	Junction Box	JB
FI	Field Inlet	FI
FES	Flared End Section	FES
FH	Fire Hydrant	
BO	Blow Off	
WV	Water Valve	
WM	Water Meter	WM
	Straddle	
	Utility Pole	
	Guy Wire	
	Electric Transformer	ELEC TRANS
	Telephone Pedestal	TEL PED
	Cable Pedestal	CBL PED
CO	Clean Out	CO





PRIVATE IMPROVEMENTS
NOT FOR BIDS. △1
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A REPLAT OF LOTS 13, 14, 21, & 22 OF I-470 BUSINESS
AND TECHNOLOGY CENTER A SUBDIVISION IN LEE'S
SUMMIT, JACKSON COUNTY, MISSOURI

40 0 40
1"=40'

PLAN NOTES:

1. HEAVY CONCRETE PAVEMENT RE: SEE SHEET C210
2. LIGHT CONCRETE PAVEMENT RE: SEE SHEET C210
3. STRAIGHT BACK CURB RE: SEE SHEET C210
4. ACCESSIBILITY RAMP RE: SEE SHEET C210
5. PAINT ACCESSIBLE PARKING SYMBOLS ACCORDING TO APWA PAVEMENT MARKING STANDARDS. RE: SEE SHEET C210
6. INSTALL ACCESSIBLE PARKING SIGN "TYPE B" RE: SEE SHEET C210
7. STRIPE PAVING WITH 4" WIDE STRIPE & PAINT ACCORDING TO APWA PAVEMENT MARKING STANDARDS.
8. CURB WALK RE: SEE SHEET C210
9. SITE SIDEWALK RE: SEE SHEET C210
10. SITE ADA RAMP RE: SEE SHEET C210
11. TRASH ENCLOSURE RE: SEE ARCHITECTURAL PLANS
12. CONCRETE RETAINING WALL RE: SEE STRUCTURAL PLANS W/ HAND RAIL
13. MODULAR RETAINING WALL RE: SEE SHEET C210
14. SITE MONUMENT SIGN RE: SEE ARCHITECTURAL PLANS
15. METAL DOCK STAIRS RE: SEE ARCHITECTURAL PLANS
16. SITE STAIRS RE: SEE ARCHITECTURAL PLANS
17. 5' CITY SIDWALK RE: SEE CITY DETAILS
18. CITY ADA RAMP RE: SEE CITY DETAILS

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
2. PERFORM TEMPORARY EROSION CONTROL MEASURES IN ACCORDANCE WITH ALL STATE & LOCAL REQUIREMENTS. TEMPORARY EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT IMPROVEMENTS ARE IN PLACE.
3. ALL PARKING STALLS SHALL BE MARKED W/ A 4" WIDE STRIPE. PARKING STRIPES TO BE PAINTED ACCORDING TO SPECIFICATIONS.
4. CONSTRUCT ALL SIDEWALKS WITH 2% MAX. CROSS SLOPE AWAY FROM BUILDING UNLESS OTHERWISE SHOWN ON PLANS.
5. PLACE EXPANSION JOINTS, IN SIDEWALKS AT 50' MAX. SPACING, AT ALL DIRECTION CHANGES AND WHEN ADJACENT TO BUILDINGS.
6. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
7. LAYOUT ALL SIDEWALKS AND PAVEMENT APPROX. TO LINES SHOWN. FINAL APPROVAL BY ARCHITECT PRIOR TO COMMENCEMENT

UTILITY NOTES:
1. SANITARY SEWER
CONTRACTOR SHALL USE EXISTING SEWER STUB
ALL EXISTING SEWER STUBS SHALL BE LOCATED
AND CAPED PER CITY REQUIREMENTS
2. STORM SYSTEM
ALL STORM SEWER WILL REMAIN PRIVATE AND WILL
TIE TO EXISTING PUBLIC STORM SYSTEM AT EXISTING
INLETS ONLY.
DOWN SPOUT SHALL BE COLLECTED AND ROUTED TO
PRIVATE OF PUBLIC STRUCTURE

SITE DATA TABLE: △1
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ADA 20'X9' STALL WITH ISLE = 4
TOTAL=103 STALLS
8. TOTAL GREENS SPACE 33,620sf = 19 %

PROJECT CONTACTS: ROBERT WALQUIST, P.E..
821 NE COLUMBUS ST
LEE'S SUMMIT, MISSOURI 64063
Phone: (816) 550-5675

FINAL DEVELOPMENT LAYOUT

STATE OF MISSOURI
ROBERT A. WALQUIST
NUMBER E-2001018825
7/24/19
REGISTERED PROFESSIONAL ENGINEER

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Quist Engineering, Inc
Civil Engineering for Residential & Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 550-5675
email: rwalquist@quistengineering.com

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1ST ISSUE
6-20-19

REVISIONS
△1 7-24-19

SHEET NO.
C200

JOB NO.
E18-337

LANDSCAPING PLAN

Section 14.070. Installation of plant materials

Plant materials, as required by the provisions of this Article, shall be installed by the date specified on the approved landscaping and buffer plan. The Director may allow one (1) planting season in a twelve (12)-month period in which the installation of plant materials shall be completed.

Buffers, if required, shall be installed before a certificate of occupancy permit is granted; except where the weather is not suitable for planting and escrow provisions are made in accordance with guidelines of the Department.

Section 14.080. Maintenance of required plant materials

A. The owner, tenant and their agent, if any, shall be jointly responsible for the maintenance in good condition of the plant materials used to meet the minimum requirements of this Article for landscaping, buffer or tree replanting. The plant materials shall be kept free from refuse and debris.

B. Plants that are not in sound growing condition or are dead shall be removed and replaced with a plant of a species or variety as determined by the Director.

C. Other landscape materials shall be maintained in proper repair and shall be kept clear of refuse and debris.

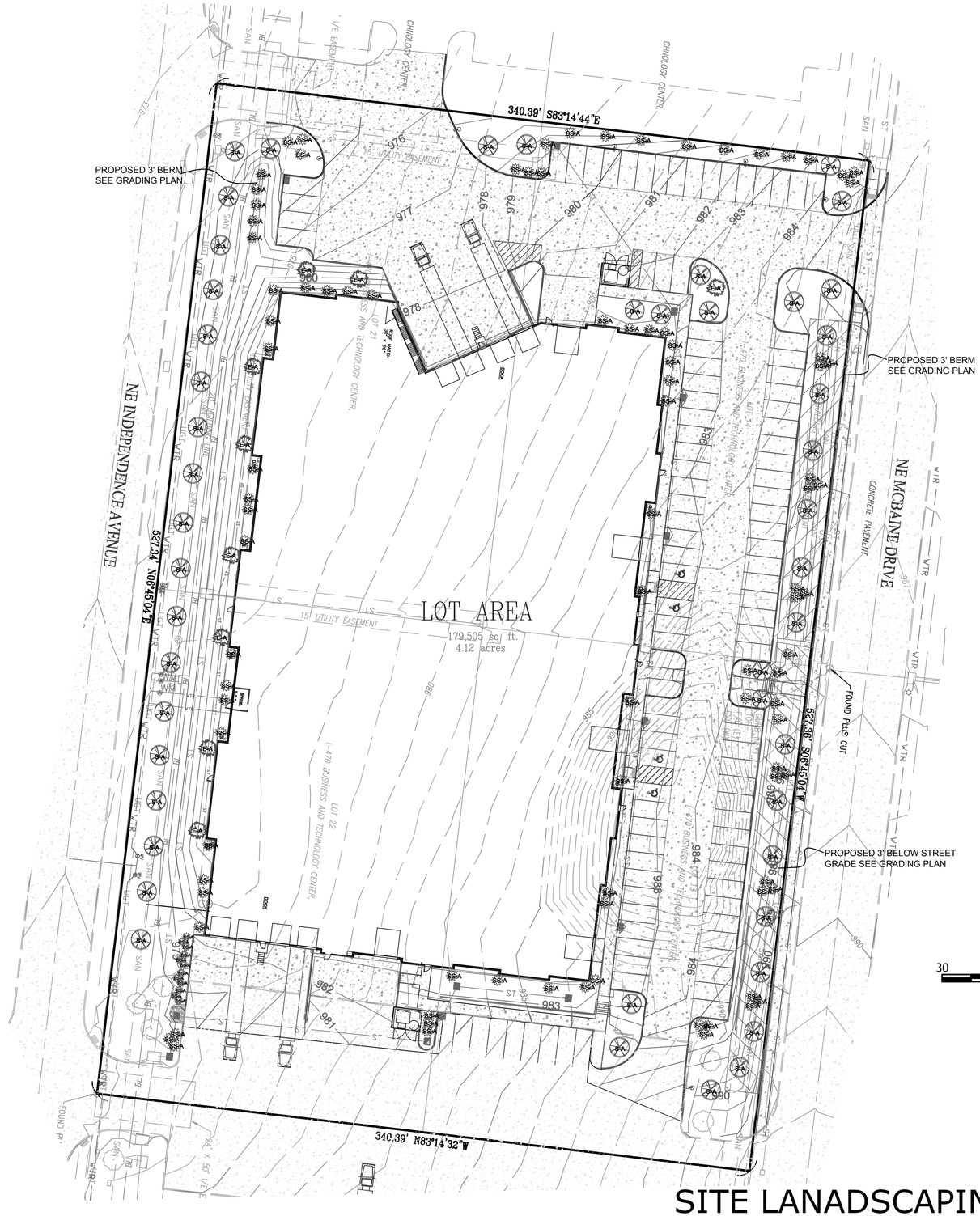
1. UDC SECTION 14. LANDSCAPING, BUFFERS AND TREE PROTECTION PLAN REQUIREMENTS
   - A. TREE PROTECTION: THIS SITE HAS NO TREES TO BE REMOVED.
   - B. BUFFERS: WE HAVE SHOWN A 20' LANDSCAPING BUFFER ON ALL STREET FRONTAGE.
   - C. STREET TREES & SHRUBS: THIS SITE HAS A TOTAL OF 1,054 L.F. OF ROW FRONTAGE
     1. REQUIRED TREES 1,054 / 30 = 35
     2. REQUIED SHRUBS 1,054 / 20 = 53
   - D. OPEN YARD AREA: (TOTAL REMAINING YARD AFTER FULL DEVLOPMENT = 57,442sf) (TOTAL LOT AREA = 179,505sf)
     1. REQUIRED 1 TREES PER 5,000sf OF REMAINING YARD = 11
     2. REQUIRED 2 SHRUBS PER 5,000sf OF REMAINING YARD = 58

   TOTAL LANDSCAPING REQUIRED
   TREES = 46
   SHRUBS = 111

E. PROPOSED TREES & SHRUBS:
1. TREES ALONG THE ROW INDEPENDENCE AVE. = 18
2. SHRUBS ALONG THE ROW INDEPENDENCE AVE. = 54
3. TREES ALONG THE ROW McBAIN DR. = 20
4. SHRUBS ALONG THE ROW McBAIN DR. = 26
3 OTHER PROPOSED TREES =9
4. OTHER PROPOSED SHRUBS =42

TOTAL TREES = 46
TOTAL SHRUBS =111

S-A		STATE STREET MAPLE	ACER MIYABEI	3" CAL.	46
S-B	S-B	PACIFIC SUNSET MAPLE	ACER TRUNCATUM 'PACIFICSUNSET'	3" CAL.	0
S-C	S-C	AUTUMN BLAZE MAPLE	ACER X 'AUTUMN BLAZE'	3" CAL.	0
S-D	S-D	SHAWNEE BRAVE BALD CYPRESS	TAXODIUM DISTICHUM 'SHAWNEE BRAVE	3" CAL.	0
S-E	S-E	VALLEY FORGE ELM	ULMUS AMERICANA 'VALLEY FORGE'	3" CAL.	0
S-F	S-F	SWAMP WHITE OAK	QUERCUS BICOLOR	3" CAL.	0
					TOTAL PROPOSED =46
					TOTAL REQUIRED = 46
ORNAMENTAL TREES					
O-A	O-A	ROYAL RAINDROPS CRABAPPLE	MALUS 'ROYAL RAINDROPS'	3" CAL.	0
O-B	O-B	HOT WINGS MAPLE	ACER TATARICUM 'HOT WINGS'	3" CAL.	0
O-C	O-C	IVORY SILK TREE LILAC	SYRINGA RETICULATA 'IVORY SILK'	3" CAL.	0
O-D	O-D	REDBUD	CERCIS CANADENSIS	3" CAL.	0
O-E	O-E	JUNE SNOW DOGWOOD	CORNUS CONTROVERSA 'JUNE SNOW'	3" CAL.	0
O-F	O-F	SPRING FLURRY SERVICEEBERRY	AMELNCHIER LAEVIS 'SPRING FLURRY'	3" CAL.	0
					TOTAL PROPOSED = 0
					TOTAL REQUIRED = 0
EVERGREEN TREES/ SHRUB					
E-A	E-A	NORWAY SPRUCE	PICEA ABIES	8' HT.	9
E-B	E-B	CANAERTI JUNIPER	JUNIPERUS VIRGINIANA 'CANAERTI'	8' HT.	0
E-C	E-C	GREEN GIANT ARBORVIATAE	THUJA PLICATA 'GREEN GIANT'	8' HT.	0
TRUE SHRUBS					
SS-A	SSA	BOX WOOD	BUXUS SEMPERVERENS	3GAL	102
					TOTAL PROPOSED = 111
					TOTAL REQUIRED = 111



SITE LANADSCAPING PLAN

STATE OF MISSOURI
ROBERT A. WALQUIST
NUMBER
E-2001018825
7/24/19
REGISTERED PROFESSIONAL ENGINEER

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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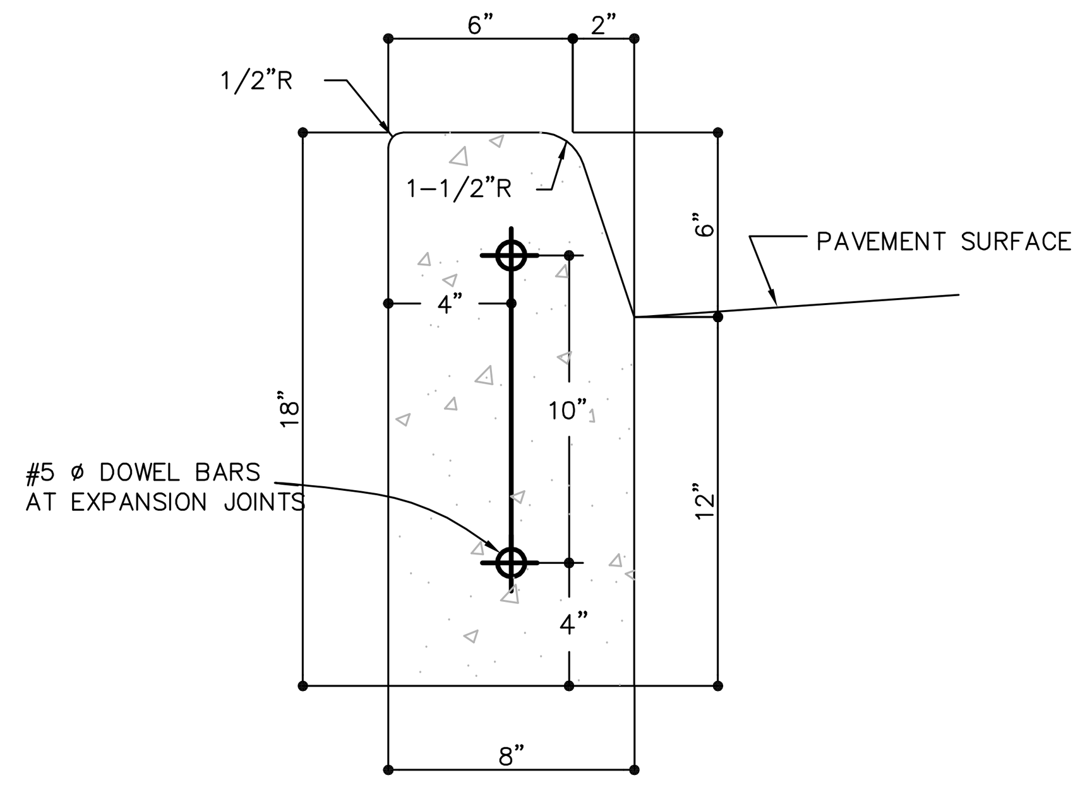
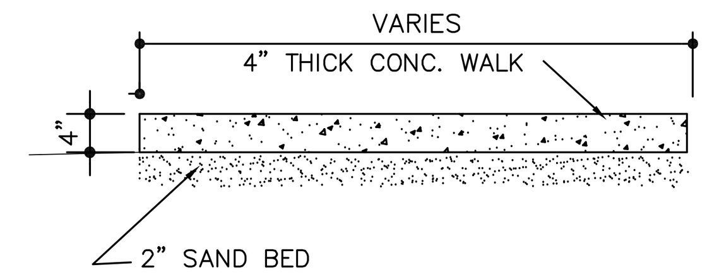


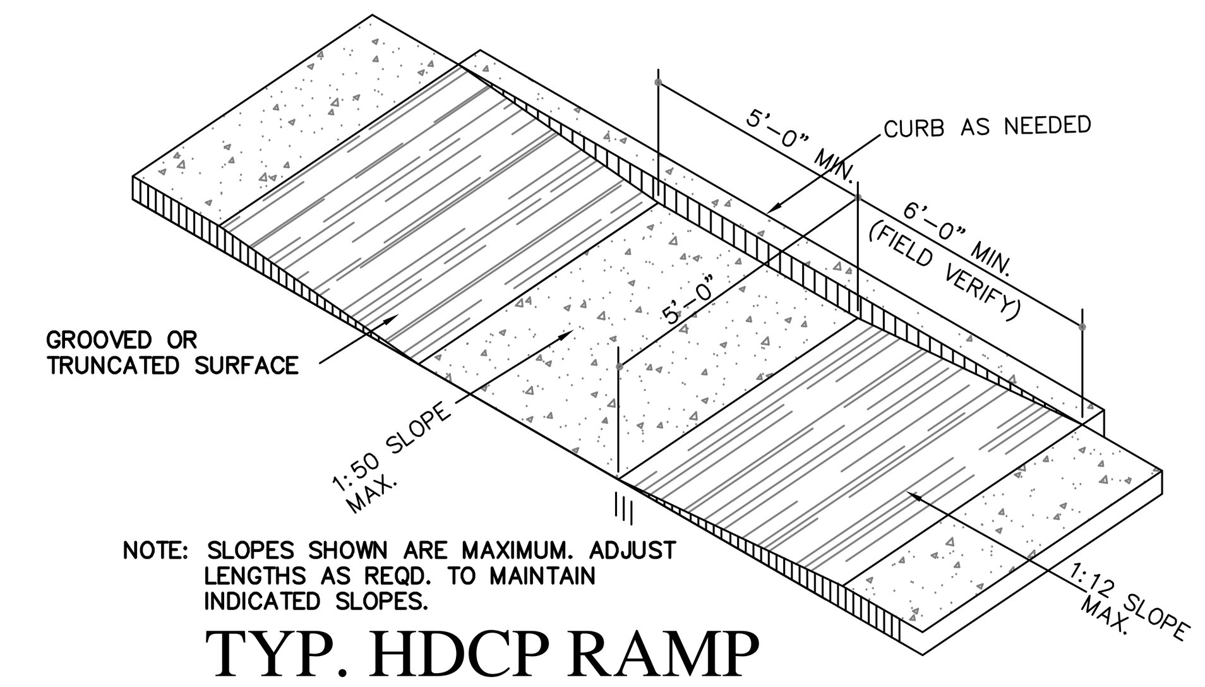
CONCRETE CURB

NTS.



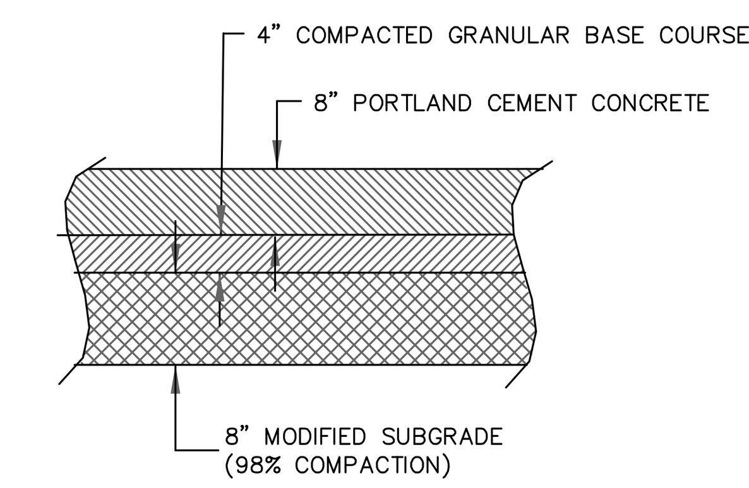
TYPICAL SIDEWALK

SCALE: 1/2" = 1'-0"



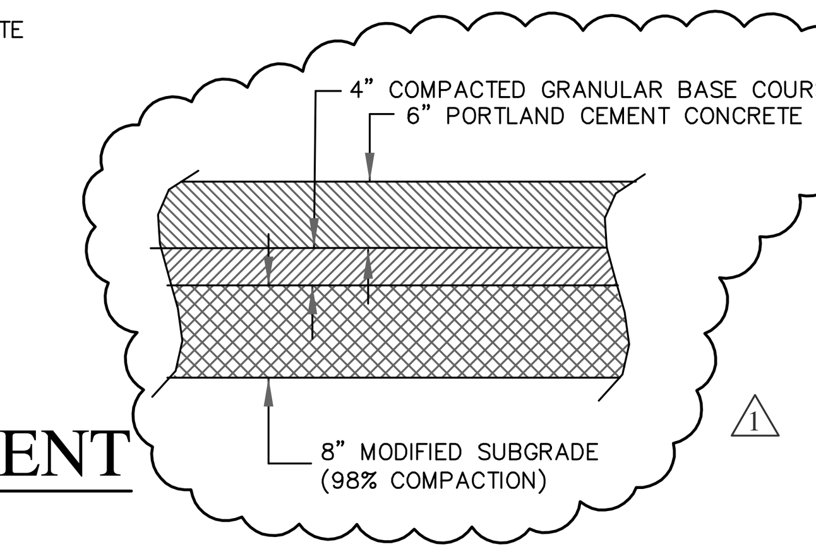
TYP. HDCP RAMP

SCALE: 1/4" = 1'-0"



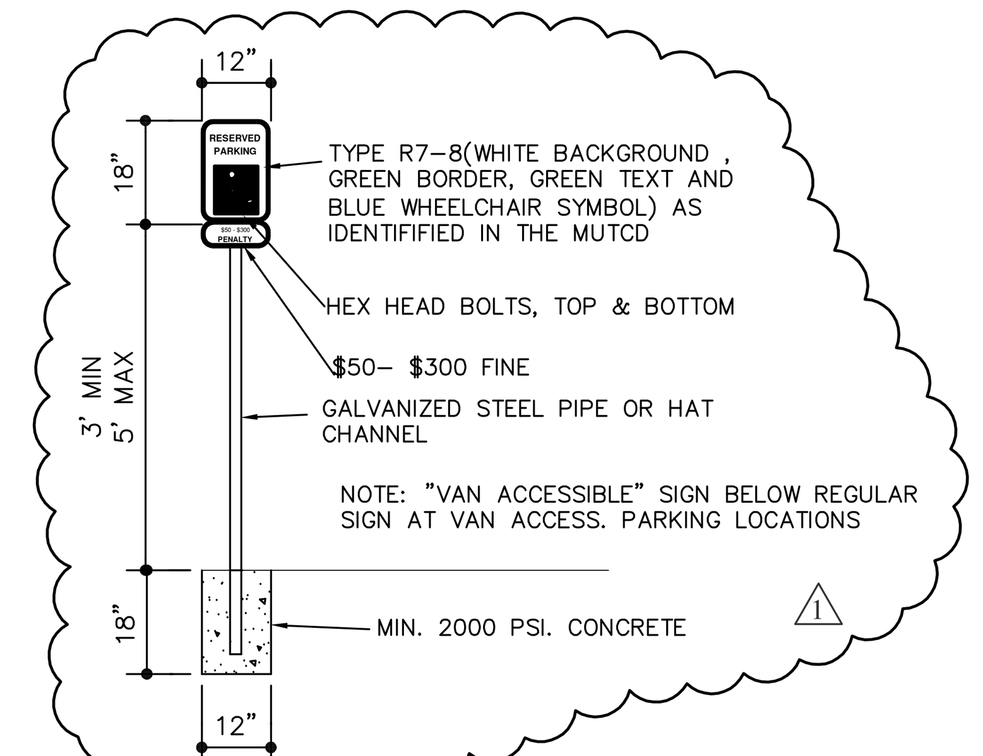
HEAVY CONCRETE PAVEMENT

SCALE: NO SCALE



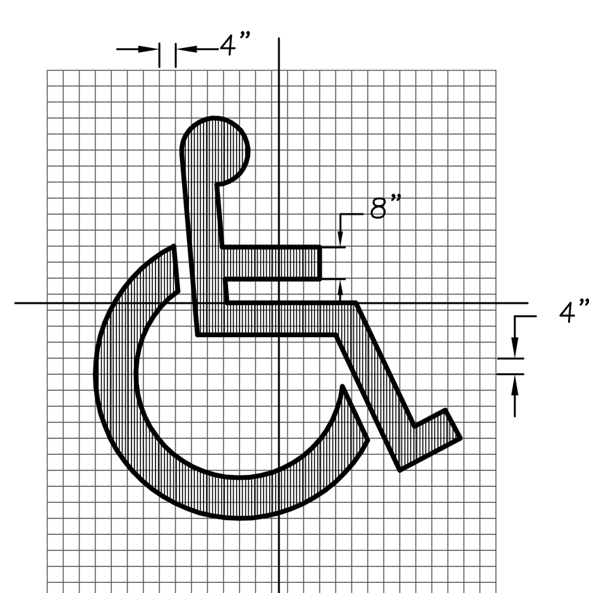
LIGHT CONCRETE PAVEMENT

SCALE: NO SCALE



HDCP PARKING SIGN

SCALE: 3/8" = 1'-0"

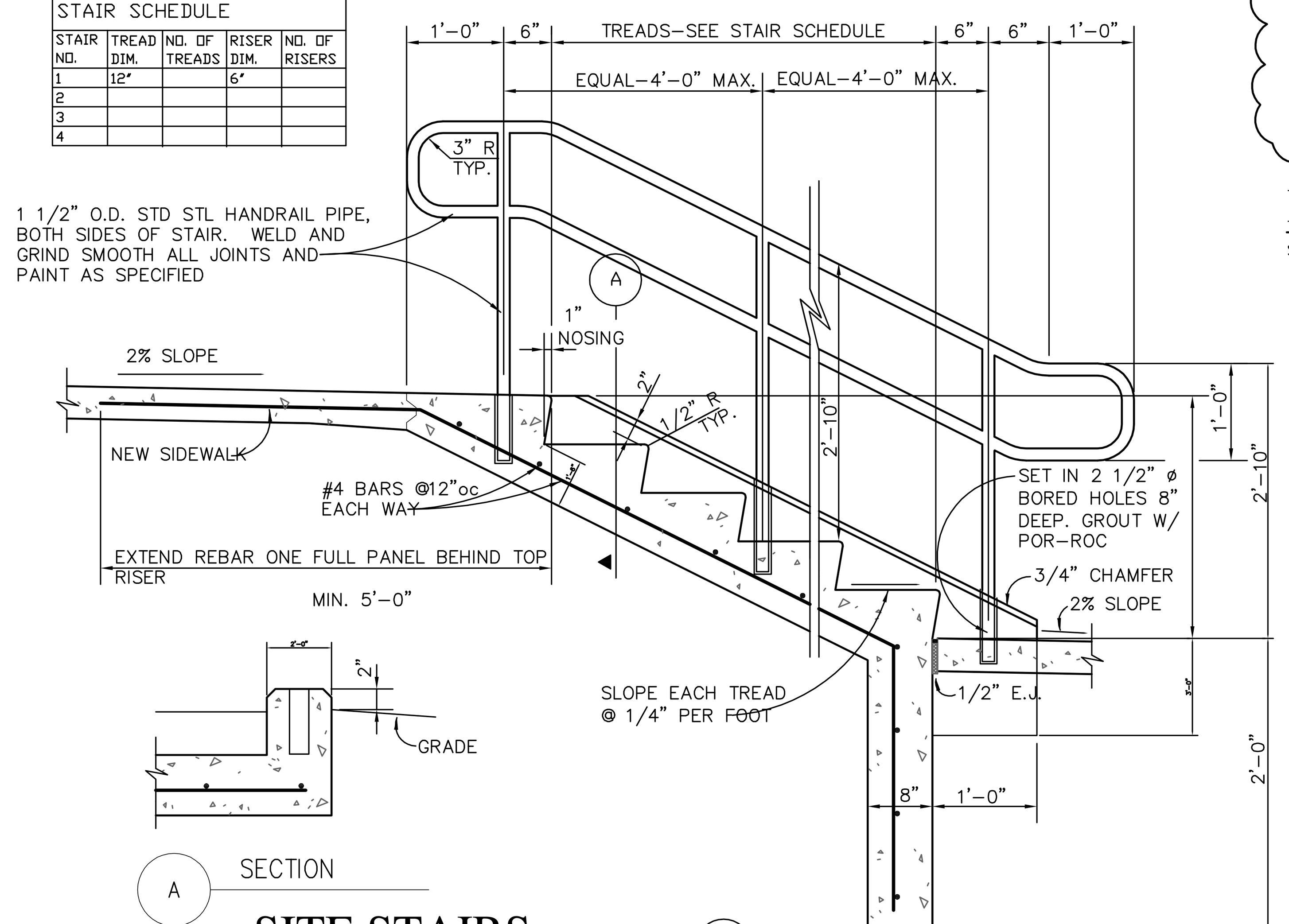


HANDICAP PARKING DETAIL

NTS.

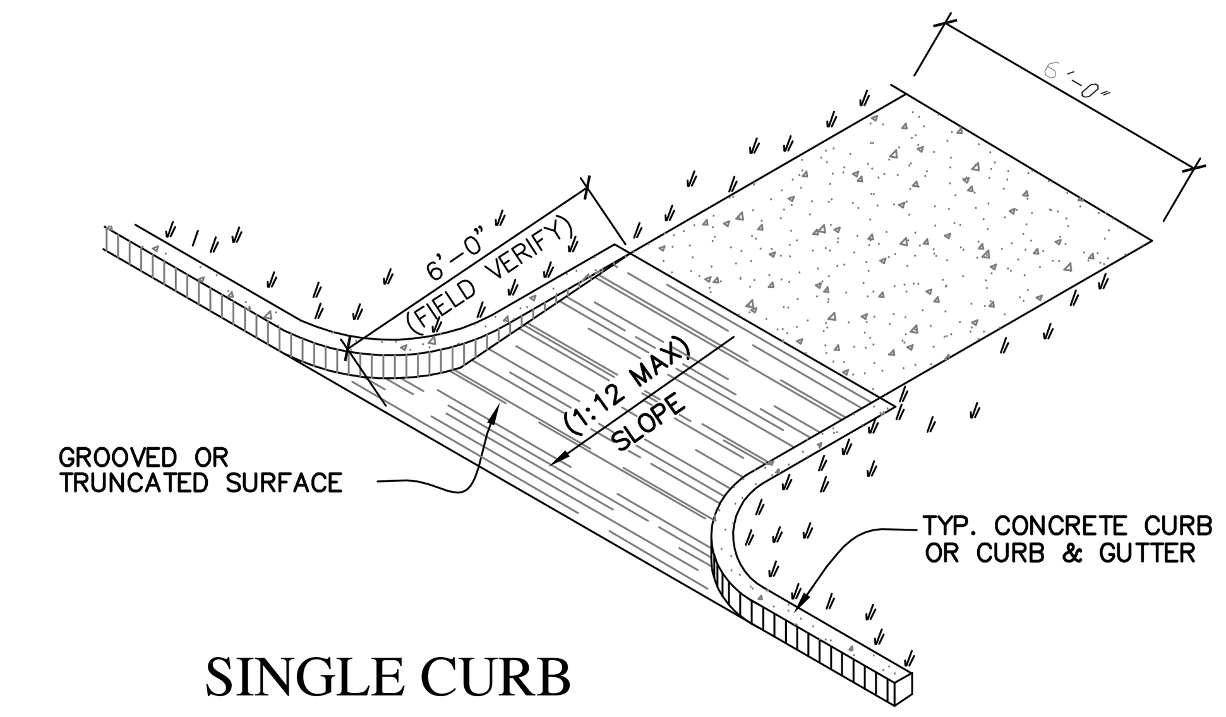
STAIR SCHEDULE

STAIR NO.	TREAD DIM.	NO. OF TREADS	RISER DIM.	NO. OF RISERS
1	12"		6"	
2				
3				
4				



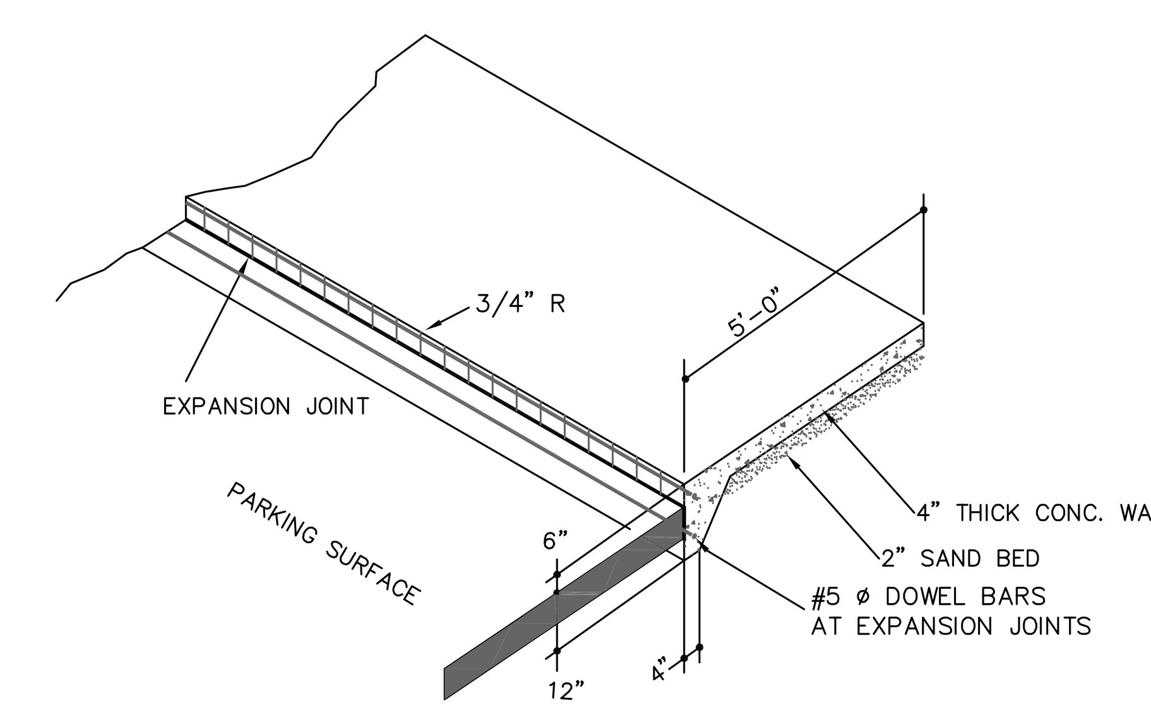
SITE STAIRS

16



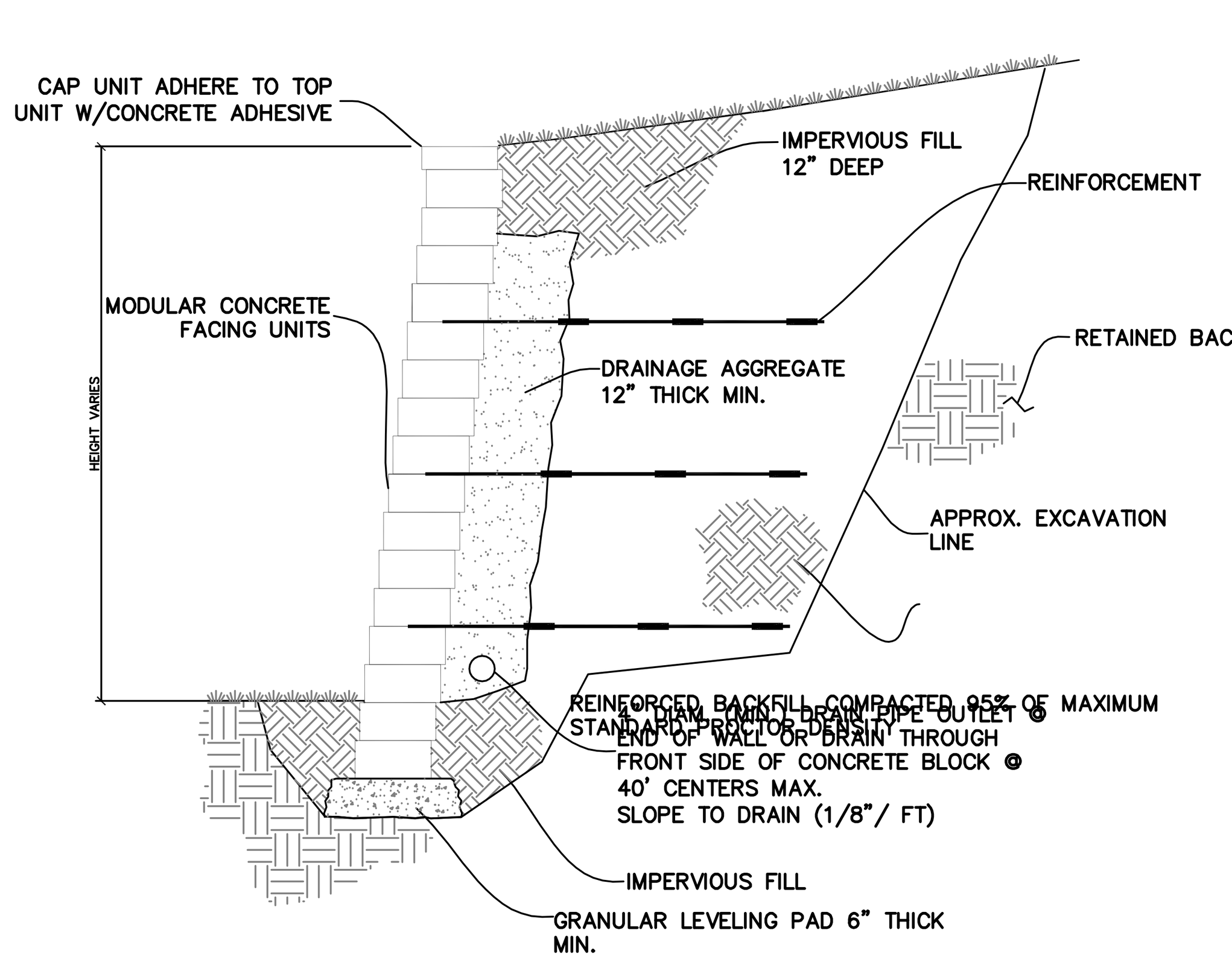
SINGLE CURB ACCESS RAMP

(SCHEMATIC) 1/4"=1'-0"



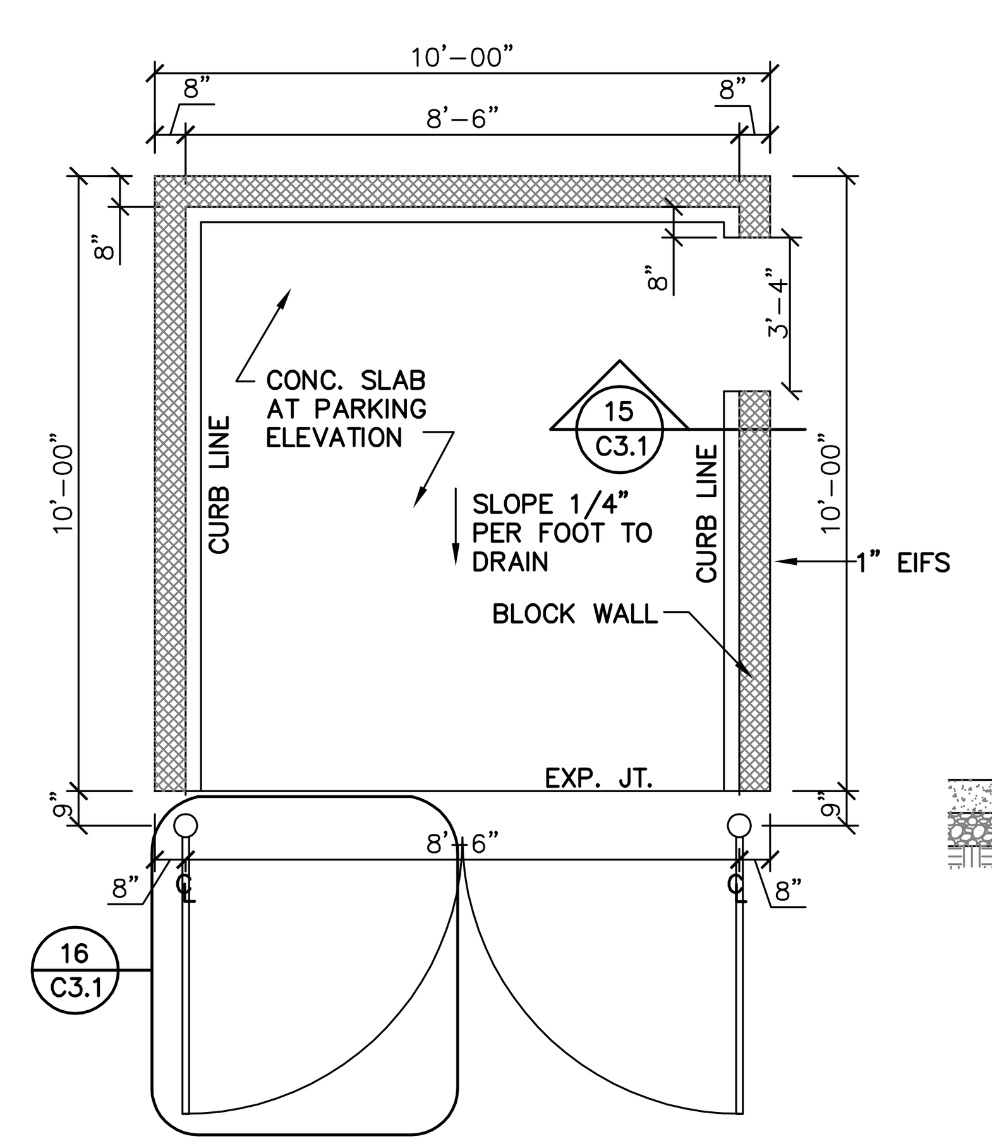
CURB WALK

SCALE: 1/2" = 1'-0"



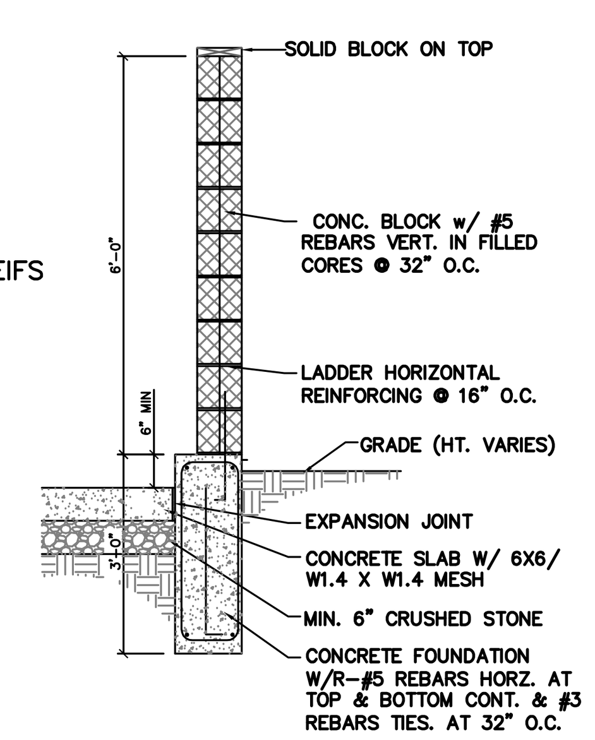
TYP. SECTION-REINFORCED RETAINING WALL

NTS



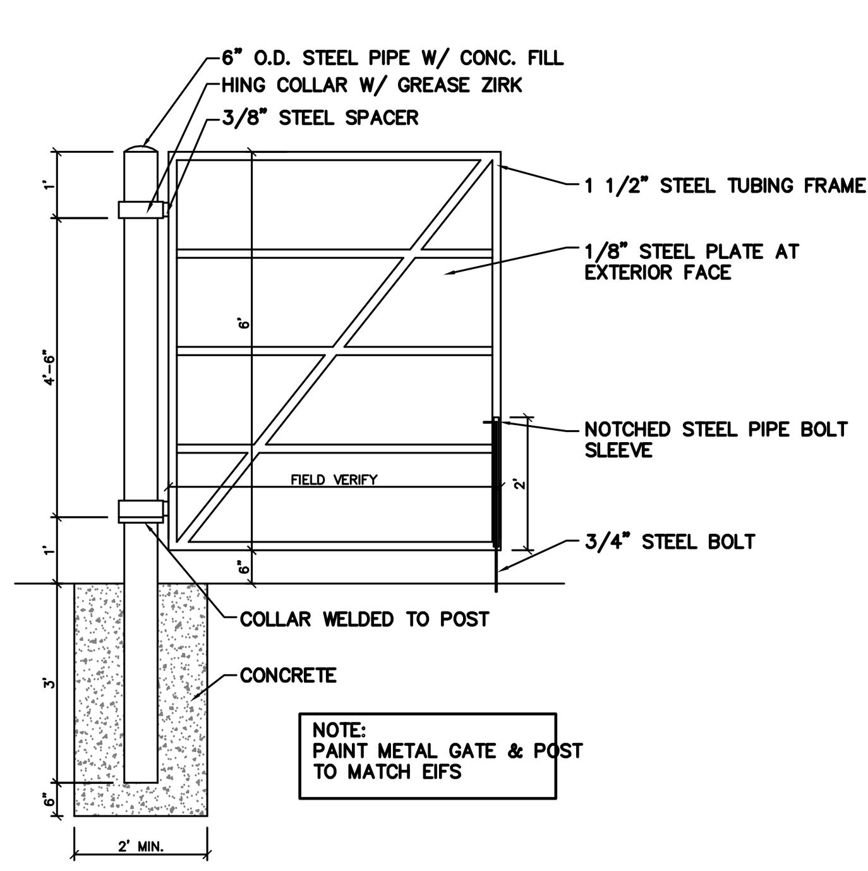
DUMPSTER ENCLOSURE DETAIL

NO SCALE



SECTION 15

SCALE: 1/2" = 1'-0"



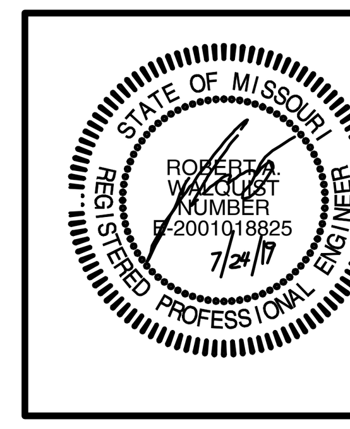
GATE DETAIL 16

SCALE: 1/2" = 1'-0"

SITE NOTES

1. The Contractor shall strip the building area of top soil and stockpile it. He shall then install fill dirt as per soils report included within the specifications.
2. The bottoms of footings shall bear on soils as per soils report included within the specifications. The footings shall be at depths indicated on plans, or deeper as required due to specific site conditions.
3. Topsoil finish grade shall be 8" below the finish floor elevations, sloping away 6" in 10' minimum. Finish grades shall not exceed a 2:1 slope.
4. Finish grade shall be 2" below the surface of walks, slabs, steps, etc., except where necessary to accommodate drainage. Contractor shall seed all areas of site disturbed by construction.
5. Sidewalks shall not exceed 5 % (1'-0" in 20'-0") slope with a 2% (1'-0" in 50'-0") cross-slope and shall be 5' wide except as noted on Site Plan. Provide stairs, ramps, curbs, etc., as noted and detailed.
6. The Contractor shall obtain and pay for building permit's) as may be required.
7. The Contractor shall furnish and install one mailboxes as post office requires.
8. Parking areas @ handicap accessible spaces and access isles shall not exceed a 2% slope (1'-0" in 50'-0" slope in any direction. Other portions of the accessible routes shall not exceed a 5 % (1'-0" in 20'-0") longitudinal slope and a 2% (1'-0" in 50'-0") cross-slope. Other parking areas and cross-slopes of drives shall not exceed a 5 % (1'-0" in 20'-0") slope.

SITE DETAILS



I-470 LOT 13A

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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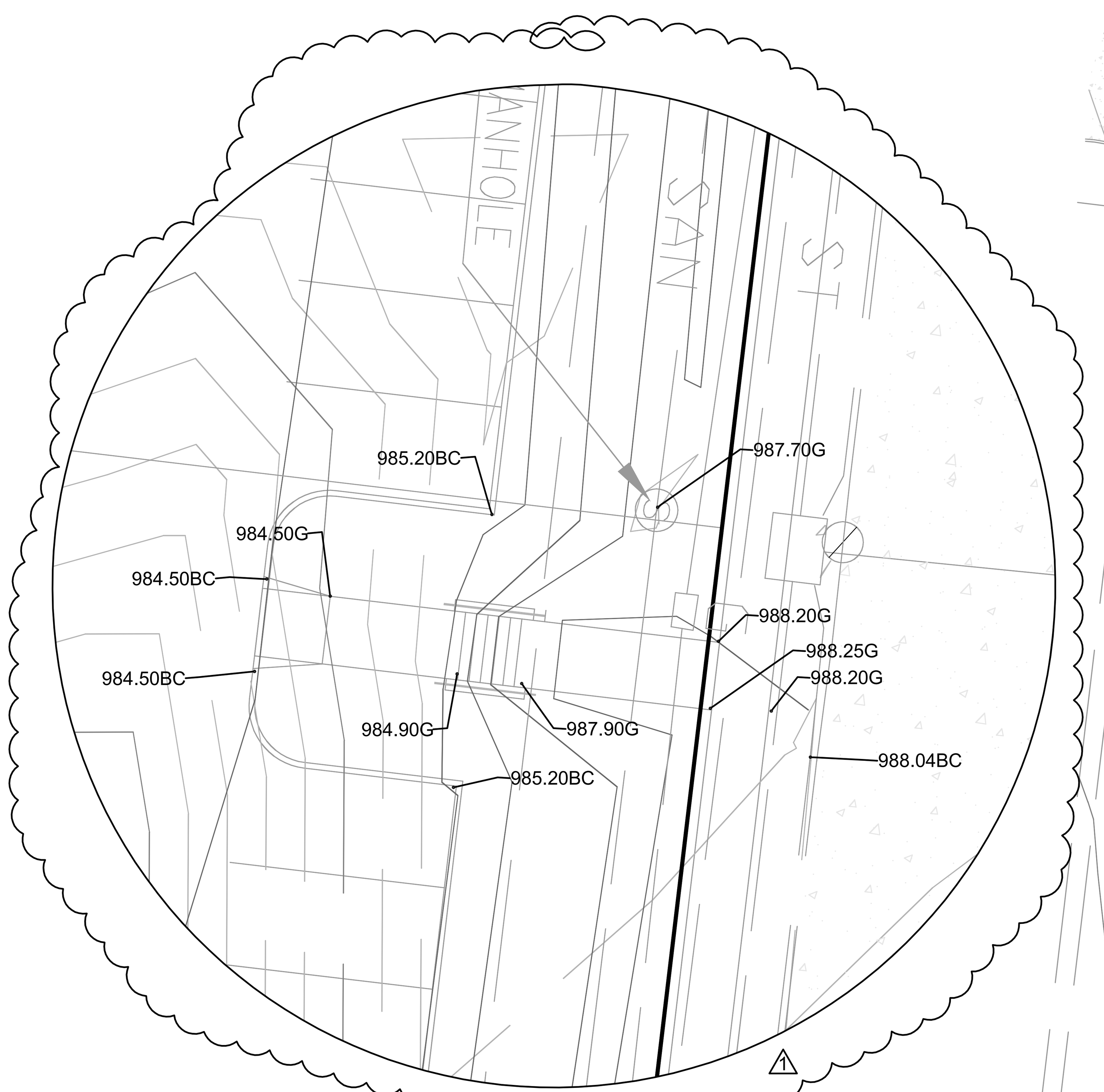

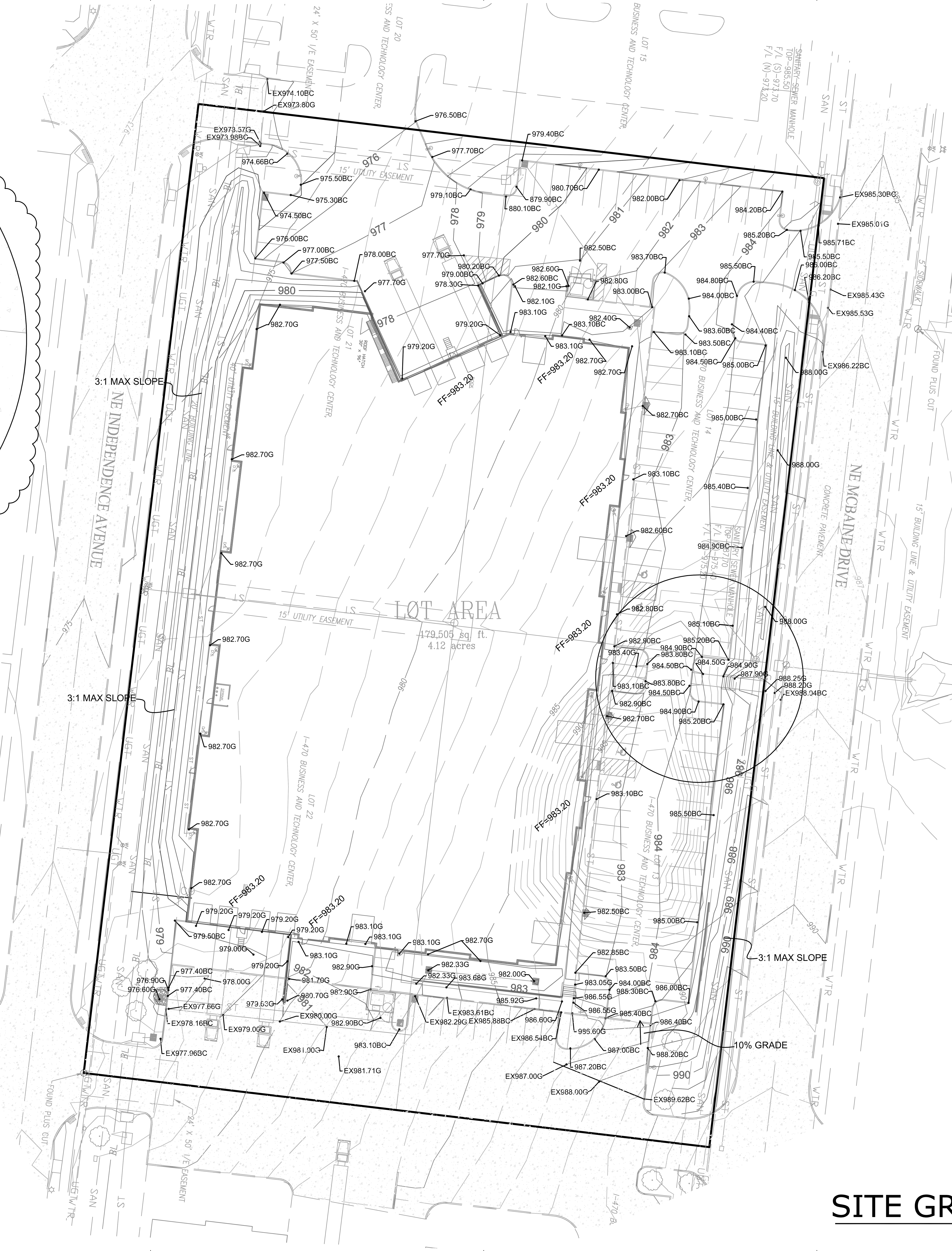

G= GRADE ELEVATION
BC = BACK OF CURB ELEVATION
△1

GRADING NOTES:
1. TOTAL CUT = 7,414cyd
2. TOTAL FILL = 11,683cyd
3 TOTAL BUILDING FOOTING CUT = 2,565cyd
4. TOTAL PARKING LOT AND DRIVE PAVEMENT SIDEWALK, CURB CUT =1,325cyd
6. TOTAL OF FILL= 379cyd
7. THESE NUMBERS ARE FOR CLIENT USE NOT MEANT TO BE USED FOR FINAL BIDS

30 0 30
1"=30'

SITE GRADING PLAN

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

STATE OF MISSOURI — ROBERT A. WALQUIST — NUMBER E-2001018825 — REGISTERED PROFESSIONAL ENGINEER — 7/24/19

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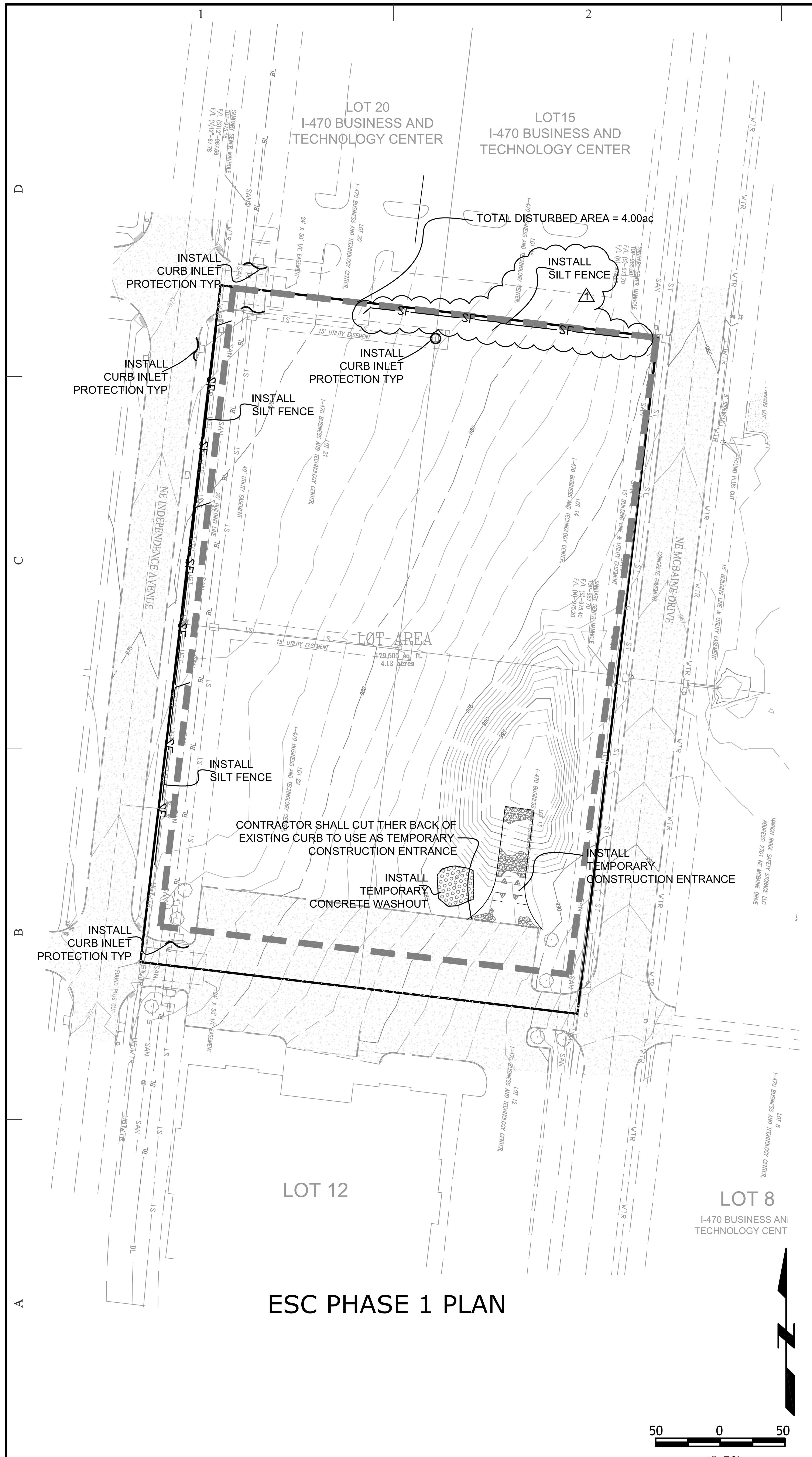
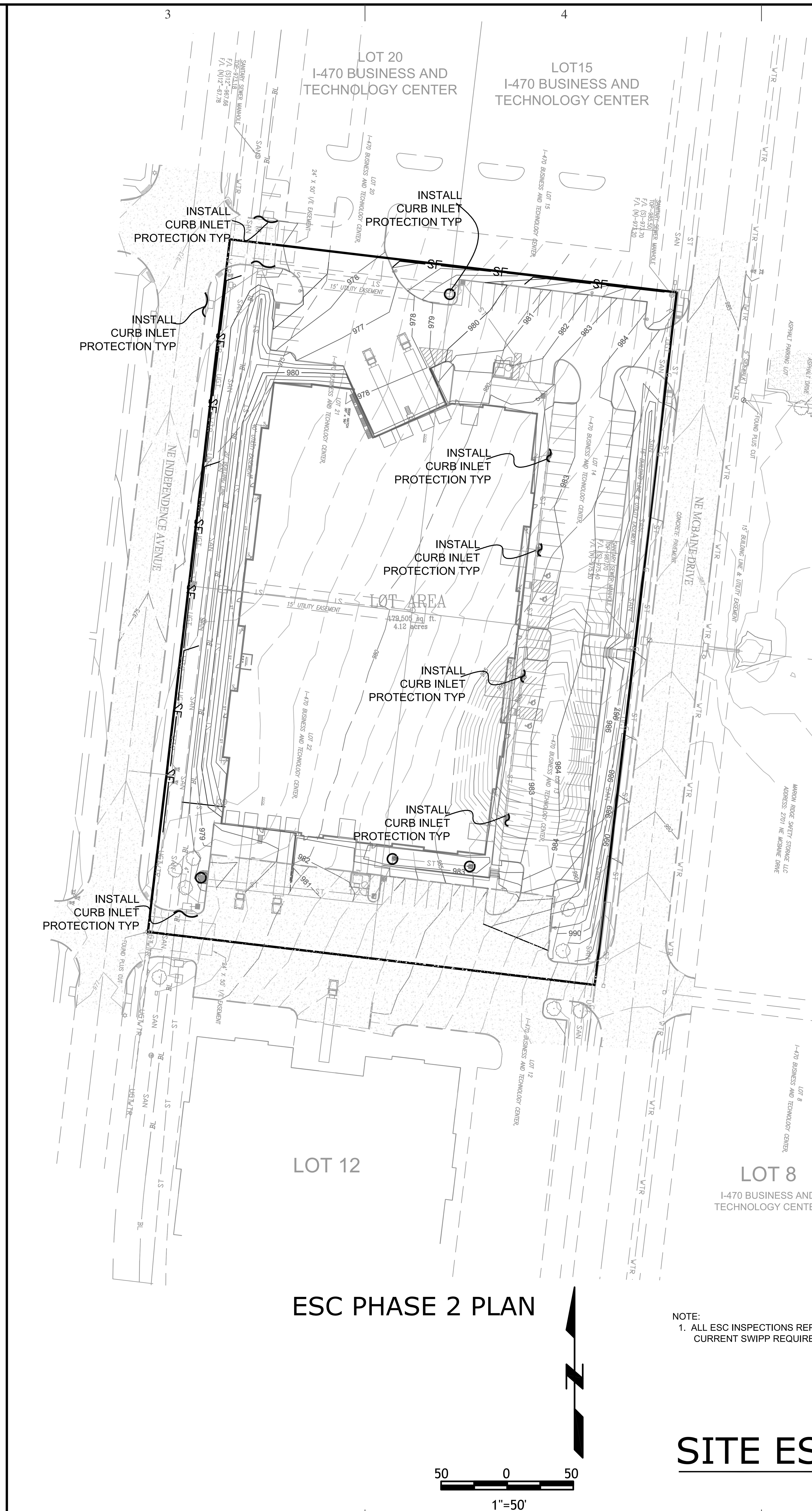


ESC PHASE 1 PLAN



ESC PHASE 2 PLAN

GENERAL NOTES:

1. ADJACENT LAND ACRES SHALL BE PROTECTED FROM EROSION AND SILTATION WITH HAY BALES OR FILTER FABRIC. SILT CONTAINMENT SHALL REMAIN IN PLACE UNTIL VEGETATION IS REESTABLISHED.
2. OUTFALL LINES FROM THE ENCLOSED STORM DRAINAGE SYSTEMS SHALL BE PROVIDED WITH END SECTIONS AND THE DRAINAGE DITCHES RIPRAPPED TO DISSIPATE FLOW AND CONTROL EROSION.
3. THE FOLLOWING MAY BE USED AS EROSION/SILTATION CONTROL AS INDICATED ON THE PLANS: DEBRIS/SILT BASINS, SILT FENCING, STAKED STRAW BALES, RETENTION STRUCTURES, DIVERSIONS, OTHER METHODS AS DETAILED ON THE PLANS.
4. ALL METHODS SHALL BE UTILIZED AND MAINTAINED UNTIL THE SURFACE HAS BEEN STABILIZED WITH VEGETATION OR MULCH.
5. ALL STRAW BALES MUST BE EITHER WIRE BOUND OR STRING TIED. INSTALL BALES SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. BALES SHALL BE OF STRAW ONLY.
6. GRADING AND SEDIMENT CONTROL SHALL BE AS SPECIFIED IN THE "MODEL GRADING AND SEDIMENT CONTROL ORDINANCE" DEVELOPED BY THE MID-AMERICA ASSOCIATION OF CONSERVATION DISTRICTS AND THE MID-AMERICA REGIONAL COUNCIL.
7. STRAW BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF FOUR INCHES.
8. STRAW BALES SHALL BE PLACED IN A ROW AS INDICATED ON THE ABOVE DRAWING.
9. STRAW BALES SHALL BE ANCHORED IN PLACE BY STAKES OR REBARS AS SHOWN IN THE DETAIL PROVIDED. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD A PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
10. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES.
11. STRAW BALES SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION AND SEEDING AND MULCHING OF GRADED AREAS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF STRAW BALES OR OTHER EROSION OR SEDIMENT CONTROL DEVICES UNTIL UPSLOPE AREAS HAVE BEEN STABILIZED.
13. VEGETATION ESTABLISHMENT FOR URBAN DEVELOPMENT SITES: GRADED AND EXCAVATED AREA OF 4.0 ACRES TO BE SOWN AFTER CONSTRUCTION WITH ONE OF THE FOLLOWING:
    A. TALL FESCUE – 25 LBS./ACRE
    B. SMOOTH BROME – 35 LBS./ACRES
    C. COMBINED: FESCUE @ 20 LBS./ACRE AND BROME @ 15 LBS./ACRE
    D. OTHER SEEDING MIXTURES AS APPROVED BY THE SOIL CONSERVATION SERVICE.

SEEDING PERIODS:
FESCUE OR BROME – MARCH 1 TO JUNE 1

MULCH RATES: (REQUIRED FOR ALL PERMANENT SEEDING)
4,356 LBS./ACRE

FERTILIZER:
A. NITROGEN 90 LBS./ACRE
B. PHOSPHATE 90 LBS./ACRE
C. POTASSIUM 90 LBS./ACRE
D. LIME 700 LBS./ACRE (EFFECTIVE NEUTRALIZING MATERIAL AS PER STATE EVALUATION OF QUARRIED ROCK.)
E. OTHER RATES AS DEFINED BY A CURRENT SOIL TEST AND APPROVED BY THE SOIL CONSERVATION SERVICE.

PHASE 1
SHALL INCLUDE THE FOLLOWING:
1. INSTALL SILT FENCE
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCE

PHASE 2
SHALL INCLUDE THE FOLLOWING:
1. REMOVE TOP SOIL, CURB, SIDEWALK, FENCE, AND TREES.
2. ROUGH GRADE CUT A ENGEERED FILL
3. INSTALL UTILITIES
4. INSTALL FOOTING AND WALLS
5. INSTALL PARKING LOT, SIDEWALK AND MAIN ENTRANCES
6. SEED AND SOD ALL DISTURBED AREAS

PHASE 3
SHALL INCLUDE THE FOLLOWING:
1. FULLY VEGETATED SITE
2. REMOVE SILTATION FENCE

NOTE:
1. ALL ESC INSPECTIONS REPORTS SHALL BE MADE PER THE CURRENT SWIPP REQUIREMENTS AND COPIES KEEPED ONSITE.

SITE ESC PHASE 1 AND 2 PLAN

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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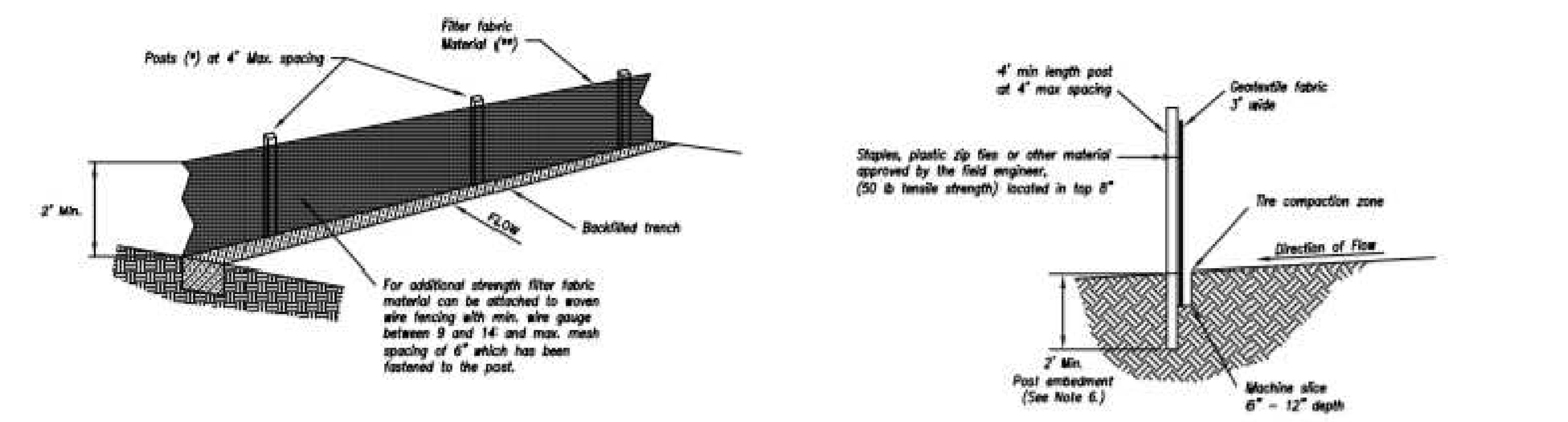


(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 3/8" x 1 3/8"
- NO.2 SOUTHERN PINE 2 5/8" x 2 5/8"
- STEEL 1.33 LB/FT

(**) - Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS
Not to Scale

Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.

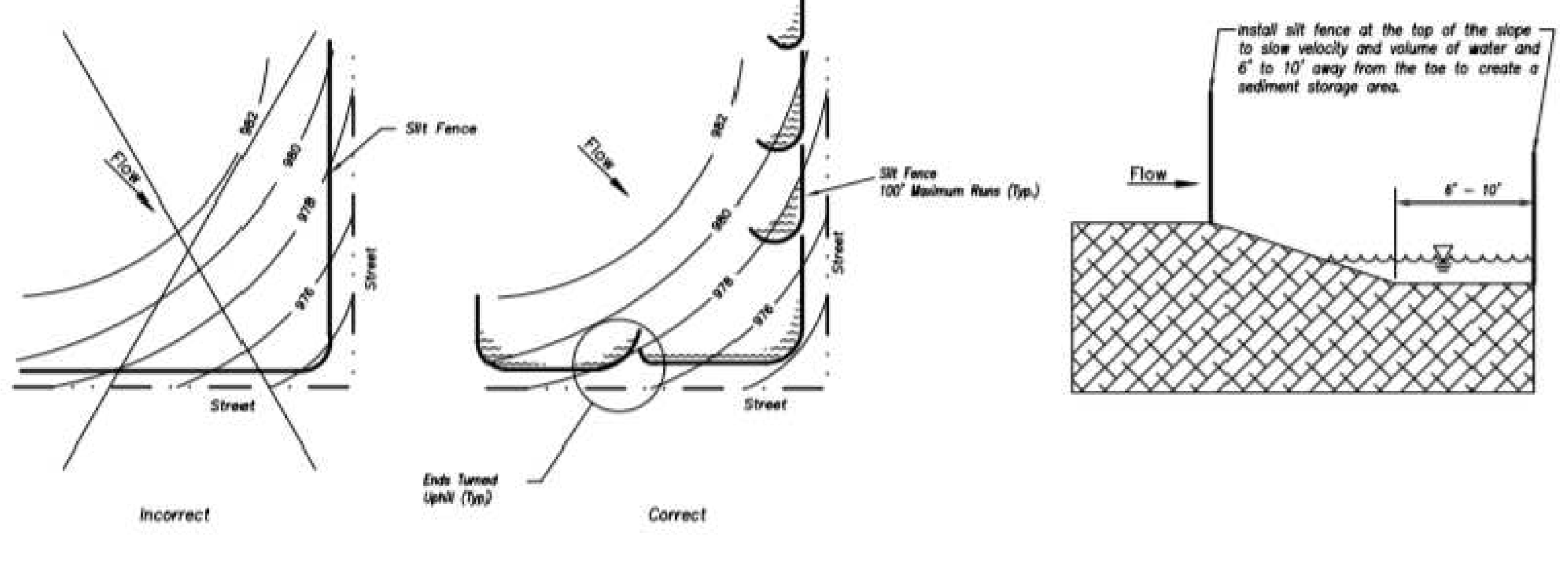
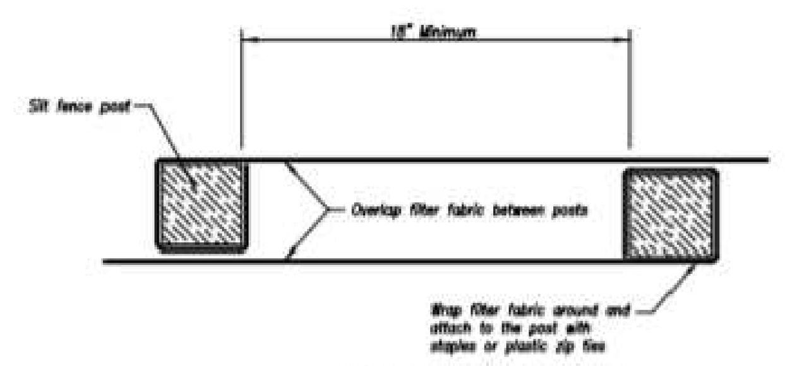


Figure A

SILT FENCE LAYOUT
Not to Scale

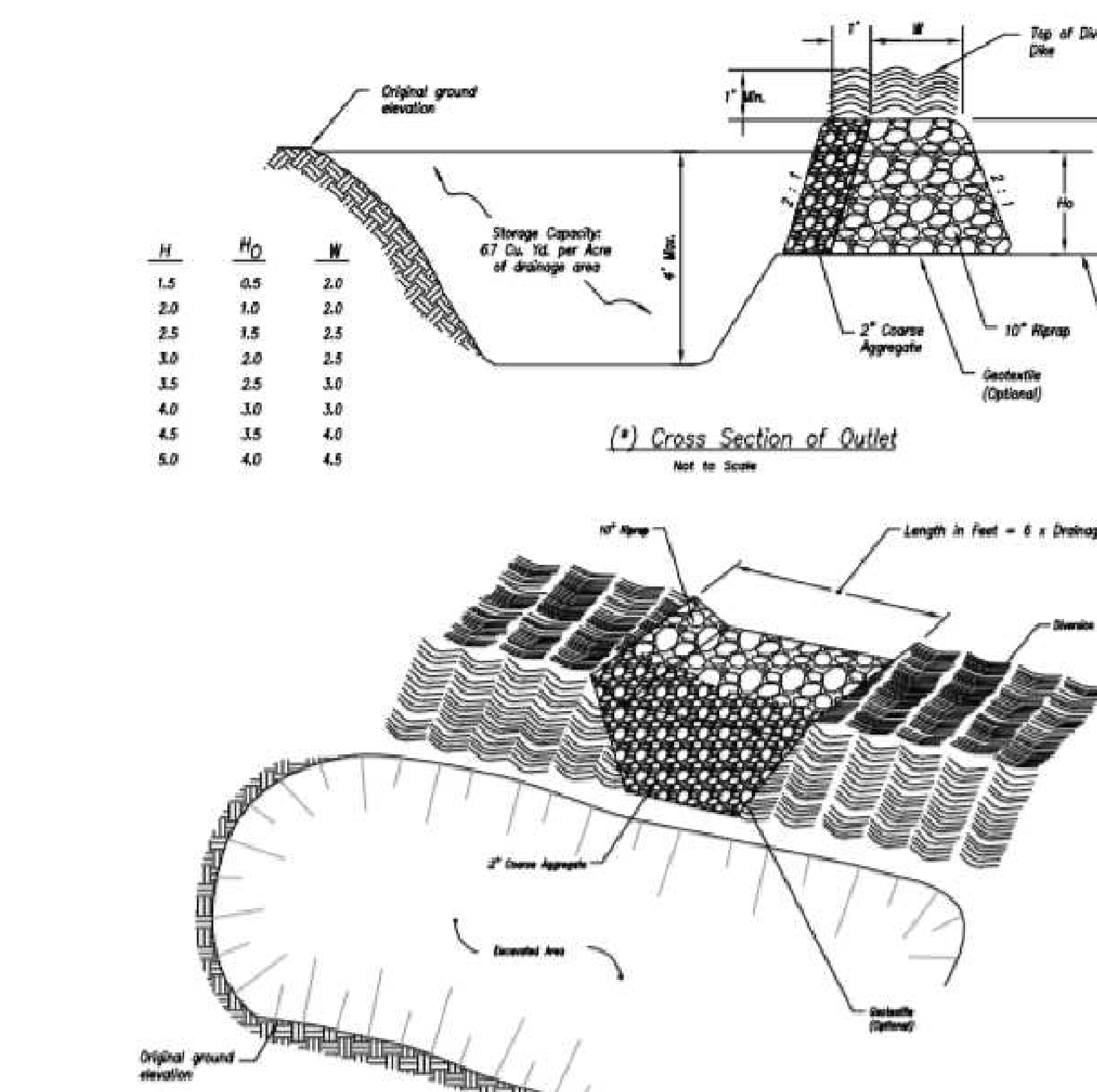


JOINING FENCE SECTIONS
Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
SILT FENCE
STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016

H	H_O	W
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5



(*) Cross Section of Outlet
Not to Scale

(*) Perspective View of Outlet
Not to Scale

(*) - The perspective view and cross section are schematic in nature. Construction plans must provide specific site construction arrangements.

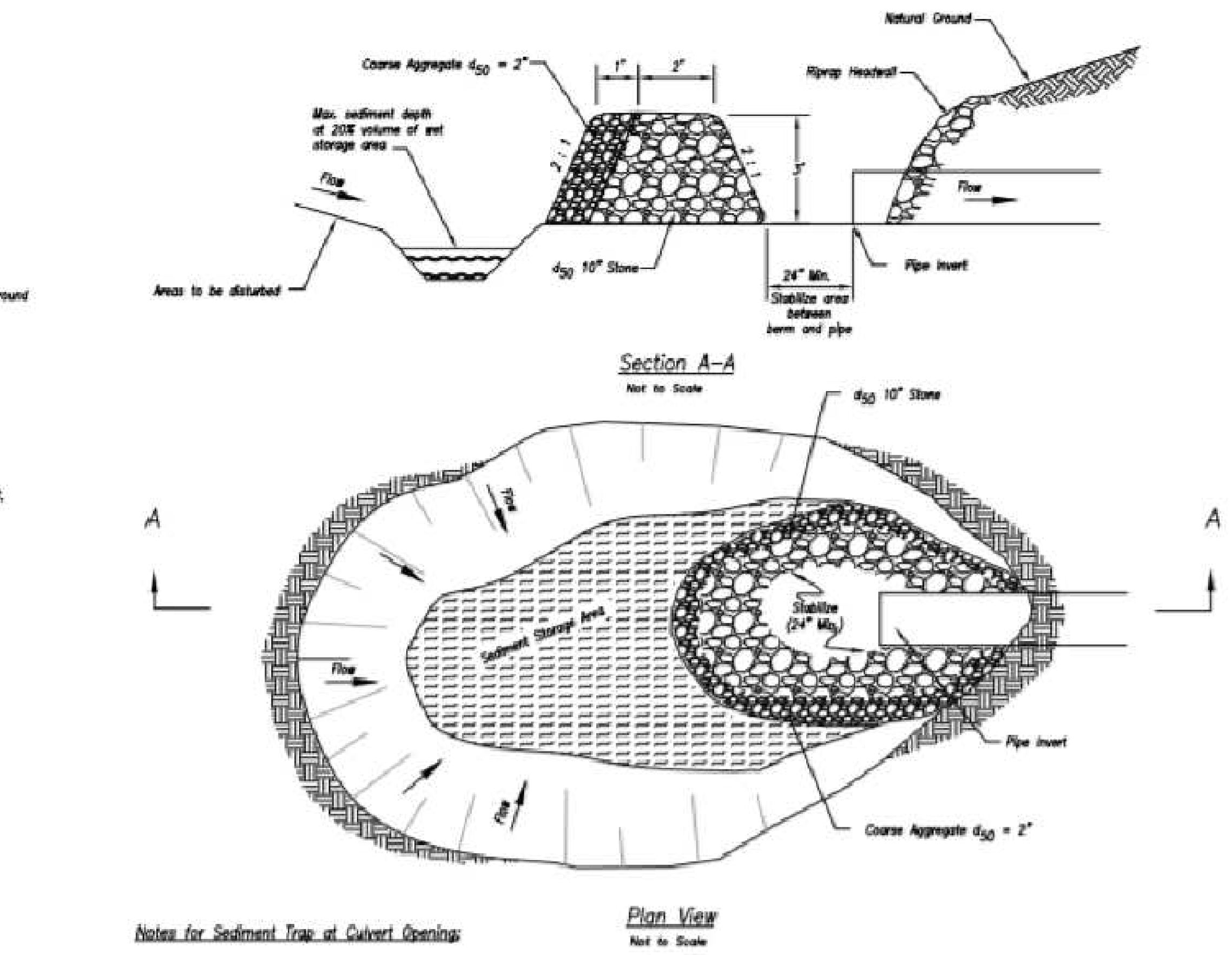
Notes for Sediment Trap:

1. The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and root mat.
2. Fill material for the embankment shall be free of roots or other woody vegetation, organic material, large stones, and other objectionable material. The embankment should be compacted in 6-inch layers by traversing with construction equipment.
3. The earthen embankment shall be stabilized immediately after installation.
4. Construction operations shall be carried out to minimize erosion and water pollution.
5. The structure shall be removed and the area stabilized when the upslope drainage area has been stabilized.
6. All cut and fill slopes shall be 2H : 1V or flatter, except for excavated, wet storage areas which may be at a maximum 1H : 1V grade.

Maintenance for Sediment Trap:

1. Check sediment traps after periods of significant runoff.
2. Remove sediment and restore the trap to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlet.
4. Keep outlet and pool area free of all trash and other debris.

SEDIMENT TRAP



Section A-A
Not to Scale

Plan View
Not to Scale

Notes for Sediment Trap at Culvert Opening:

1. The inlet protection device shall be constructed in a manner that will facilitate clean-out and disposal of trapped sediment and minimize interference with construction activities.
2. The inlet protection devices shall be constructed in such manner that any resultant ponding stormwater will not cause excessive inconvenience or damage to adjacent areas or structures.
3. Geometry of the design will be a horseshoe shape around the culvert inlet.
4. The toe of the riprap shall be no closer than 24" from the culvert opening to provide an acceptable emergency outlet for flows from larger storm events.
5. Storage requirements equivalent to that of temporary sediment trap.
6. 67 C.Y./Acre wet storage below base of stone.
7. 67 C.Y./Acre dry storage from base of stone to top of stone berm.

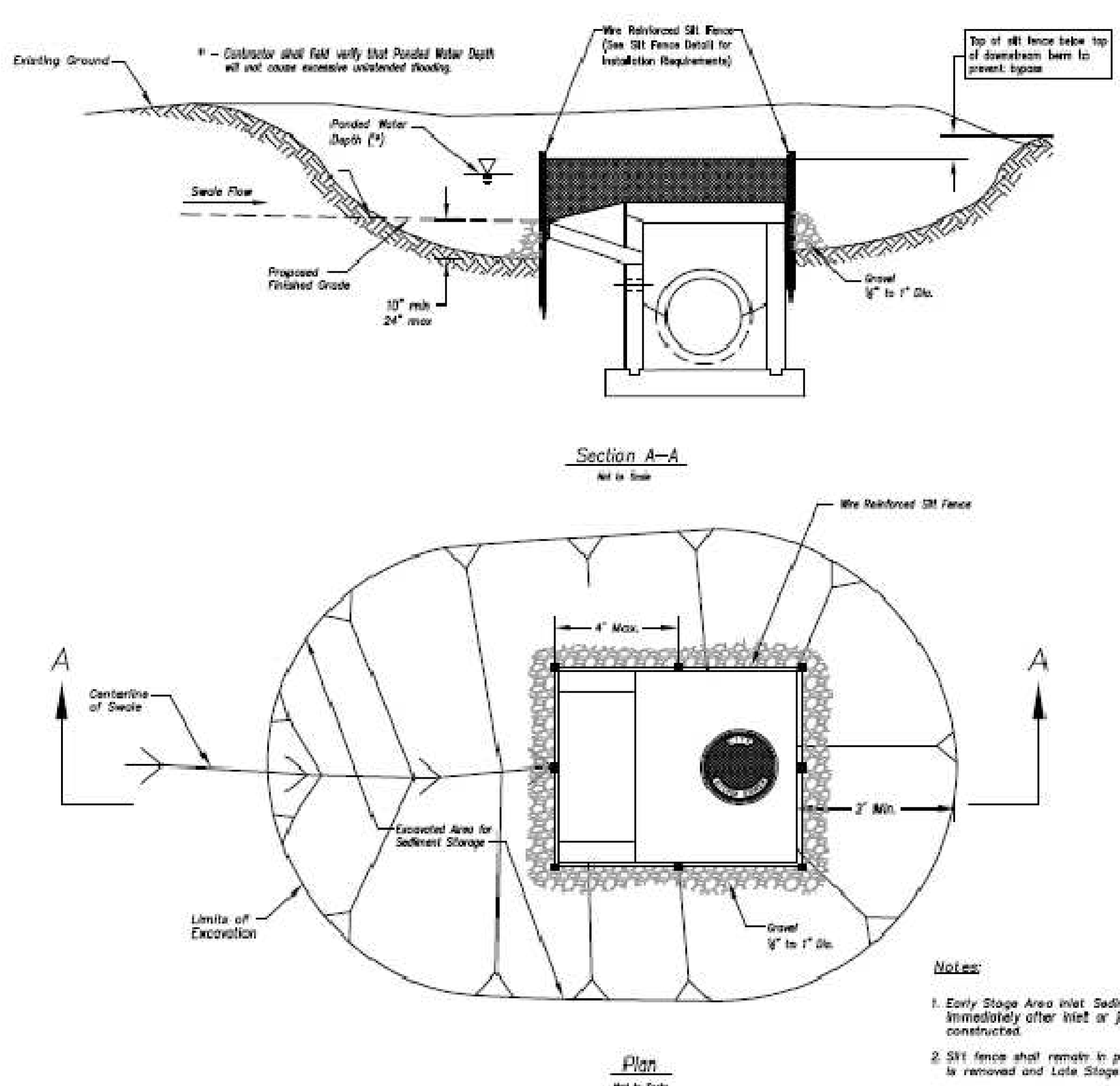
Maintenance for Sediment Trap at Culvert Opening:

1. Check sediment traps after periods of significant runoff.
2. Remove sediment and restore the trap to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlet.
4. Keep outlet and pool area free of all trash and other debris.

SEDIMENT TRAP AT CULVERT OPENING

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
SEDIMENT TRAPS
STANDARD DRAWING NUMBER ESC-08
ADOPTED: 10/24/2016



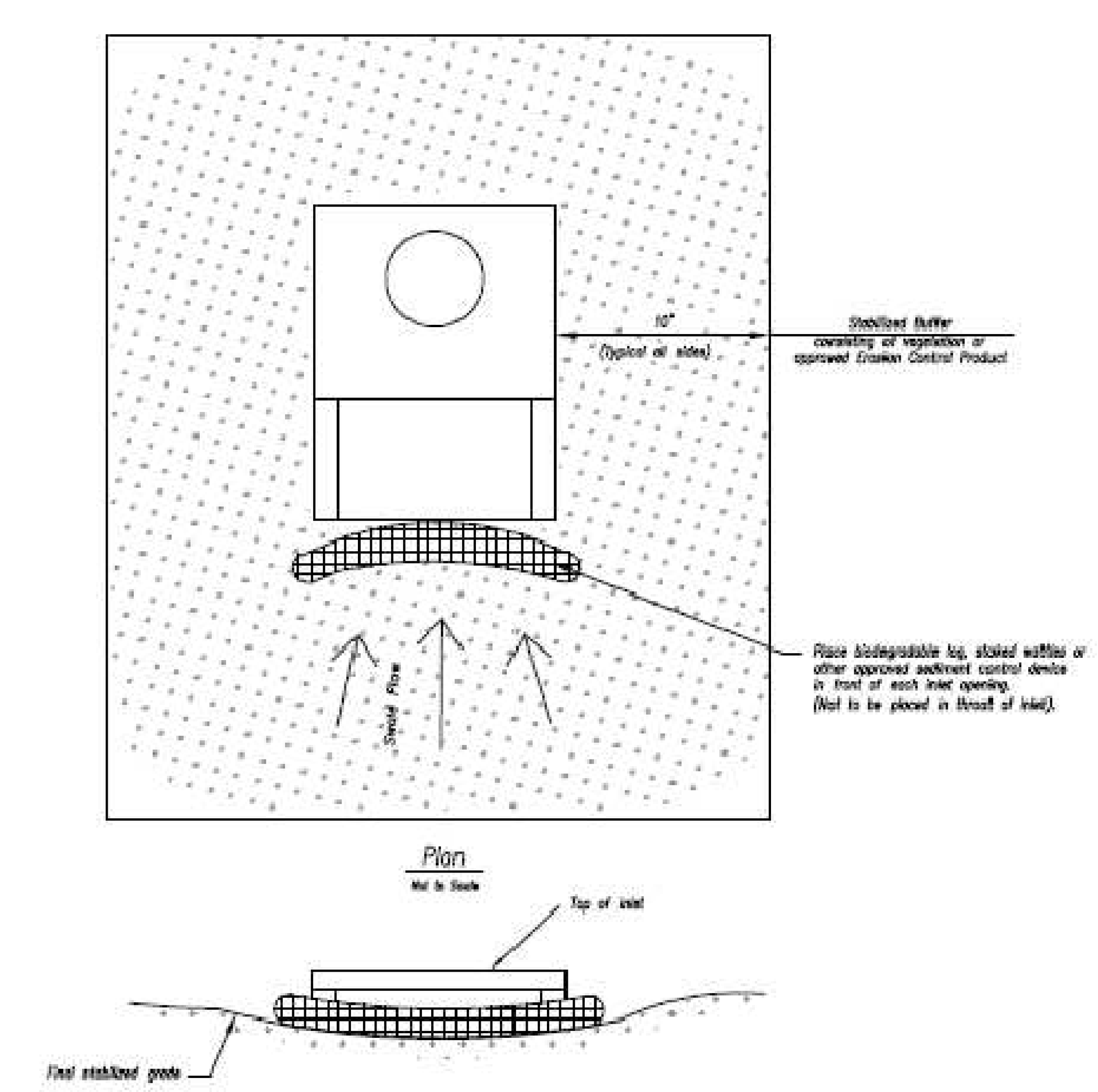
Section A-A
Not to Scale

Plan
Not to Scale

EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.



Plan
Not to Scale

Front View

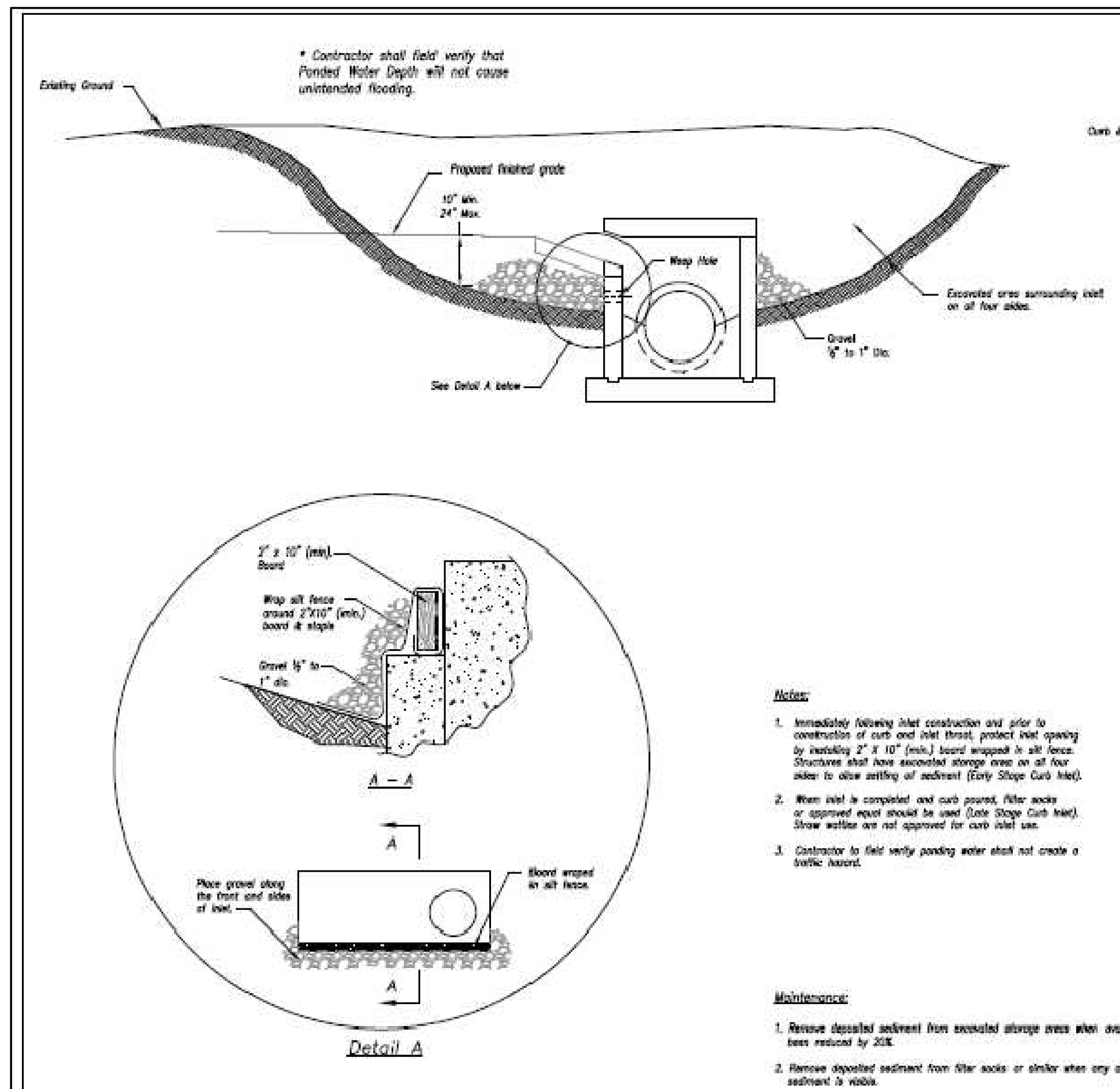
LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION
STANDARD DRAWING NUMBER ESC-07
ADOPTED: 10/24/2016



Detail A

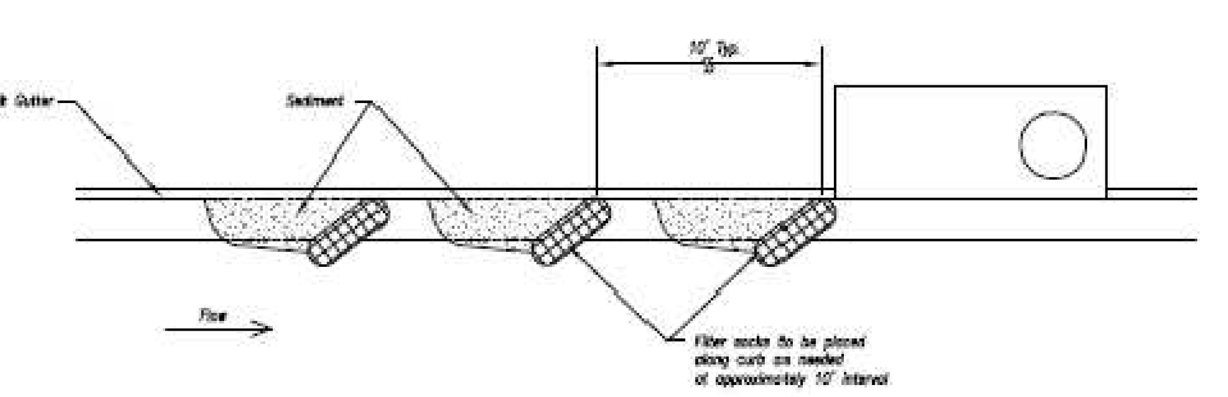
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

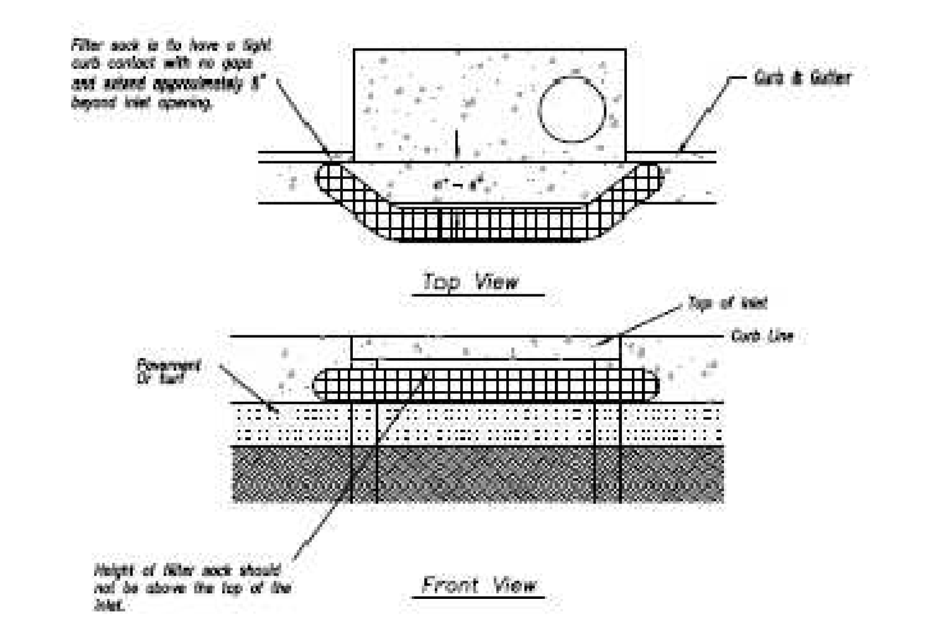
1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



On Grade Curb Inlet Protection



Top View

Front View

Sump Inlet Sediment Filter

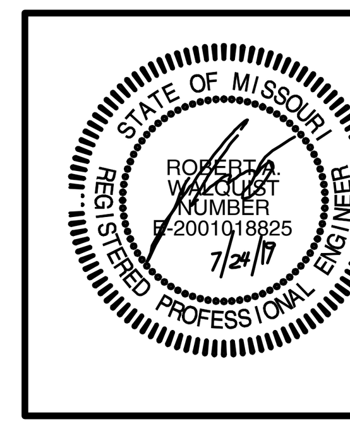
LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION
STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016

⚠1 UPDATED DETAILS

SITE ESC DETAILS



I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Quist Engineering, Inc
Civil Engineering for Residential & Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 550-5675
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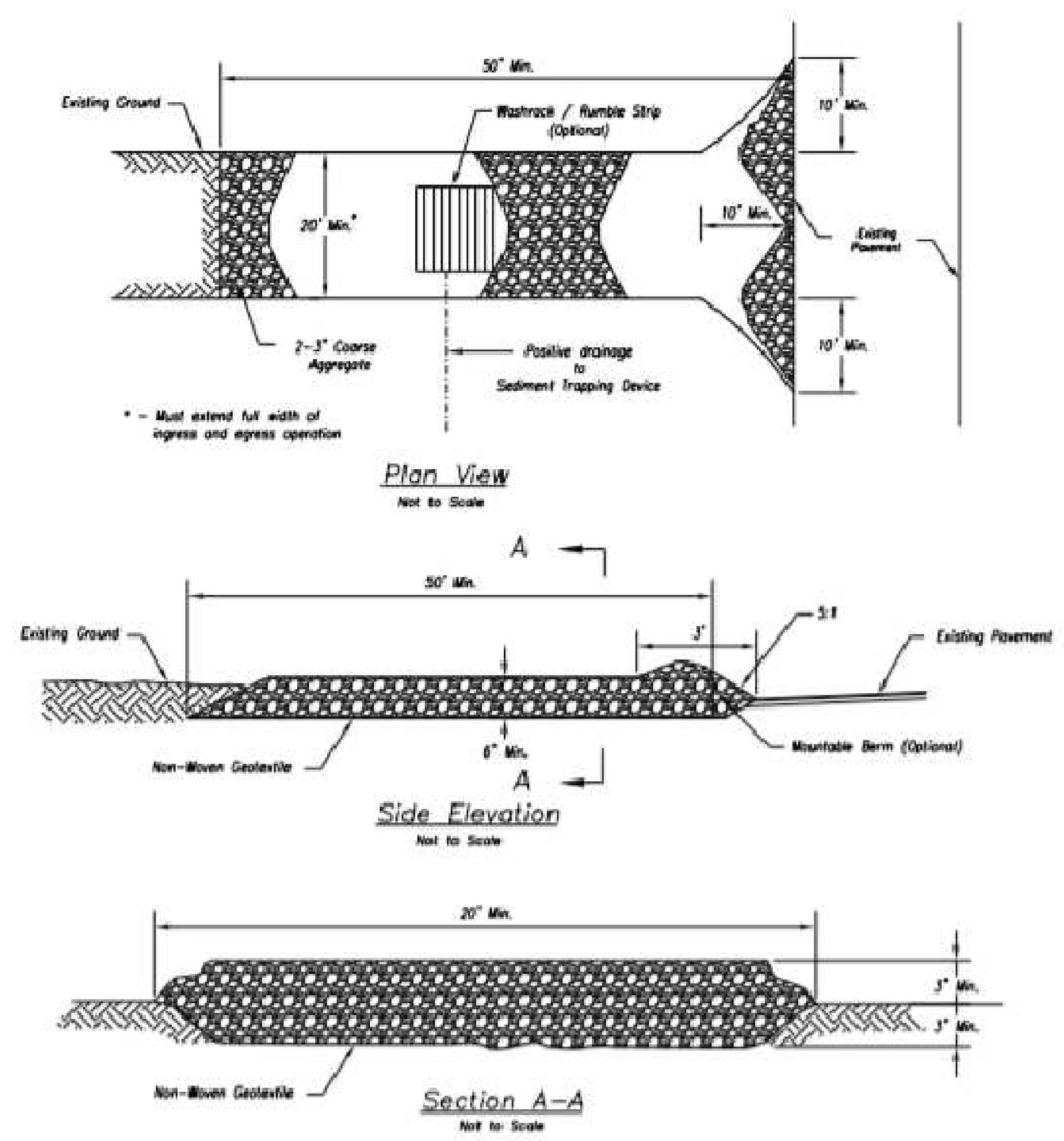


Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

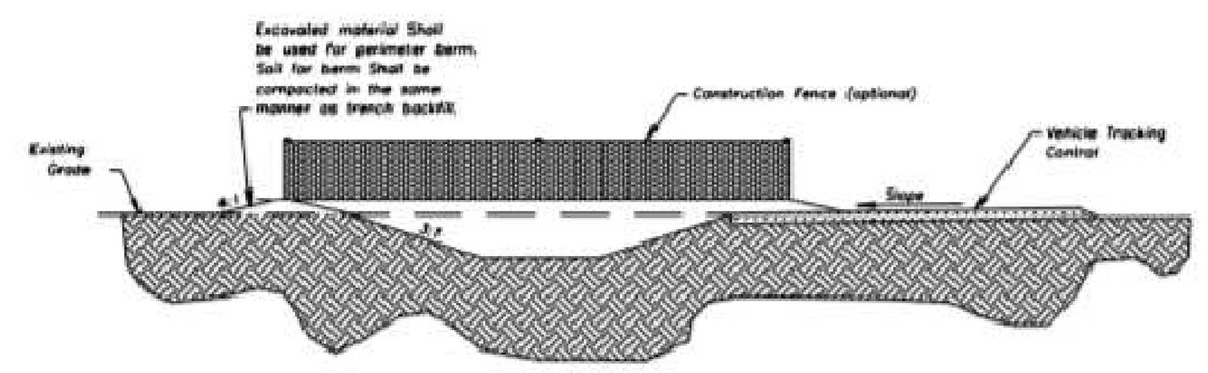
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

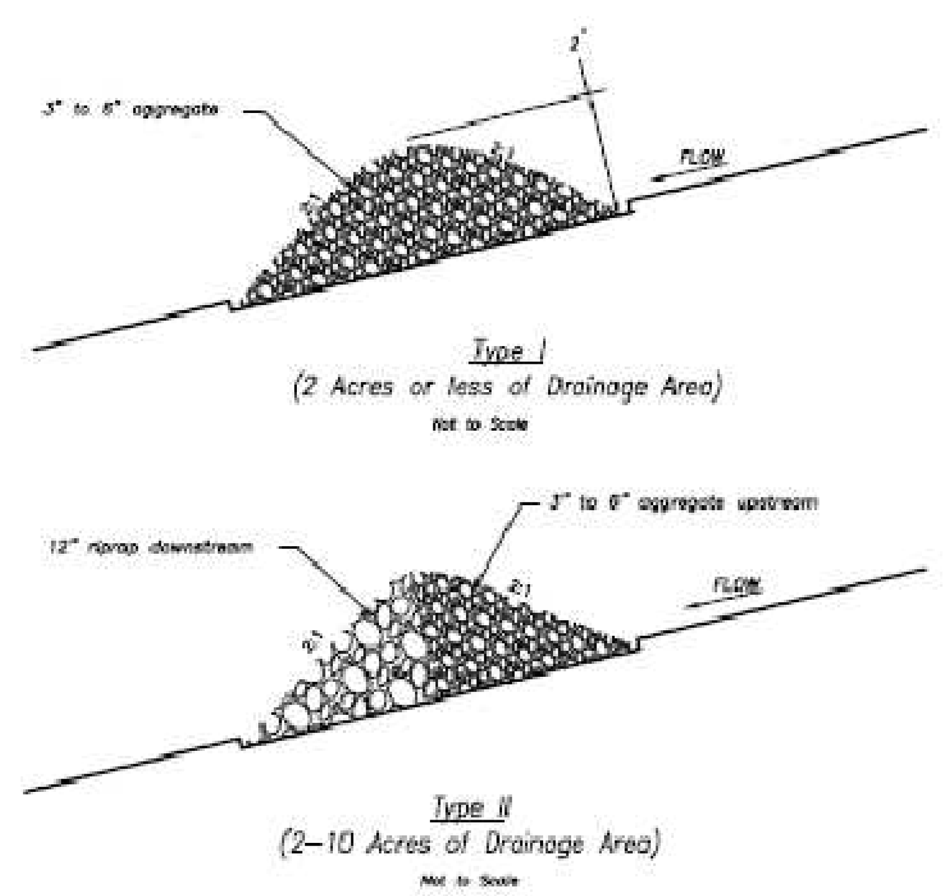
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

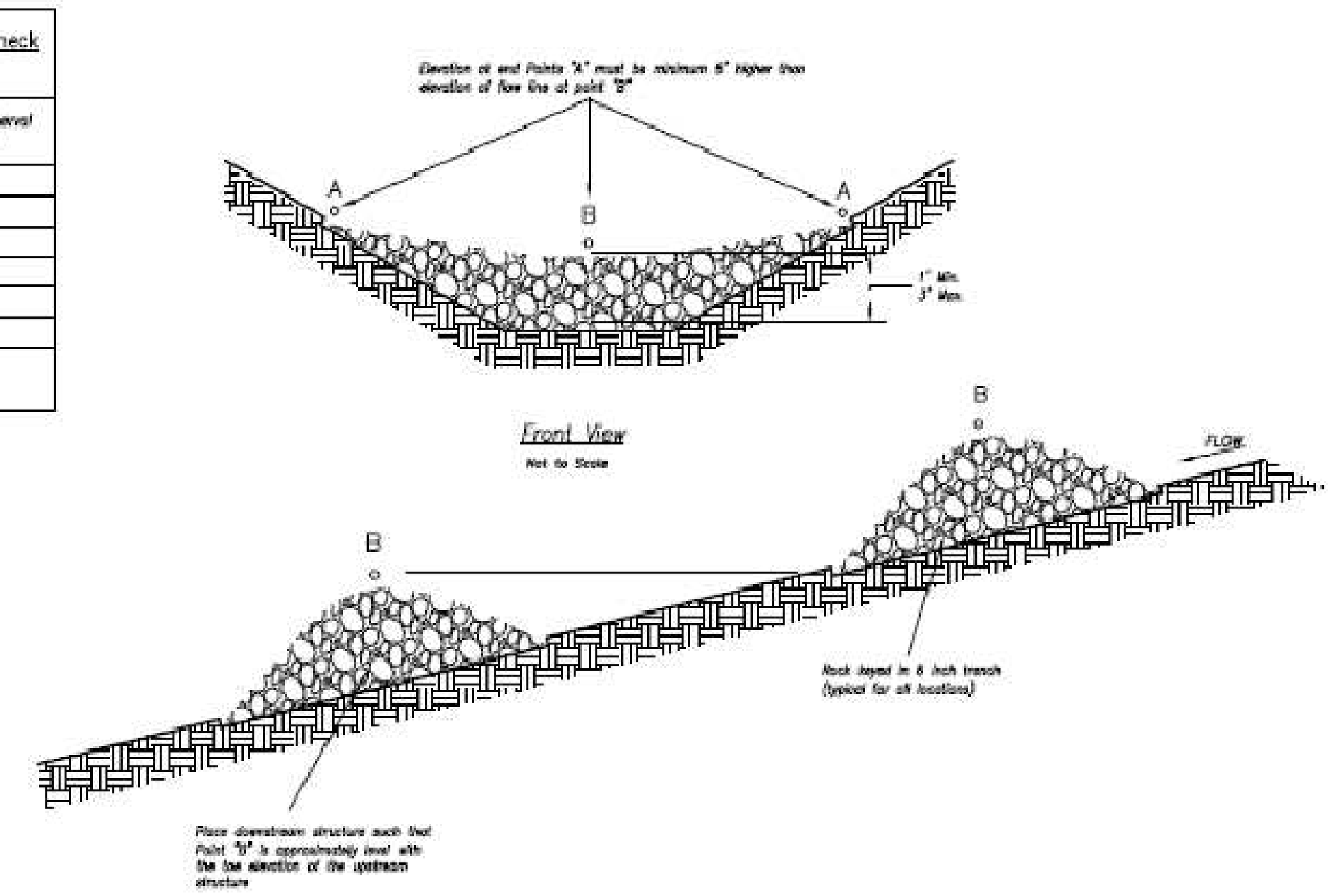
AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT
STANDARD DRAWING NUMBER ESC-01
ADOPTED: 10/24/2016



ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

Note: Use this spacing only for Rock Ditch Checks.



Notes:

1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS
STANDARD DRAWING NUMBER ESC-10
ADOPTED: 10/24/2016

UPDATED DETAILS

SITE ESC DETAILS

I-470 LOT 13A
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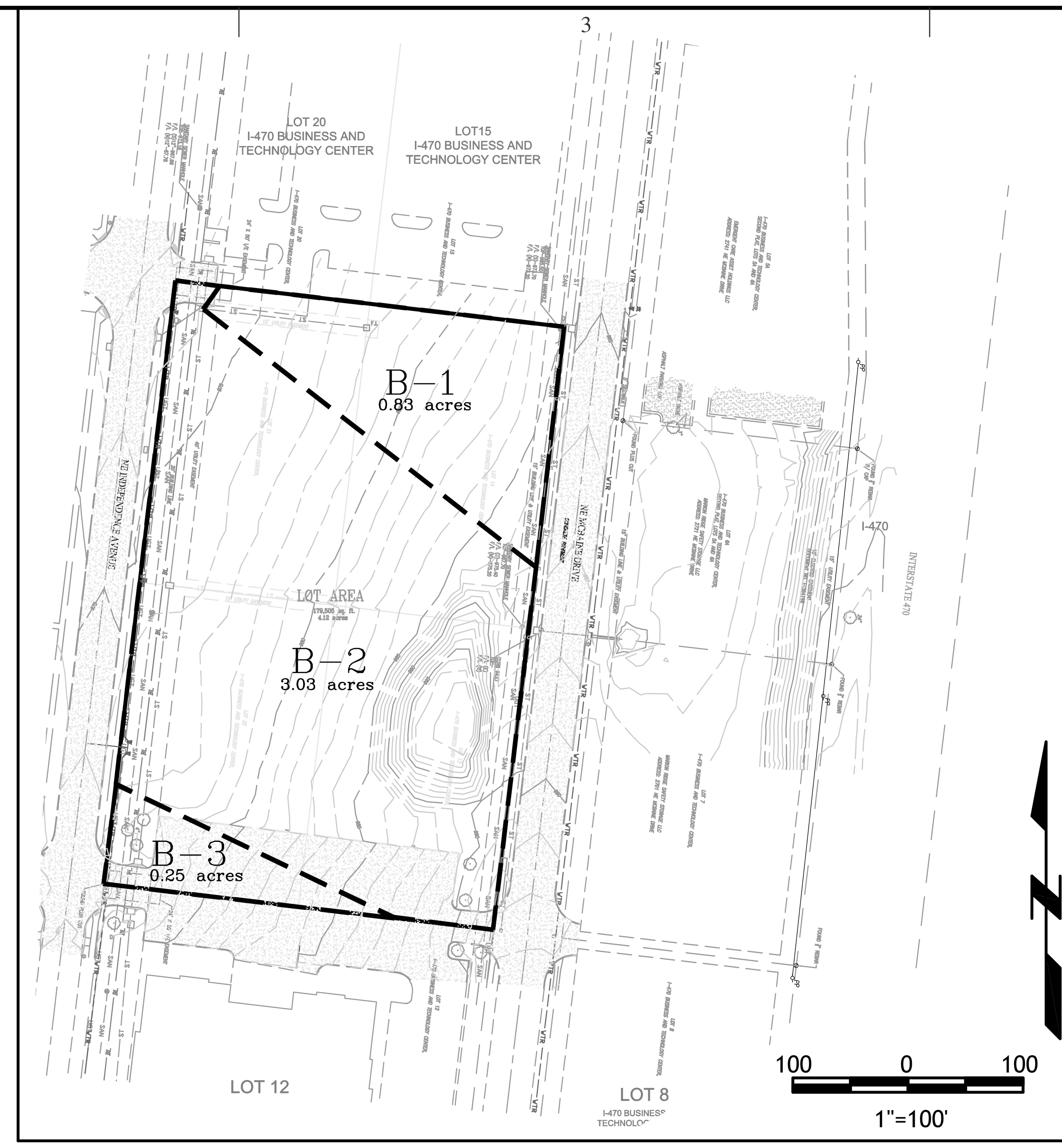
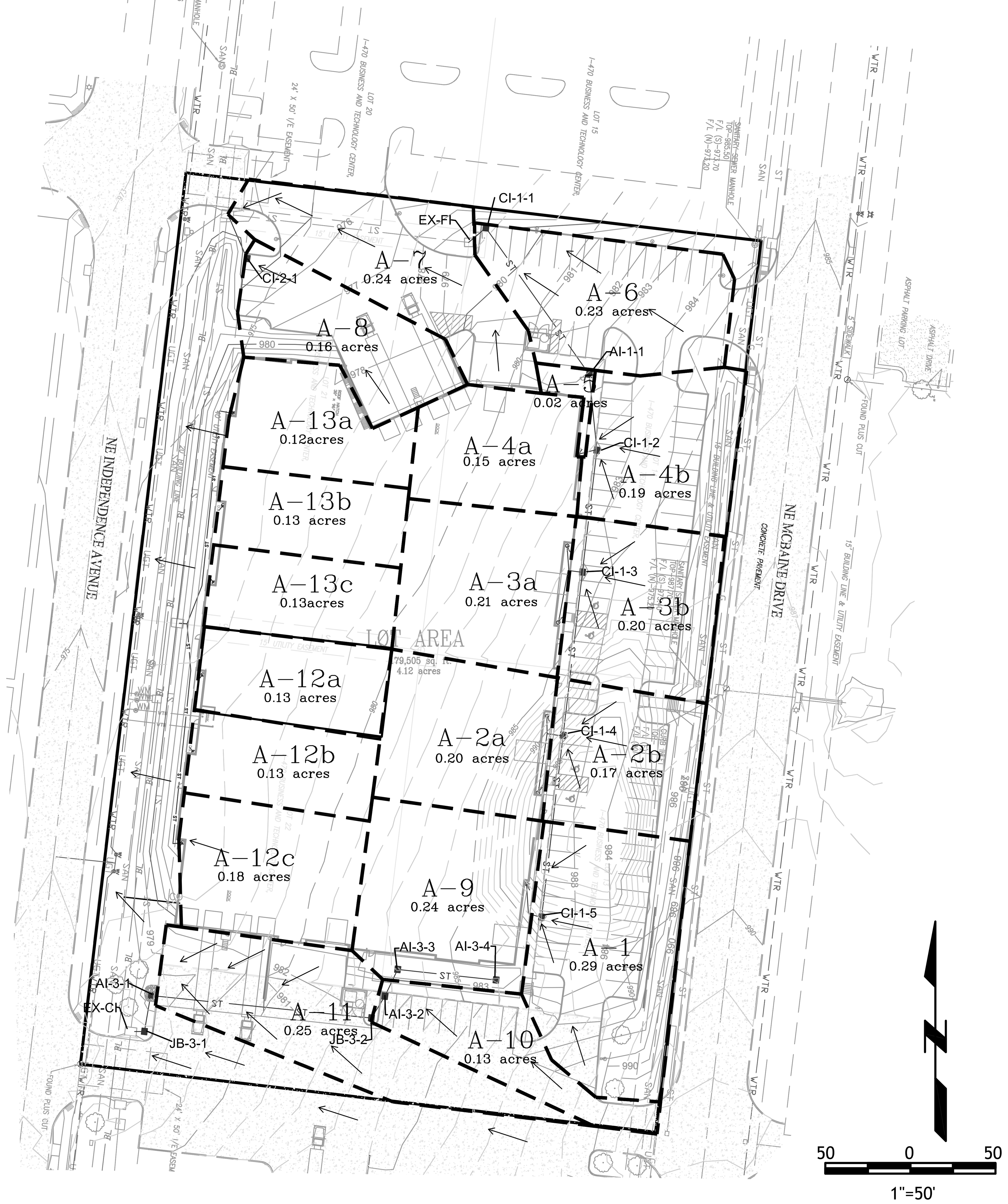


PRE-DEVELOPMENT



POST-DEVELOPMENT

STORM SEWER CALCULATIONS TABLE

Sewer Location			Drainage Area to Inlet			Time of Flow	Rainfall Runoff Flow											Elevation			Sewer Characteristics								Velocity stats	
Line	From	To	Designation	Area	Coef	TC	I100 Intensity	I25 Intensity	I10 Intensity	Inlet 100yr K*I*C*A	Inlet 25yr K*I*C*A	Inlet 10yr K*I*C*A	Additional Flow Lines	Additional cfs	In-pipe 100yr K*I*ΣC*A	In-pipe 25yr K*I*ΣC*A	In-pipe 10yr K*I*ΣC*A	Inlet	Top elevation	Coverage	Pipe Size (in)	FLin	Flout	segment length	slope	pipe area	Pipe Capacity (cfs)	100yr overflow	V 10ys	V 100 yr
LINE 1	CI-1-5	CI-1-4	A-1, A-9	0.49	0.60	5.00	10.32	8.53	7.35	3.79	2.76	2.16			3.79	2.76	2.16	CI-1-5	982.00	1.00	12.00	980.00	979.00	107.54	0.93	0.79	3.43	YES	2.75	4.83
	CI-1-4	CI-1-3	A-2b, A-2a	0.37	0.60	5.00	10.32	8.53	7.35	2.86	2.08	1.63			6.66	4.84	3.79	CI-1-4	982.70	2.45	15.00	979.00	978.00	96.62	1.03	1.23	6.57	YES	3.09	5.43
	CI-1-3	CI-1-2	A-3b, A-3a	0.41	0.60	5.00	10.32	8.53	7.35	3.17	2.31	1.81			9.83	7.15	5.60	CI-1-3	982.60	3.10	18.00	978.00	976.50	72.09	2.08	1.77	15.14	NO	3.17	5.57
	CI-1-2	AI-1-1	A-4b, A-4a	0.34	0.60	5.00	10.32	8.53	7.35	2.63	1.91	1.50			12.46	9.06	7.10	CI-1-2	982.70	4.70	18.00	976.50	976.00	44.85	1.11	1.77	11.09	YES	4.02	7.06
	AI-1-1	CI-1-1	A-5	0.02	0.60	5.00	10.32	8.53	7.35	0.15	0.11	0.09			12.62	9.18	7.19	AI-1-1	982.40	4.90	18.00	976.00	975.00	105.32	0.95	1.77	10.23	YES	4.07	7.14
	CI-1-1	EX-FL	A-6	0.23	0.60	5.00	10.32	8.53	7.35	1.78	1.29	1.01			14.40	10.47	8.21	CI-1-1	979.40	2.90	18.00	975.00	974.00	13.32	7.51	1.77	28.77	NO	4.65	8.15
LINE 2	AI-2-4	AI-2-3	A-9b	0.04	0.60	10.00	8.59	7.05	6.08	0.26	0.19	0.15			0.26	0.19	0.15	AI-2-4	982.00	2.00	12.00	979.00	978.00	58.14	1.72	0.79	4.67	NO	0.19	0.33
	AI-2-3	AI-2-2	N/A	0.00	0.60	5.00	10.32	8.53	7.35	0.00	0.00	0.00			0.26	0.19	0.15	AI-2-3	982.33	3.33	12.00	978.00	977.50	17.45	2.87	0.79	6.03	NO	0.19	0.33
	AI-2-2	JB-2-2	A-10	0.13	0.60	5.00	10.32	8.53	7.35	1.01	0.73	0.57			1.26	0.92	0.72	AI-2-2	982.29	3.79	12.00	977.50	977.00	15.09	3.31	0.79	6.48	NO	0.92	1.61
	JB-2-2	AI-2-1	N/A	0.00	0.60	5.00	10.32	8.53	7.35	0.00	0.00	0.00			1.26	0.92	0.72	JB-2-2	983.20	5.20	12.00	977.00	973.00	130.39	3.07	0.79	6.24	NO	0.92	1.61
	AI-2-1	JB-2-1	A-11	0.25	0.60	5.00	10.32	8.53	7.35	1.94	1.41	1.10			3.20	2.33	1.82	AI-2-1	977.40	3.40	12.00	973.00	972.50	21.42	2.33	0.79	5.44	NO	2.32	4.08
	JB-2-1	EX-CI	N/A	0.00	0.60	5.00	10.32	8.53	7.35	0.00	0.00	0.00			3.20	2.33	1.82	JB-2-1	978.00	4.50	12.00	972.50	972.00	5.72	8.74	0.79	10.53	NO	2.32	4.08
LINE 3	CI-3-1	EX-CI	A-8	0.16	0.85	7.00	9.55	7.87	6.78	1.62	1.18	0.92			1.62	1.18	0.92	CI-3-1	974.50	2.50	12.00	971.00	967.00	111.94	3.57	0.79	6.73	NO	1.18	2.07
LINE 4	END	J-4-2	A-13a,	0.12	0.60	5.00	10.32	8.53	7.35	0.93	0.68	0.53			0.93	0.68	0.53	END	982.00	3.33	8.00	978.00	977.20	61.89	1.29	0.35	1.37	NO	1.52	2.66
	J-4-2	J-4-1	A-13b, A-13c	0.26	0.60	5.00	10.32	8.53	7.35	2.01	1.46	1.15			2.94	2.14	1.68	J-4-2	982.00	3.80	12.00	977.20	976.55	78.45	0.83	0.79	3.24	NO	2.14	3.75
	J-4-1	EX-FI	N/A		0.60	5.00	10.32	8.53	7.35	0.00	0.00	0.00	LINE 5 25yr	1.46	4.40	3.60	3.14	J-4-1	982.00	4.45	12.00	976.55	976.50	4.63	1.08	0.79	3.70	YES	4.00	5.61
LINE 5	END	J-5-1	A-12c	0.18	0.60	5.00	10.32	8.53	7.35	1.39	1.01	0.79			1.39	1.01	0.79	END	982.00	3.33	8.00	978.00	977.30	59.23	1.18	0.35	1.31	YES	2.28	3.99
	J-5-1	J-4-1	A-12a, A-12b	0.26	0.60	5.00	10.32	8.53	7.35	2.01	1.46	1.15			3.41	2.48	1.94	J-5-1	982.00	3.70	12.00	977.30	976.55	76.04	0.99	0.79	3.54	NO	2.47	4.34

SITE STORM DRAINAGE PLAN AND CALCULATIONS

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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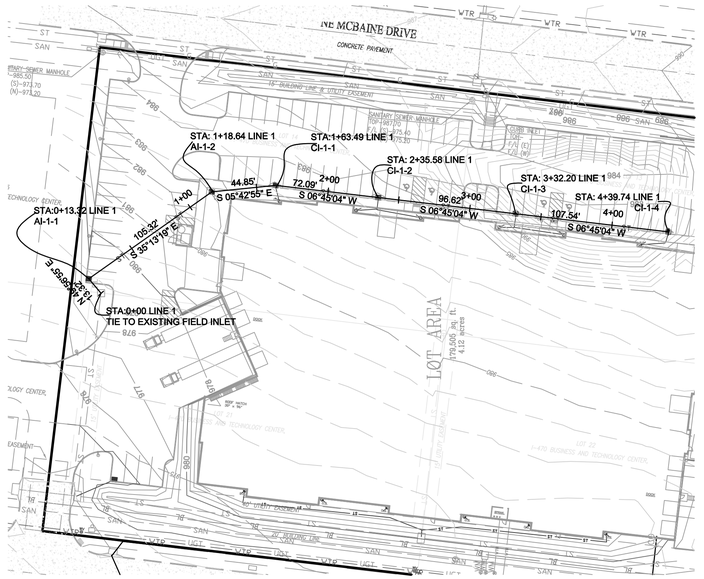

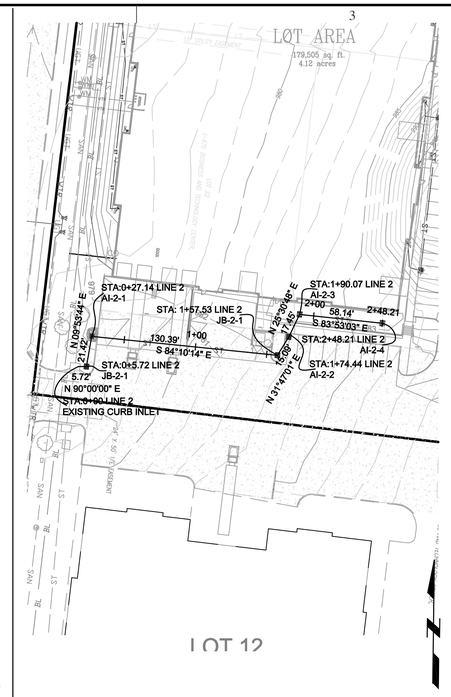

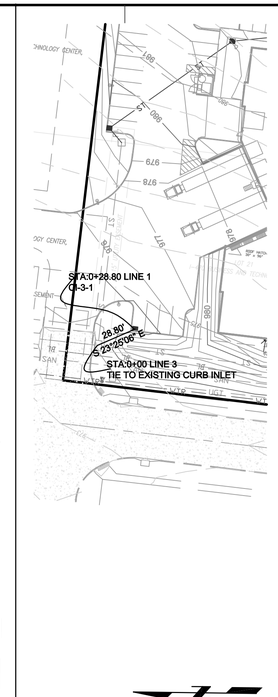

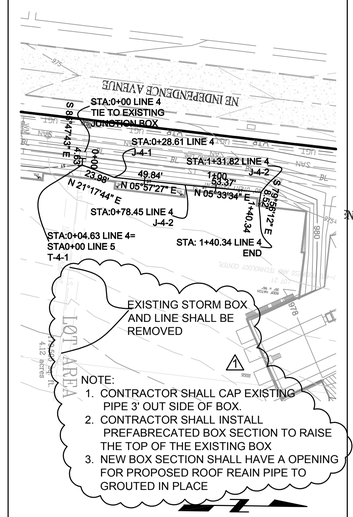

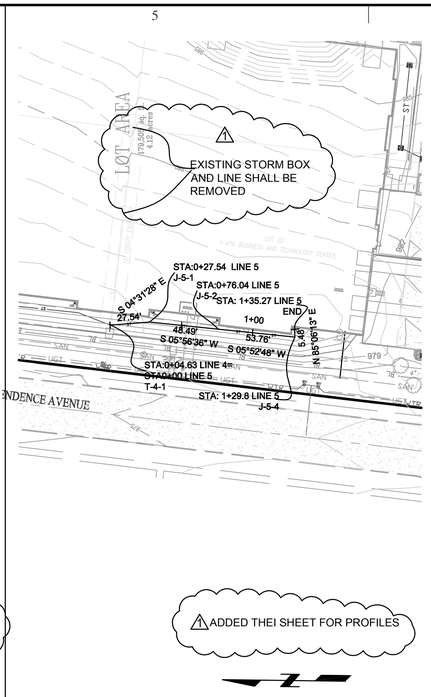

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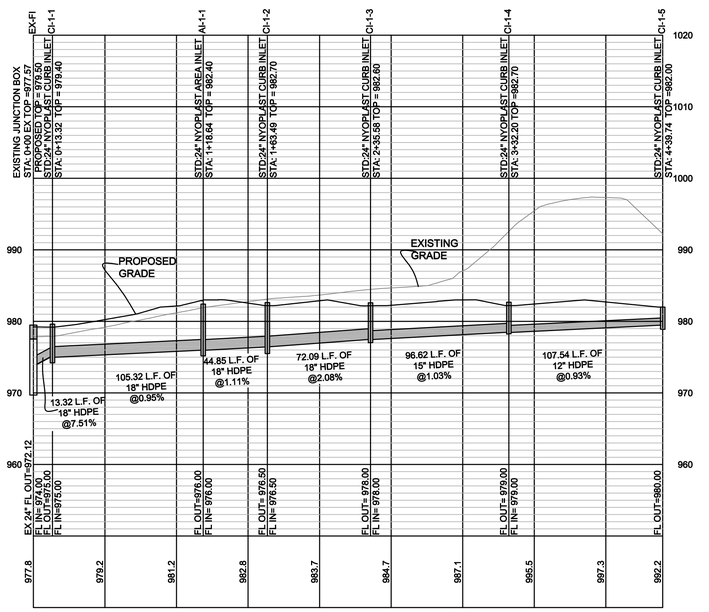
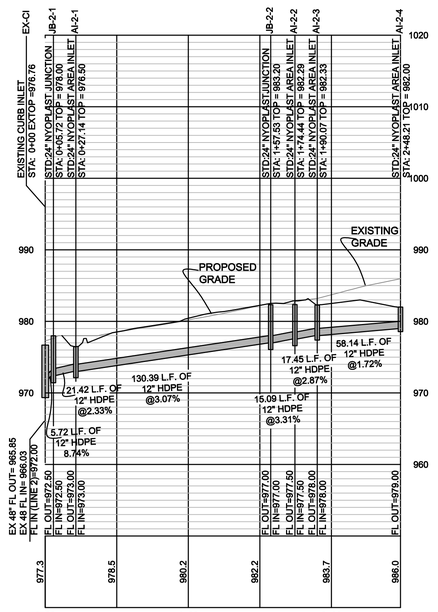
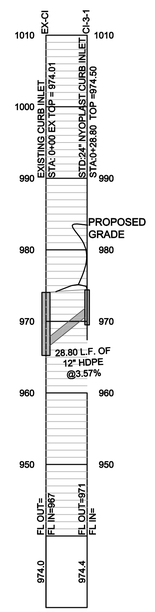
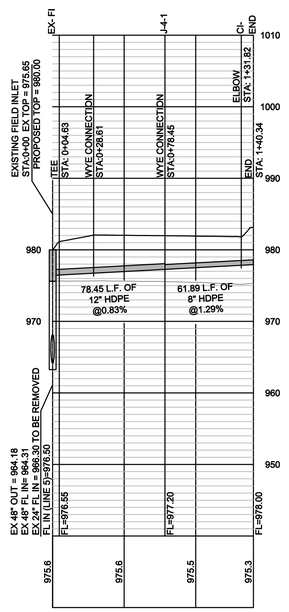
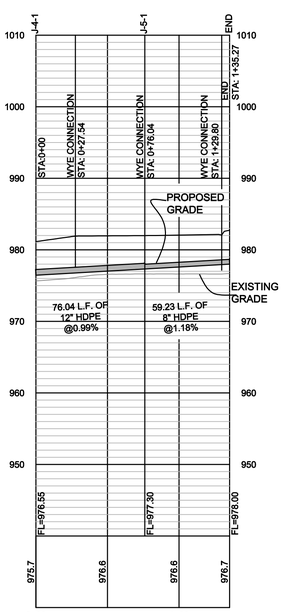
1.











STORM LINES 1 THRU 5

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I-470 LOT 13A
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STATE OF MISSOURI
ROBERT A. WALQUIST
NUMBER
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7/24/19
REGISTERED PROFESSIONAL ENGINEER

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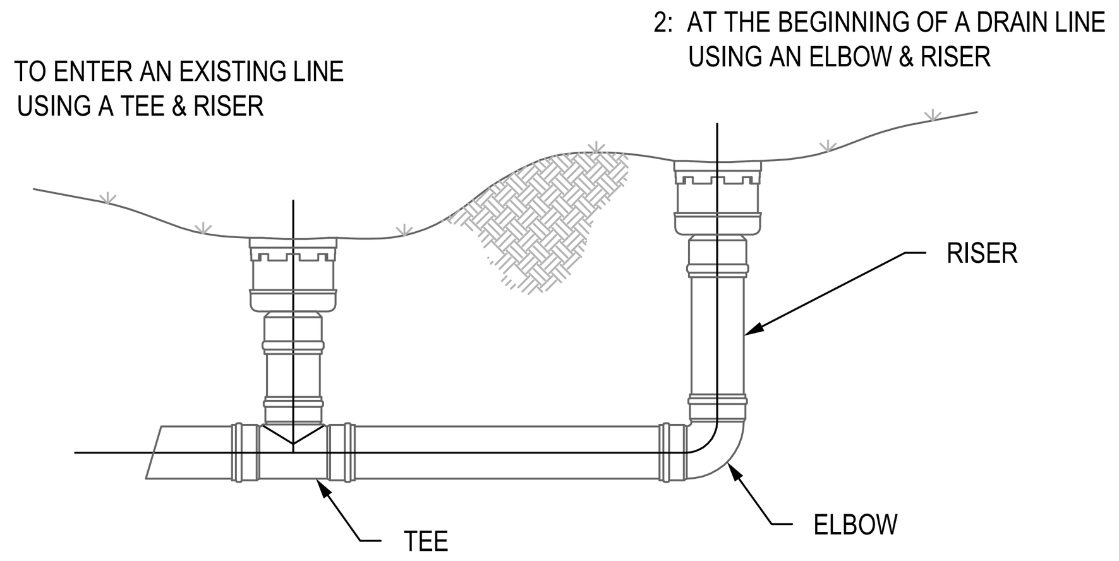
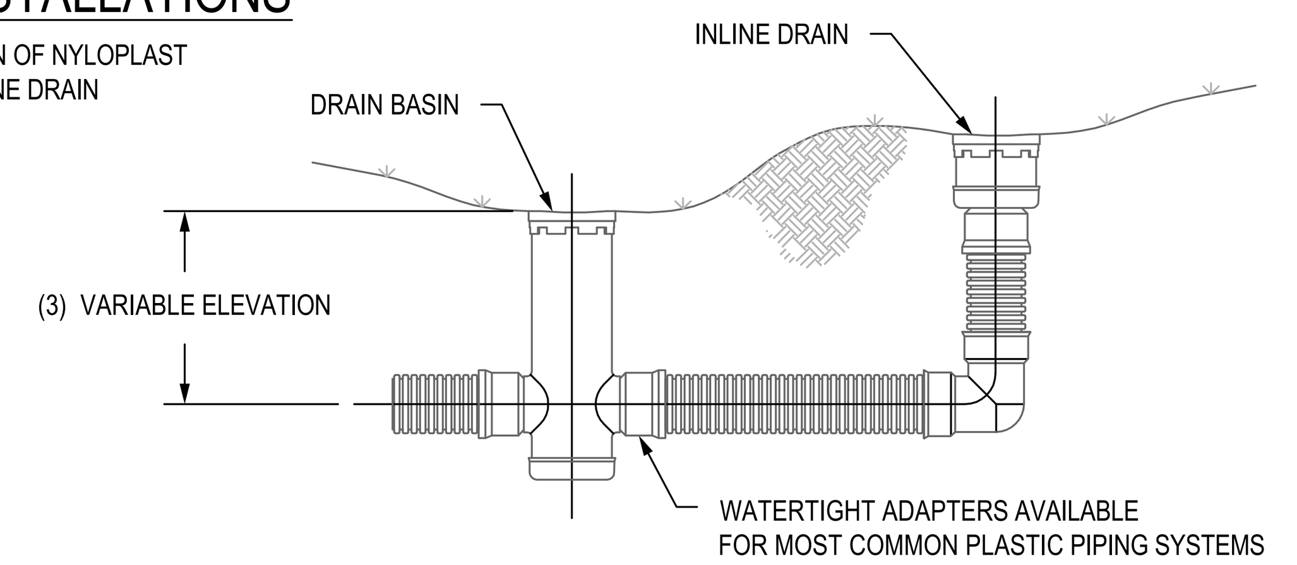
WHEN ARE INLINE DRAINS USED?

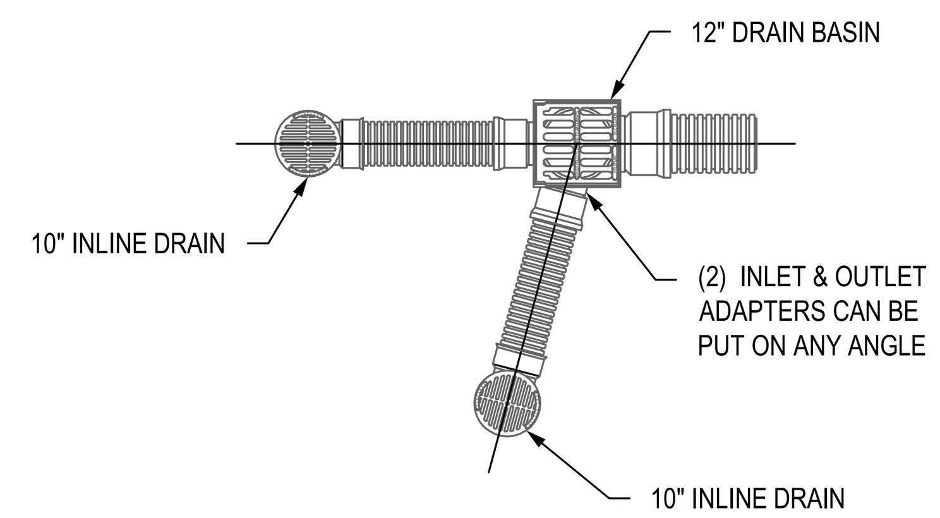
2708AG _ _ X
2710AG _ _ X
2712AG _ _ X
2715AG _ _ X
2718AG _ _ X
2724AG _ _ X
2730AG _ _ X



TYPICAL INSTALLATIONS

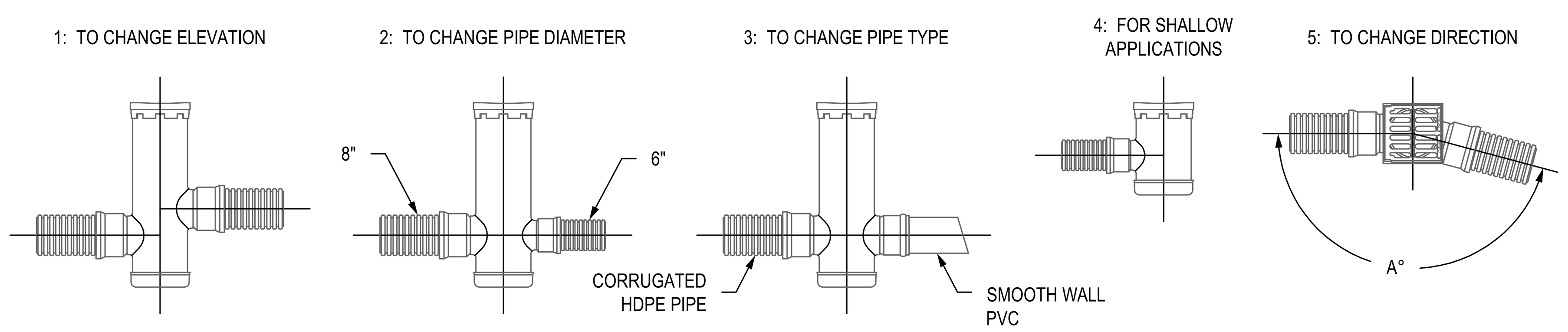
TYPICAL INSTALLATION OF NYLOPLAST
DRAIN BASIN AND INLINE DRAIN





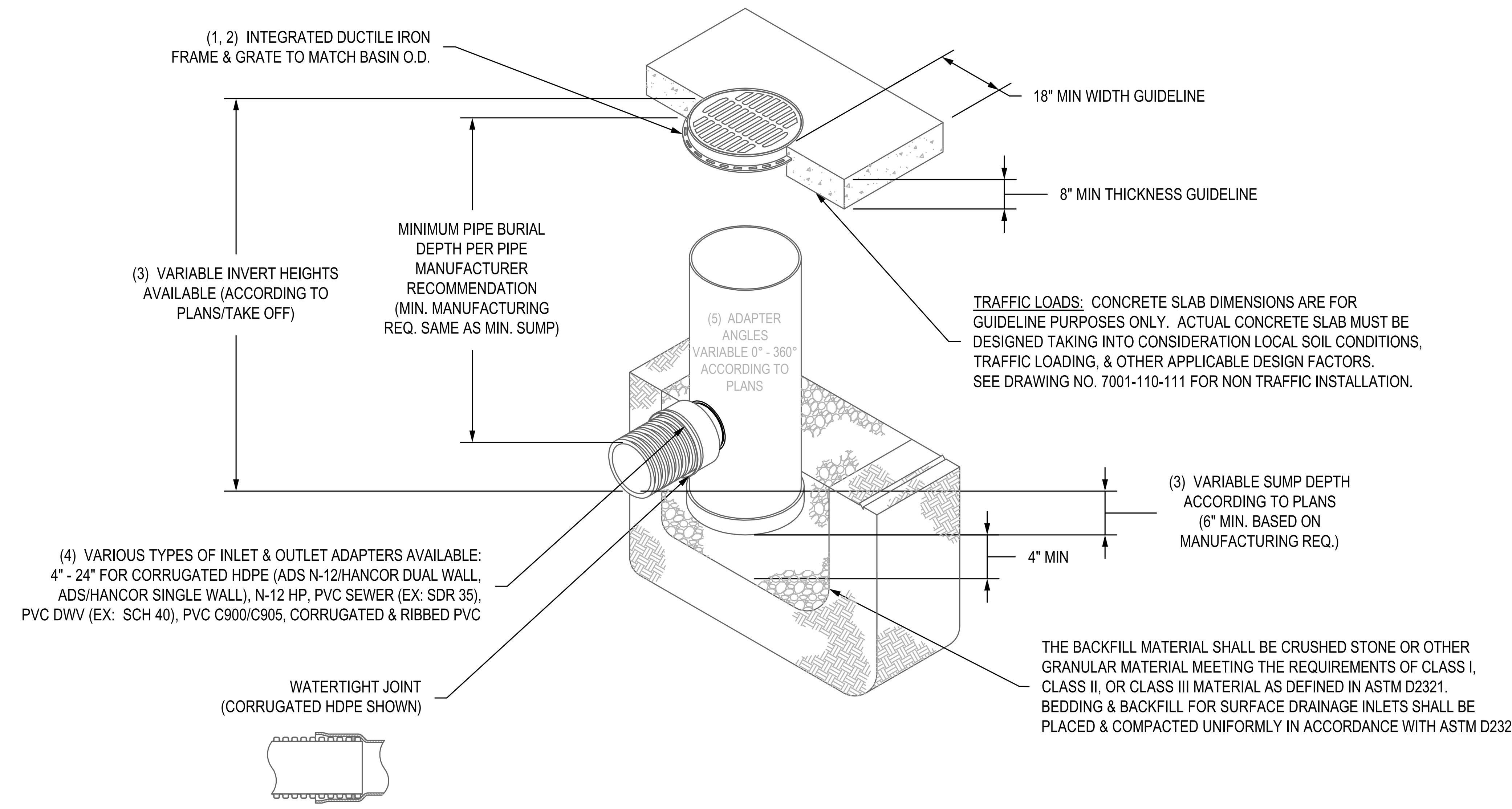
WHEN ARE DRAIN BASINS USED?

2808AG _ _ X
2810AG _ _ X
2812AG _ _ X
2815AG _ _ X
2818AG _ _ X
2824AG _ _ X
2830AG _ _ X
2836AG _ _ X



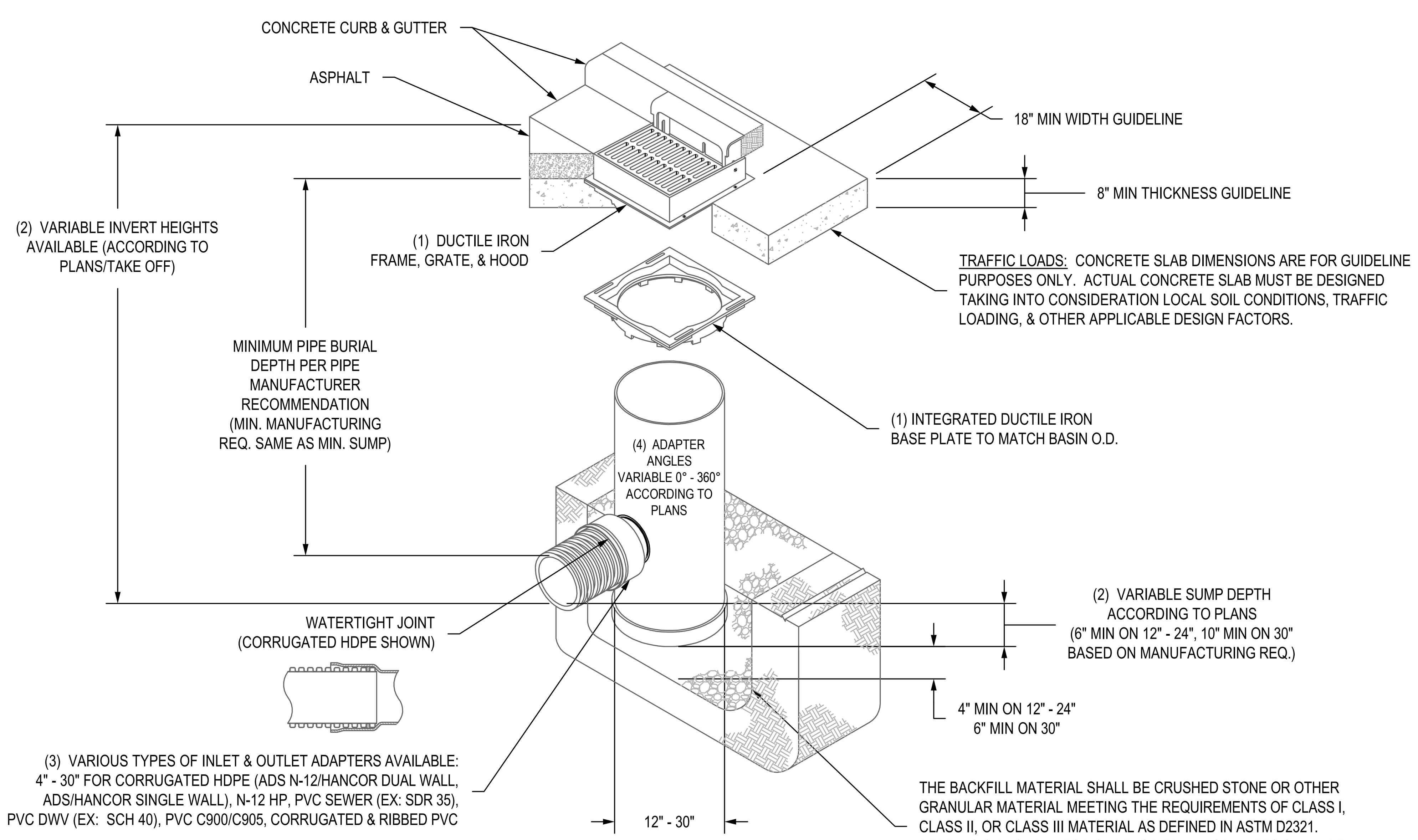
1 - STRUCTURES & ADAPTERS AVAILABLE IN SIZES 8" - 36"
2 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0 ° TO 360°, TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS SEE DRAWING NO. 7001-110-065
4 - REDUCING CONES DOWN TO 30" DIAMETER WILL BE REQUIRED FOR 36" DRAIN BASINS.

NYLOPLAST 24" DRAIN BASIN: 2824AG _ _X



1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
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.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0 ° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

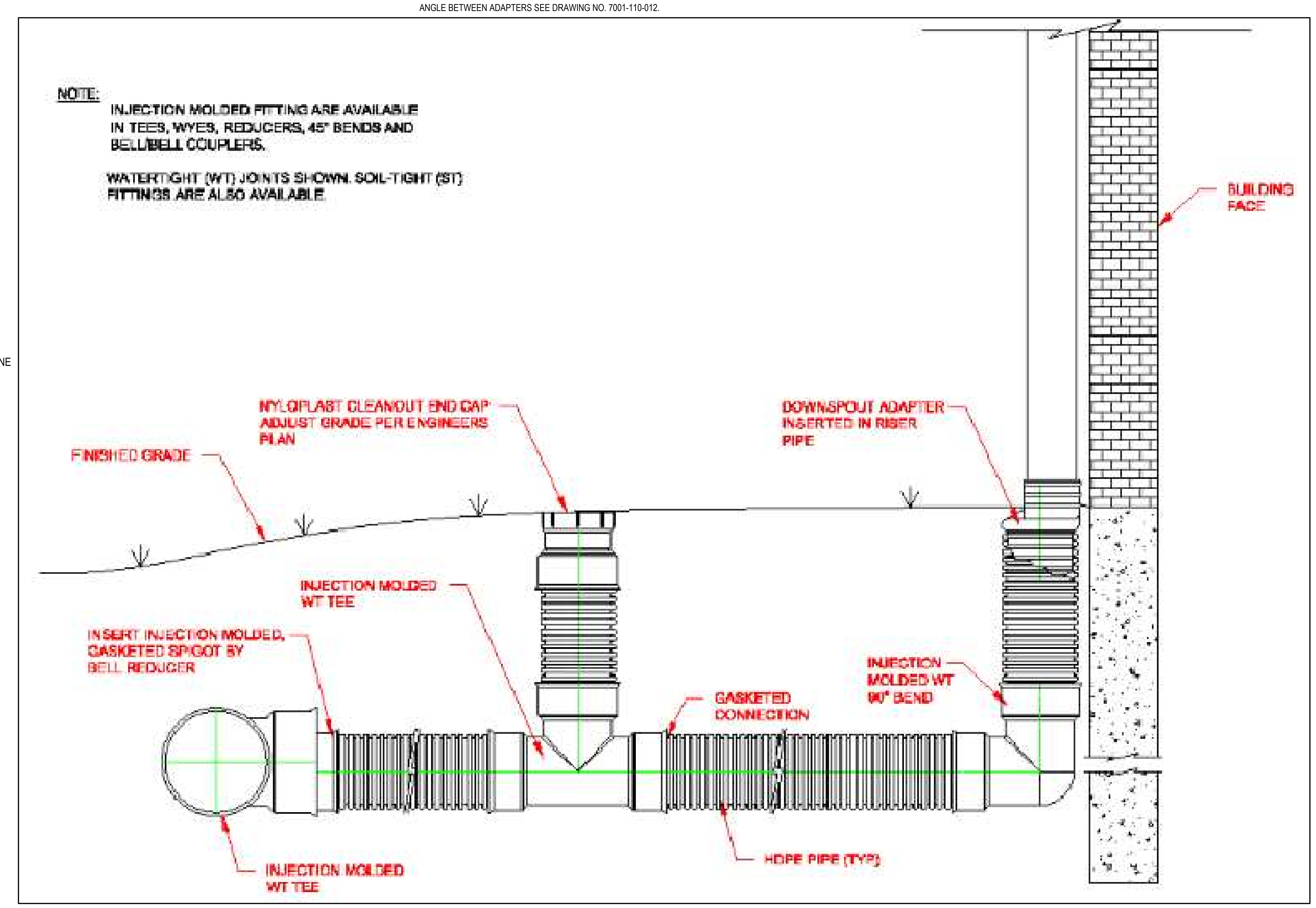
NYLOPLAST 2 FT X 2FT CURB INLET STRUCTURE: 30 _ _ AGS _ _ X



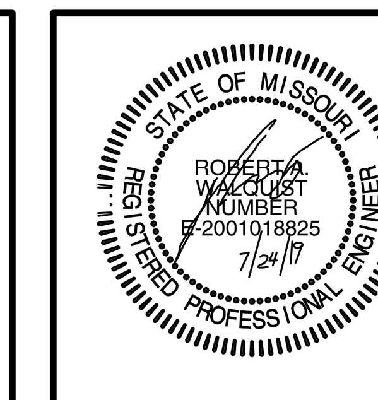
1 - 12" - 30" FRAMES, GRATES, HOODS, & BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
4 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0 ° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
5 - ALL CURB INLET GRATE OPTIONS (STANDARD & DIAGONAL) SHALL MEET H-20 LOAD RATING

NOTE:
INJECTION MOLDED FITTING ARE AVAILABLE IN TEES, WYES, REDUCERS, 45° BENDS AND BELL/BELL COUPLERS.

WATERTIGHT (WT) JOINTS SHOWN. SOIL-TIGHT (ST) FITTINGS ARE ALSO AVAILABLE.



STORM LINE DETAILS



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PUBLIC WATER MAIN IMPROVWMNT PLAN

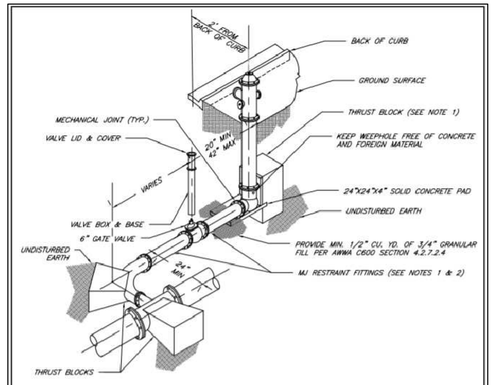
I-470 BUSINESS AND TECHNOLOGY CENTER
SECTION 20, TOWNSHIP 48, RANGE 31
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

GENERAL

1. Lineal foot measurements shown on the plans are horizontal measurements, not slope measurements. All payments shall be made on horizontal measurements.
2. No geological information is shown on these plans.
3. The utility locations shown on these plans are taken from utility company records and are approximate only. They do not constitute actual field locations. The contractor shall verify the location and depth of all utilities prior to construction.
4. The contractor shall adhere to the provisions of the Senate Bill Number 583,78th General Assembly of the State of Missouri. The bill requires that any person of firm doing excavation on public right-of-way do so only after giving notice to, and obtaining information from, utility companies. State law requires 48 hours advance notice. The names and telephone numbers of utility companies, even if only remotely involved with this project are provided. Prior to commencement of work, the contractor shall notify all those companies which have facilities in the near vicinity of the construction to be performed.
5. All waste material resulting from the project shall be disposed of off-site by the contractor.
6. All excavation shall be unclassified. No separate payment will be made for rock excavation.
7. The contractor shall control the erosion and siltation during all phases construction, and he shall keep the streets clean of mud and debris.
8. All manholes, catch basins, utility valves and meter pits to be adjusted or rebuilt to grade as required. All existing utilities shall be adjusted as required.
9. Subgrade soil for all concrete structures, regardless of the type or location, shall be firm, dense and thoroughly compacted and consolidated: shall be free from muck and mud; and shall be sufficiently stable to remain firm and intact under the feet of the
10. workmen or machinery engaged in subgrade surfacing, laying reinforcing steel, and depositing concrete thereon. In all cases where subsoil is mucky or works into mud or muck during such operation, a seal course of either concrete or rock shall be placed below subgrade to provide a firm base for working and for placing the floor slab.
11. The contractor is responsible for providing all surveying that may be required.
12. Easements indicated on these drawings will be provided for on the final plat and properly dimensions. Easements outside the platted area will be provided for by separate documents prior to issuance of a construction permit.

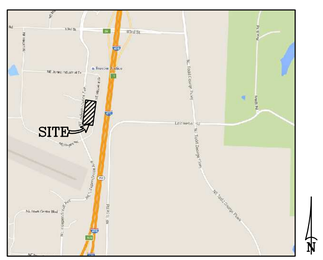
WATER

1. All construction shall follow the City of Lee's Summit Design and Consrtuction Manual as adopted by Ordinace 5813 and with all the requirements of the Missouri Department of Health and Missouri Clean Water Commission.
2. Class 50 Ductile Iron Pipe or C900 pipe shall be used per city specifications
3. All fittings shall be lined inside and out with an asphaltic base or bitumastic coating, and shall be megalug.
4. Fire Hydrants shall be Waterous Pacer WB-67 with non-rising stem or approved equal by the City Engineer. Hydrants shall have 5 1/4" valve with 4 1/2" pumper nozzle and 2-2 1/2" hose nozzles (left hand opening).
5. Gate Valves to be A.P. Smith series 1000 or Mueller No. A 2380-5 hub end "O" ring seal non-rising stem, valves 12 inches and larger shall be Butterfly valves manufactured by the Henry Pratt Company or City Engineer Approved equal Left hand opening minimum 200# testing AWWA.
6. Valve boxes shall be Clay & Bailey # p-108 or approved equal. All boxes to be installed out of pavement areas.
7. Water lines are to be constructed to a depth of 4 feet below and back of street curbs. Street grading is to be complete prior to waterline placement.
8. Easements for water lines located outside the platted area will be provided for by separate documents after the Final Plat is recorded.
9. All tees, bends, plugs, valves and hydrants shall be provided with reaction blocking. Pre-cast blocks shall not be used.
10. After water mains have been laid and partially backfilled, they shall be subject to a hydrostatic pressure test of not less than 150 psi, in accordance with AWWA C605. The line shall be pressurized to test pressure and closed for two hours. At the end of the two-hour period, the line shall be repressurized and the volume of water required to restore pressure shall be measured. The maximum amount of water to restore pressure shall be 0.5 gallons per 1000 feet of tested main. Testing shall be done by Contractor in presence of Engineer.
11. Before connecting to City water mains and prior to wet tap, the new main shall be disinfected in accordance with AWWA C651. A 1 percent solution of chlorine shall be pumped into the water main, such that the water in the line will not have less than 25 mg/l of free chlorine. At the end of a 24 hour period, the water shall be tested to ensure that at least 10 mg/l of free chlorine. After satisfactory testing of chlorination, the main shall be flushed. Disinfection testing and flushing shall be done by Contractor in presence of Engineer.
12. After final flushing and before the pipeline is placed in service, two samples shall be collected and shall be tested for bacteriological quality in accordance with the State Department of Health or other regulatory agency. Satisfactory results for both samples is required for successful completion of bacteriological testing. Contractor shall conduct all testing and provide testing results to Engineer.
13. Sample Taps must be included in the new line, no less than two (2) feet no more than ten (10) feet from where the new water line connects to the existing lines at each end.
14. A representative of the city water deptartment must be present for:
    - i. Disinfecting
    - ii. Pressure Testing
    - iii. Bacteria Testing (a minimum of three required at perscribed locations to be determined by the water dept.)

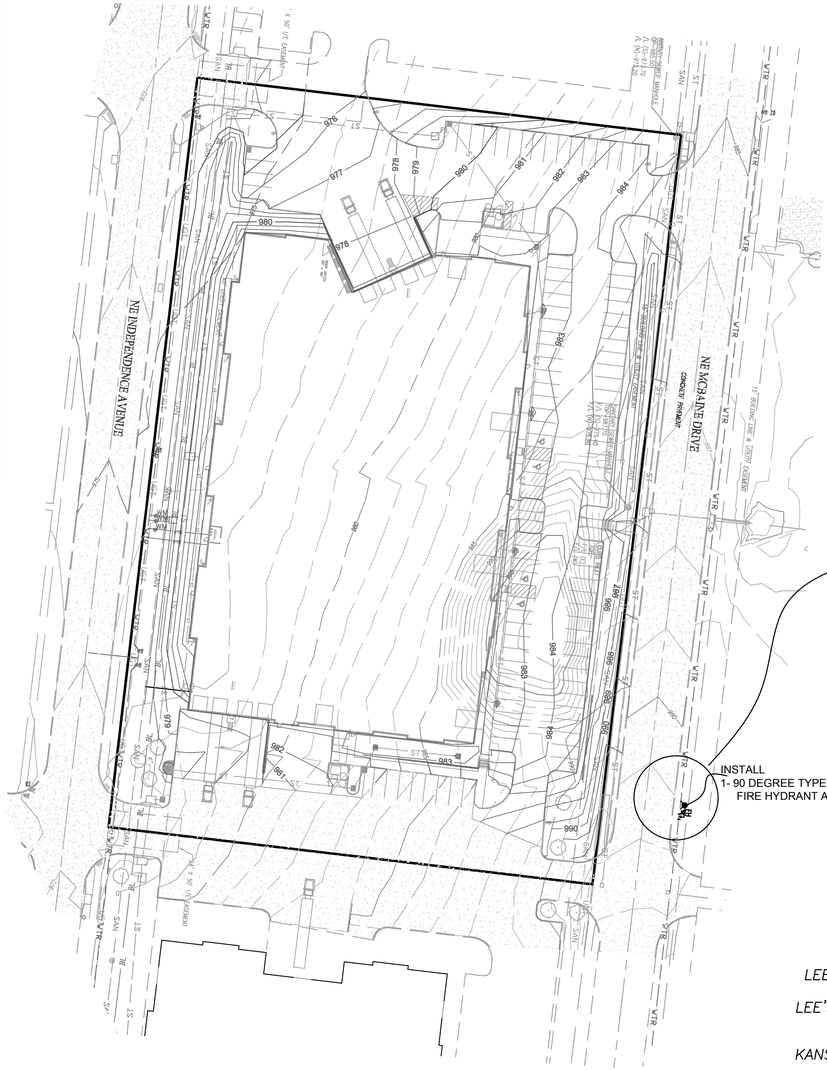


NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM 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	Date: 02/13
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063	Drawn By: JN
HYDRANT WITH 90 DEGREE BEND	Checked By: DL
	FILE: WAT-8
	Rev: 1/14
	Rev:



LOCATION MAP



SUMMARY OF PUBLIC IMPROVMENT QUANTITIES

SUMMARY OF QUANTITIES		UNITS
PUBLIC WATER MAIN		
FIRE HYDRANT ASSEMBELY	1	EACH

UTILITY NOTES:
1. ALL FIRE HYDRANTS AND WATER MAINS SHALL BUILT TO CITY STANDARDS AND DEDICATED TO THE CITY

DEVELOPER:
BLUE SPRINGS
SAFETY STORAGE LLC
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MISSOURI 64029
Ph.# 816-229-8115

ADDRESS:
2720 NE MCBAINE DR., LEES SUMMIT, MO 64064

UTILITIES

LEE'S SUMMIT PUBLIC WORKS
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
(816) 969-1800

KANSAS CITY POWER & LIGHT CO.
P.O. BOX 219330
KANSAS CITY, MO 64121-9330
(816) 471-5275

MISSOURI ONE-CALL
1-800-344-7483

MO GAS ENERGY
P.O. BOX 219255
KANSAS CITY, MO 64141
(816) 756-5252

TELEPHONE COMAPANY
CENTURY LINK
P.O. BOX 2961
PHOENIX, AZ 85062
(800) 788-3600

BEFORE YOU
DIG - DRILL - BLAST

Call
1-800-344-7483 (MISSOURI)
1-800-344-7233 (KANSAS)

PROJECT CONTACTS: ROBERT WALQUIST, P.E..
821 NE COLUMBUS ST
LEE'S SUMMIT, MISSOURI 64063
Phone: (816) 550-5675

PUBLIC WATER MAIN IMPROVEMENT PLAN

STATE OF MISSOURI
ROBERT A. WALQUIST
NUMBER
E-2001018825
7/24/19
REGISTERED PROFESSIONAL ENGINEER

I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Quist Engineering, Inc
Civil Engineering for Residential & Commercial Site Development
821 NE Columbus St.
Lee's Summit, Missouri 64063
Phone: (816) 550-5675
email: rwalquist@quistengineering.com

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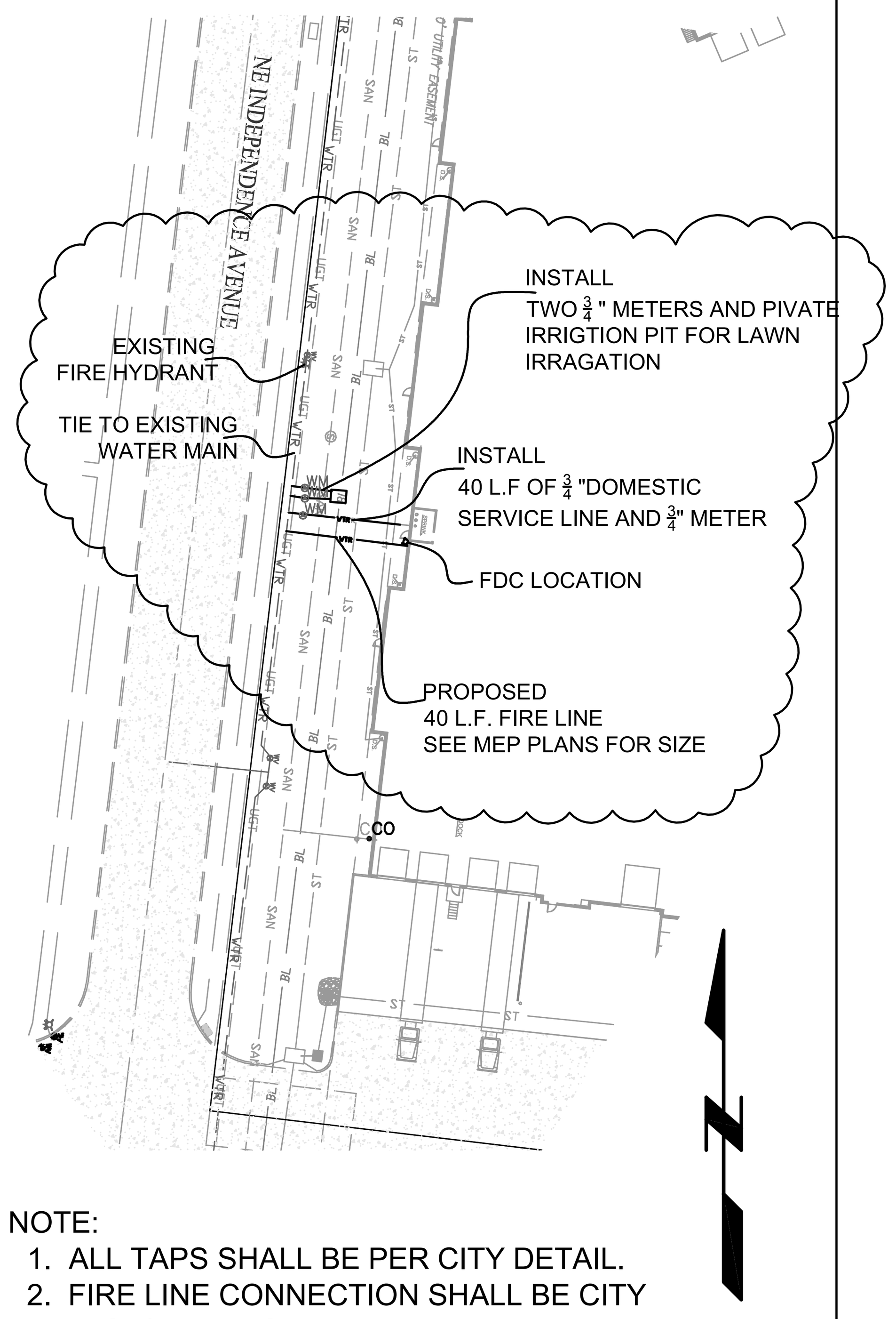
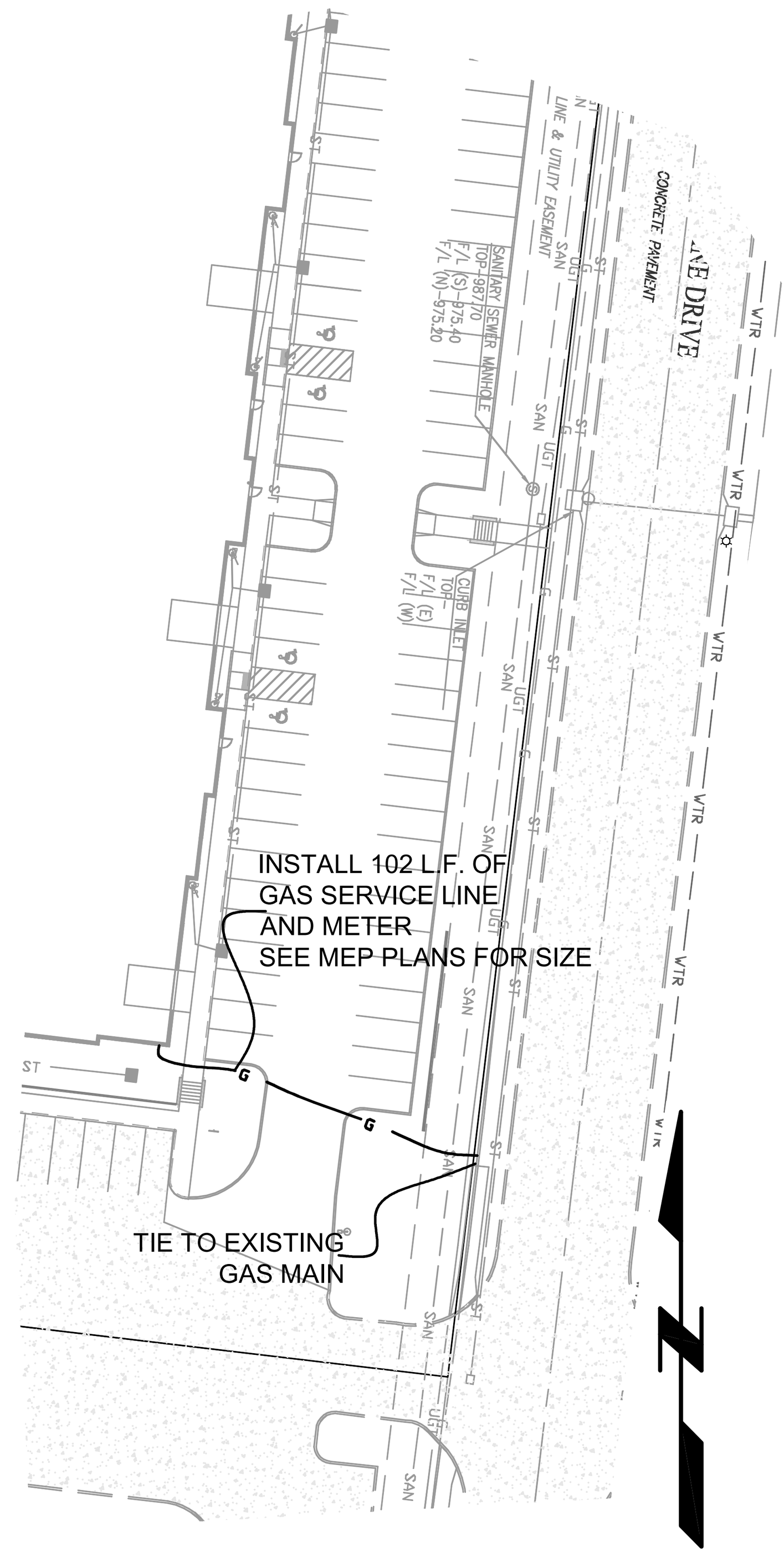
E18-337



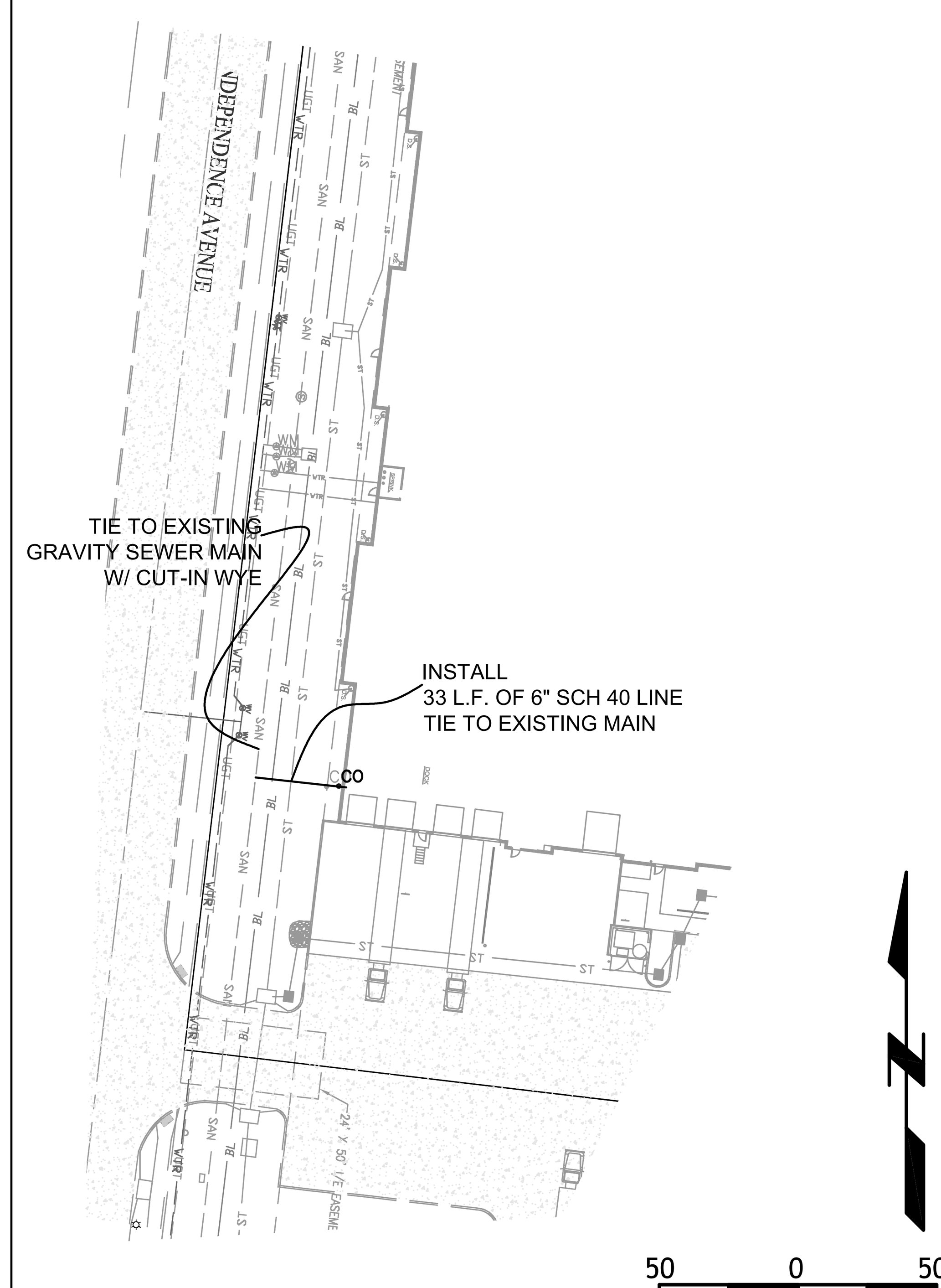
NOTE:
1. ALL TAPS SHALL BE PER CITY DETAIL.
2. FIRE LINE CONNECTION SHALL BE CITY REQUIRMENTS.

SITE WATER PLAN



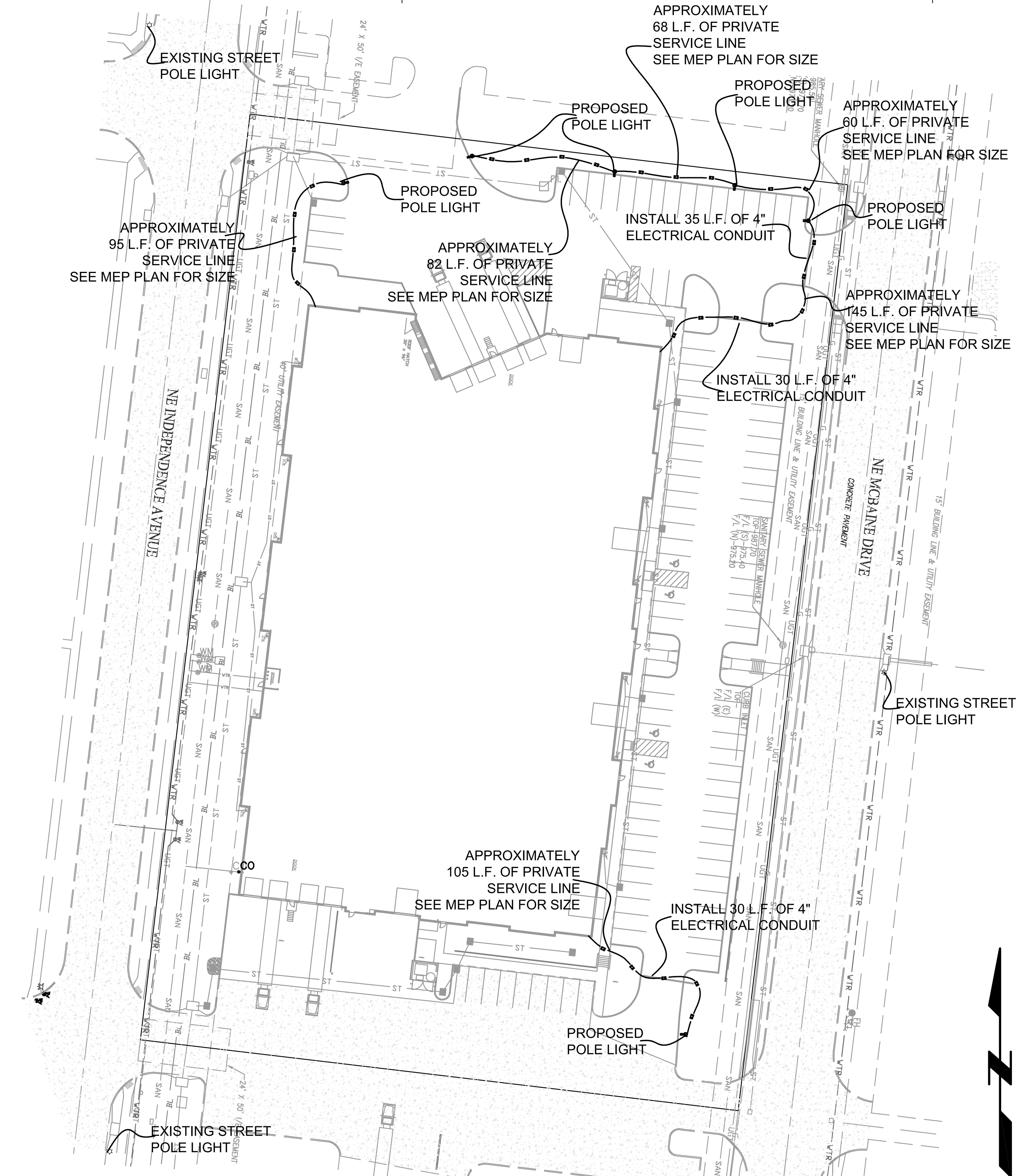
GAS SERVICE PLAN

NOTE:
1. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.



SITE SEWER PLAN

1"=50'



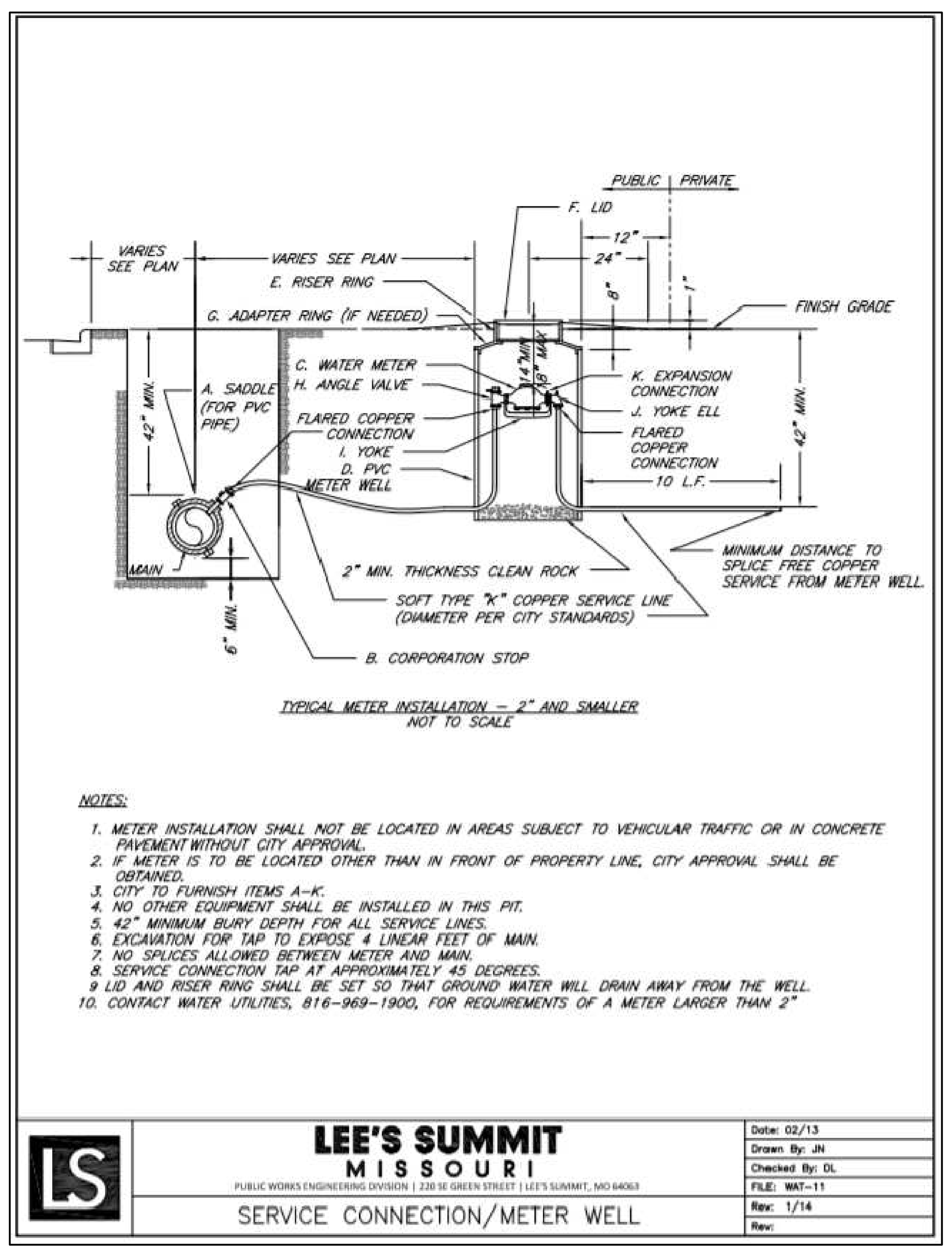
SITE ELECTRICAL PLAN

NOTE:
1. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.

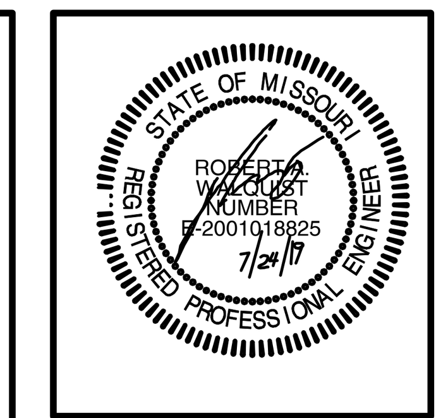
NOTE:
1. ENDS OF ALL CONDUITS SHALL BE MARKED WITH 4"X4" WOOD POST.
3. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS FOR THE LIGHT POLES SHALL BE SUBMITTED AND APPROVED PRIOR TO CONSTRICTION.

LEGEND

- Ȣ FIRE HYDRANT
- WATER VALVE
- [W] WATER METER
- [G] GAS METER
- GAS MARKER
- ● MANHOLE
- STREET LIGHT
- ☼ YARD LIGHT
- ▲ CABLE TV PEDESTAL
- ⊗ ELECTRIC TRANSFORMER
- [T] TELEPHONE BOX
- POWER POLE
- POWER POLE W/TEL.
- ☒ ELETRICAL PULL BOX
- POWER POLE W/STREET LIGHT
- ELETRICAL PULL BOX
- GROUND FLOOD LIGHT
- TRAFFIC SIGN



SITE UTILITY PLAN



I-470 LOT 13A
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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821 NE Columbus St.
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