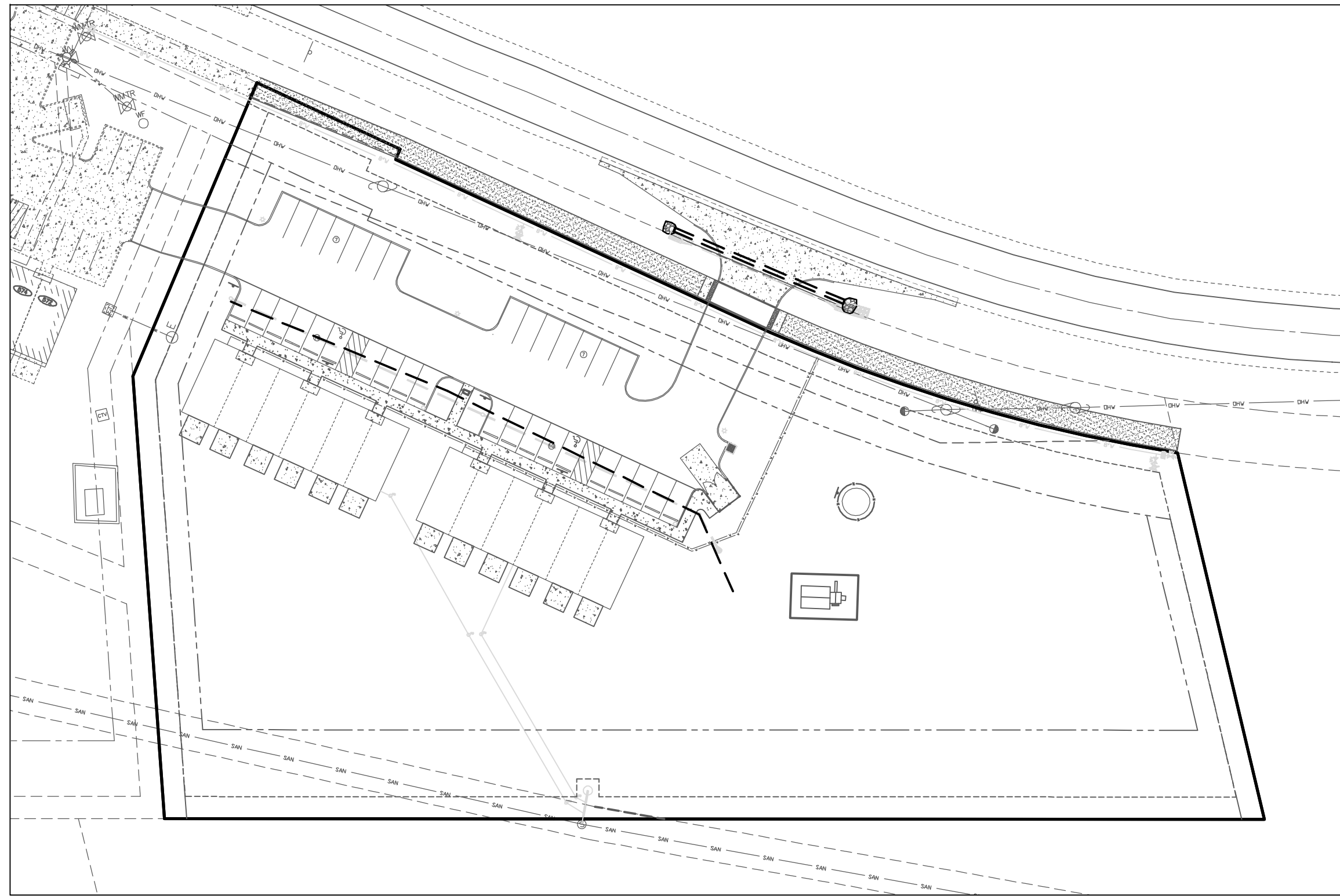


# A SET OF AS-BUILT PLANS FOR SHANE ESTATES PHASE TWO

A TRACT OF BEING PART OF U.S. SURVEY 2632  
TOWNSHIP 47 NORTH, RANGE 3 EAST  
OF THE FIFTH PRINCIPAL MERIDIAN  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MISSOURI



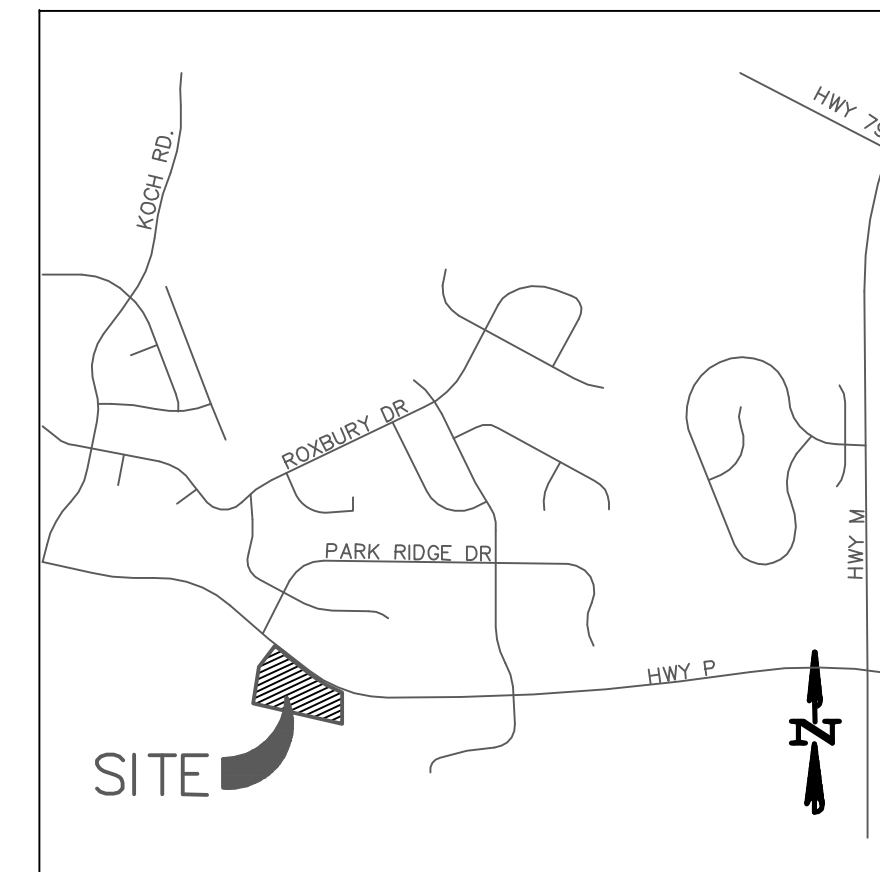
Plan View

## Benchmarks Project

**BENCHMARK:**  
(NAVD 88) - (ELEVATION=542.80) BENCHMARK DISK SET IN TOP OF CONCRETE MONUMENT STAMPED "F 149 1935" IN THE CITY OF O'FALLON, ST. CHARLES COUNTY, ON THE WABASH RAILROAD, IN THE SOUTHWEST CORNER OF THE O'FALLON CITY HALL PROPERTY (FORMERLY ST. MARY INSTITUTE WARD), 47 EAST OF MAIN STREET (HIGHWAY M) AND 45' NORTH OF THE CENTERLINE OF MAIN RAILROAD TRUCK.

## Site

**BENCHMARK:**  
(NAVD 88) - (ELEVATION=460.25) CUT SQUARE WITH "X" ON CONCRETE HEADWALL FOR METAL CULVERT PIPE LOCATED ON NORTH SIDE OF HIGHWAY "P" ACROSS FROM SUBJECT PROPERTY.



Locator Map

## Legend

600.00	EXISTING LABELS	EXIST. SINGLE CURB INLET
600.00	PROPOSED LABELS	EXIST. AREA INLET
CI	SINGLE CURB INLET	PROPOSED SINGLE CURB INLET
DCI	DOUBLE CURB INLET	PROPOSED AREA INLET
AI	AREA INLET	PROPOSED GRATE INLET
DAI	DOUBLE AREA INLET	EXIST. SANITARY MANHOLE
GI	GRATE INLET	EXIST. STORM MANHOLE
DGI	DOUBLE GRATE INLET	PROPOSED MANHOLE
MH	MANHOLE	POWER POLE
FE	FLARED END SECTION	GUY WIRE
EP	END PIPE	LIGHT STANDARD
CP	CONCRETE PIPE	FIRE HYDRANT
RCP	REINFORCED CONCRETE PIPE	WATER METER
CMP	CORRUGATED METAL PIPE	WATER VALVE
CPP	CORRUGATED PLASTIC PIPE	GAS VALVE
PVC	POLY VINYL CHLORIDE (PLASTIC)	TELEPHONE PEDESTAL
CO	CLEAN OUT	SIGN
.....	SLOPE LIMITS	TREE
---	DRAINAGE SWALE	
---	EXISTING STORM SEWER	
---	EXISTING SANITARY SEWER	
---	EXISTING WATER LINE	
---	EXISTING FIBER OPTIC LINE	
---	EXISTING GAS LINE	
---	EXISTING UNDERGROUND ELECTRIC	
---	EXISTING OVERHEAD ELECTRIC	
---	EXISTING CABLE TV LINE	
---	EXISTING TELEPHONE LINE	
---	PROPOSED STORM SEWER	
---	PROPOSED SANITARY SEWER	
-X-X-	FENCE LINE	
---	SAWCUT LINE	

## AS-BUILT LEGEND

A.B.	AS-BUILT
●	AS-BUILT STORM MANHOLE
■	AS-BUILT CURB INLET
▲	AS-BUILT STORM FLARED END
●	AS-BUILT SANITARY MANHOLE
●	AS-BUILT FIRE HYDRANT
●	AS-BUILT WATER VALVE
●	AS-BUILT FIRE HOSE CONNECTION
●	AS-BUILT LIGHT STANDARD
●	AS-BUILT CLEANOUT
●	AS-BUILT SPIGOT

## Drawing Index

- 1 COVER SHEET
- 2 NOTES
- 3 DEMOLITION PLAN
- 4 SITE PLAN
- 5 GRADING PLAN
- 6 WATER PLAN
- 7 SWPP PLAN
- 8 DRAINAGE AREA MAP
- 9 DETAILS
- 10-14 DETAILS

## AS-BUILT PUBLIC UTILITY FINAL MEASUREMENTS

THE FOLLOWING UTILITIES HAVE BEEN LOCATED AND MEASURED AND THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS:

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- SANITARY SEWERS, SANITARY SEWER LENGTHS, SANITARY SEWER PIPE SIZES, SANITARY SEWER FLOWLINES AND DEPTHS OF SANITARY SEWER STRUCTURES
- FIRE HYDRANTS
- WATER VALVES
- LIGHT STANDARDS

ALL PUBLIC UTILITIES SHOWN HEREON AS BEING AS-BUILT ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS.

BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



\* City of O'Fallon Construction work hours per City Ordinance 3429 as shown in Section 500.420 of the Municipal Code of the City of O'Fallon are as follows:

October 1 through May 31  
7:00 A.M. To 7:00 P.M. Monday Through Sunday  
June 1 Through September 30  
6:00 A.M. To 8:00 P.M. Monday Through Friday  
7:00 A.M. To 8:00 P.M. Saturday and Sunday

\* The area of this phase of development is 2.612 Acres  
The area of land disturbance is 1.13 Acres  
Number of proposed attached units is 12  
Building setback information. Front 30 feet  
Side 20 feet  
Rear 35 feet

\* The estimated sanitary flow in gallons per day is 4,440 GPD  
\* Tree preservation calculations:  
Existing Trees = 0.84 Acres  
2.61 Acres / 15 trees per acres = 0.174 Acres  
0.84 X 20% = 0.168 Acres  
0.174 > 0.168 = 0.174 Acres to be preserved  
0.03 Acres To Be Removed  
0.81 Acres Preserved

City approval of any construction site plan does not mean that any building can be constructed on the lots without meeting the building setbacks as required by the zoning codes.

All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to make minor modifications in design and/or specifications during construction, they shall make such changes at their own risk, without any assurance that the City Engineer will approve the completed installation or construction. It shall be the responsibility of the developer to notify the City Engineer of any changes from the approved drawings. The developer may be required to correct the installed improvements so as to conform to the approved engineering drawings. The developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City Inspector.

Lighting values will be reviewed on site prior to the final occupancy inspection.

## Development Notes

1. Site Area: 2.612 Acres
2. Existing Zoning: "R-3", Garden Apartment District
3. Proposed Use: 12 Attached Units
4. Owner: Joseph & Paula Domes  
2101 Flatwoods Road  
O'Fallon, MO 63366
5. Flood Plain Note: According to the Flood Insurance Rate Map of St. Charles, Missouri, Unincorporated Areas (Community - Panel Number 29183C0230G, dated January 20, 2016). This tract lies partially in Zone X (Areas determined to be outside the 0.2% annual chance floodplain.) and partially within Zone AE (Special flood hazard areas with base flood elevations determined). A letter of map revision to be filed with the Corp of Engineers for removal of the 100 year flood plain.
6. Topographic & boundary information is per survey as compiled by Bax Engineering.
7. All existing creeks, streams, and drainage swales will have an associated storm water easement that will be provided on the Record Plat.
8. All new lighting shall be downcast lights consistent with City of O'Fallon standards and specifications. A photometric plan shall be submitted with construction documents for review and approval.
9. All mechanical equipment will be rooftop units and will be screened per City of O'Fallon Zoning Code, Section 400.278.
10. Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans shall be the responsibility of the contractor, and shall be located prior to any grading or construction of the improvements.
11. All new utilities are to be located underground.
12. Site Coverage Calculations:  
Total Site = 2.61 Acres  
Buildings = 0.15 Acres (6%)  
Pavement = 0.37 Acres (14%)  
Greenspace = 2.09 Acres (80%)
13. Parking Calculations:  
One and one-half (1.5) spaces for efficiency and one (1) bedroom unit, plus one (1) additional space for each additional bedroom  
12 Units x 2.5 spaces = 30 spaces required  
34 spaces proposed (including 2 accessible spaces)
14. Landscape Requirements:  
Not less than 6% of the interior parking lot shall be landscaped  
34 spaces X 270 s.f. = 9,180 s.f.  
9,180 x 6% = 551 s.f. Required  
Provided = 962 s.f.
15. Differential Runoff Calculations:  
Site Area: 113,691.60 S.F. (2.61 Acres)  
Existing:  
Ex. Building & Pavement: 0.04 Acres @ 4.77 = 0.19cfs  
Ex. Grass: 2.57 Acres @ 2.29 = 5.88cfs  
Existing Total = 6.07cfs  
Proposed:  
Building & Pavement: 0.44 Acres @ 4.77 = 2.09cfs  
Grass & Pervious Pavement: 2.17 Acres @ 2.29 = 4.96cfs  
Proposed Total = 7.05cfs  
7.05cfs - 6.07cfs = 0.98cfs Increase in Runoff (No Detention Required)

## Conditions of Approval From Planning and Zoning

1. The Applicant shall ensure that the existing metal silo on the subject site is structurally sound and access to it is restricted.
2. Work with staff to ensure the trash enclosure gate will not prevent access to parking spaces.
3. Work with staff to ensure the mailbox kiosk is ADA accessible.
4. Provide approval letters from MoDOT, the fire district, school district and USPS.
5. The Construction Plans shall address the Municipal Code Requirements listed.

## Municipal Code Requirements

1. Water meters are to be in the easement just behind the right-of-way. The water line from the connection to the meter is maintained by the City.
2. Detention and water quality are required per City Code 405.240 & 405.247. Use the 100 year PI Factors for the differential runoff calculations. There is no exception for providing water quality.

## Utility Contacts

**Sanitary Sewers**  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
Contact: 636-240-2000

**Water**  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
Contact: 636-240-2000

**Storm Sewer**  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
Contact: 636-240-2000

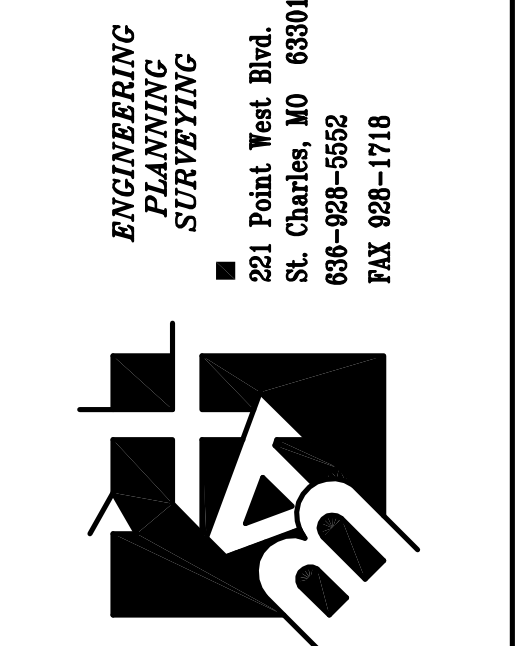
**Electric**  
Ameren Missouri  
200 Callahan Road  
Wentzville, MO. 63385  
636-639-8312

**Gas**  
Spire Gas  
6400 Graham Road  
St. Louis, MO. 63134  
314-522-2297

**Telephone**  
CenturyLink  
1151 Century Tel Dr.  
Wentzville, MO. 63385  
636-332-7261

**Fire District**  
O'Fallon Fire Protection District  
111 Laura K Dr.  
O'Fallon, MO. 63366  
636-272-3493

PROJECT TITLE:  
**SHANE ESTATES  
PHASE TWO  
AS-BUILT PLANS**  
#566 HIGHWAY P  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MO. 63366  
Bax Project # 99-1033388B Issue Date: 01/07/2020



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Bax Engineering Company, Inc.  
Missouri State Certificate of Authority  
Engineering #00055  
Missouri State Certificate of Authority  
Surveying #000144

REVISIONS	
02/04/21	CITY COMMENT REVIS.
04/05/21	CITY COMMENT REVIS.

**Developer / Owner:**  
ELLA REAL PROPERTY HOLDINGS, L.L.C.  
428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

**COVER SHEET**

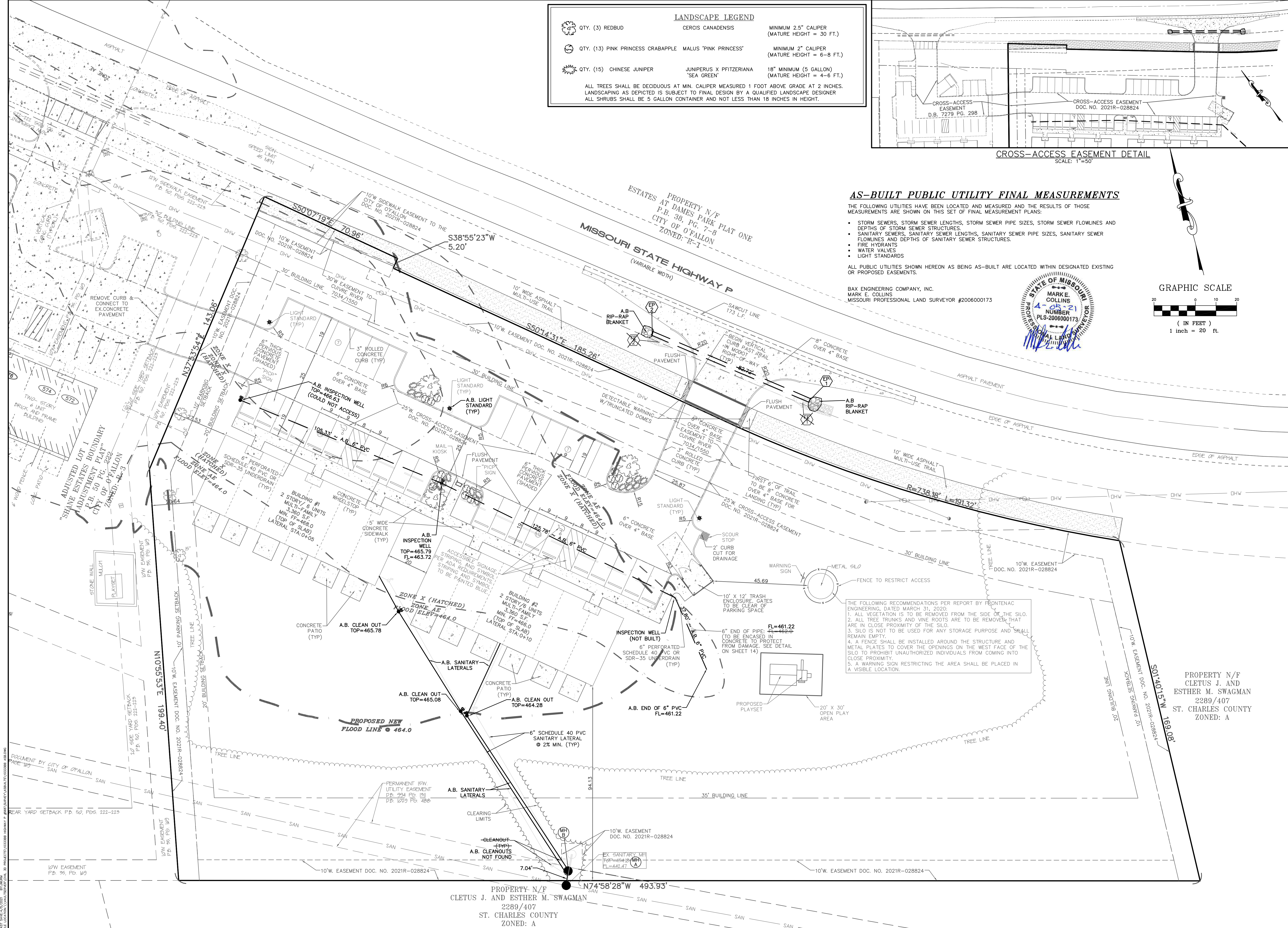
**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019

**City No.** #City number

**Page No.**  
1 of 14

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
ACCEPTED FOR CONSTRUCTION  
BY: Jamie Brantley DATE 04/07/2021  
PROFESSIONAL ENGINEER'S SEAL  
INDICATES RESPONSIBILITY FOR DESIGN

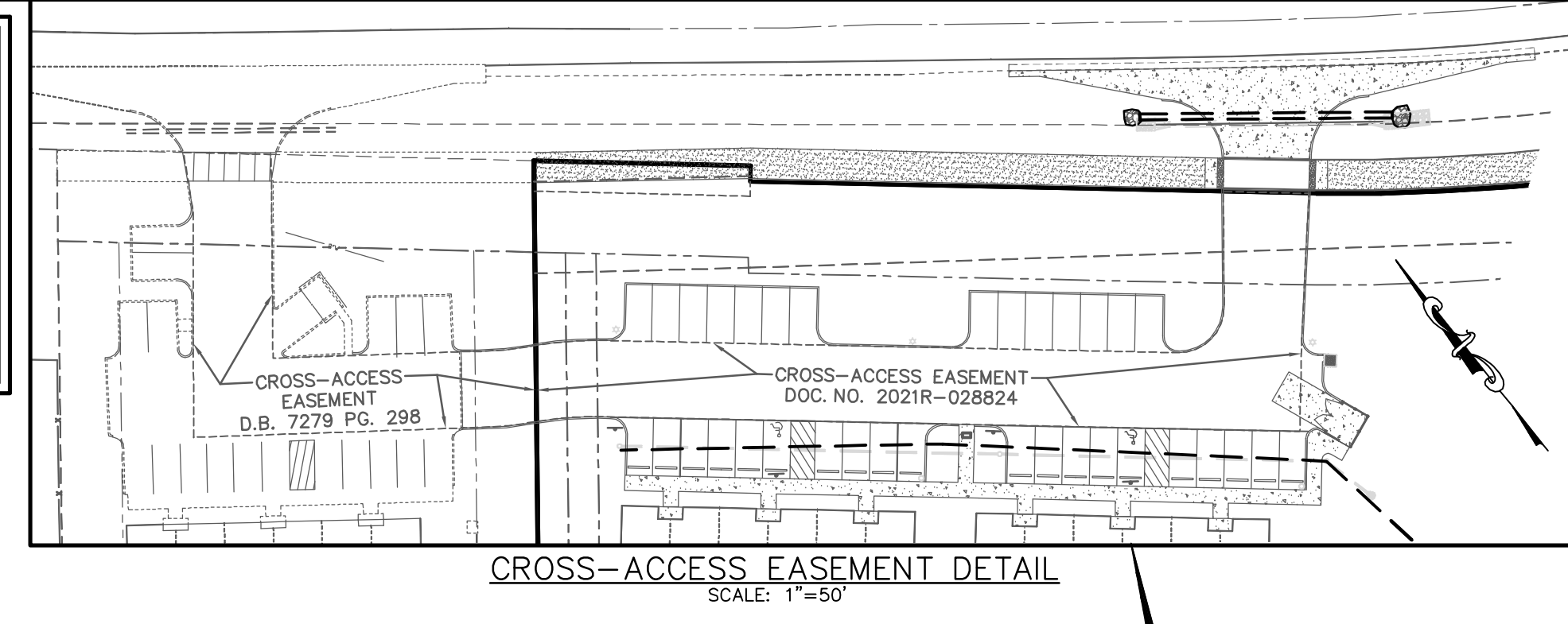




**LANDSCAPE LEGEND**

	QTY. (3) REDBUD	CERCIS CANADENSIS	MINIMUM 2.5" CALIPER (MATURE HEIGHT = 30 FT.)
	QTY. (13) PINK PRINCESS CRABAPPLE	MALUS 'PINK PRINCESS'	MINIMUM 2" CALIPER (MATURE HEIGHT = 6-8 FT.)
	QTY. (15) CHINESE JUNIPER	JUNIPERUS X PFITZERIANA 'SEA GREEN'	18" MINIMUM (5 GALLON) (MATURE HEIGHT = 4-6 FT.)

ALL TREES SHALL BE DECIDUOUS AT MIN. CALIPER MEASURED 1 FOOT ABOVE GRADE AT 2 INCHES. LANDSCAPING AS DEPICTED IS SUBJECT TO FINAL DESIGN BY A QUALIFIED LANDSCAPE DESIGNER. ALL SHRUBS SHALL BE 5 GALLON CONTAINER AND NOT LESS THAN 18 INCHES IN HEIGHT.



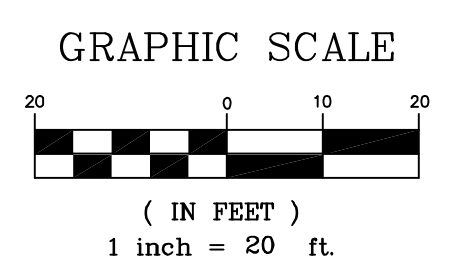
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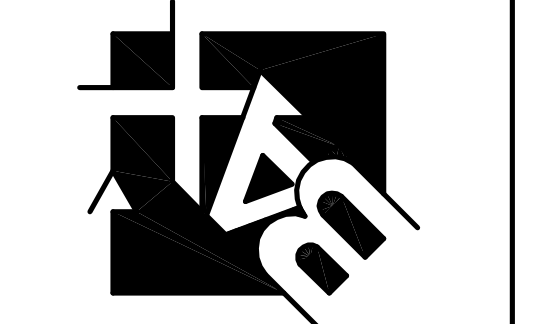
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BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



**PROJECT TITLE:**  
SHANE ESTATES  
PHASE TWO  
AS-BUILT PLANS  
#566 HIGHWAY P  
CITY OF FALLON  
ST. CHARLES COUNTY, MO. 63366

**ENGINEERING**  
PLANNING  
SURVEYING  
221 Point View Blvd.  
St. Charles, MO 63301  
636-928-5552  
FAX 928-1718



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Surveying #000144

**REVISIONS**

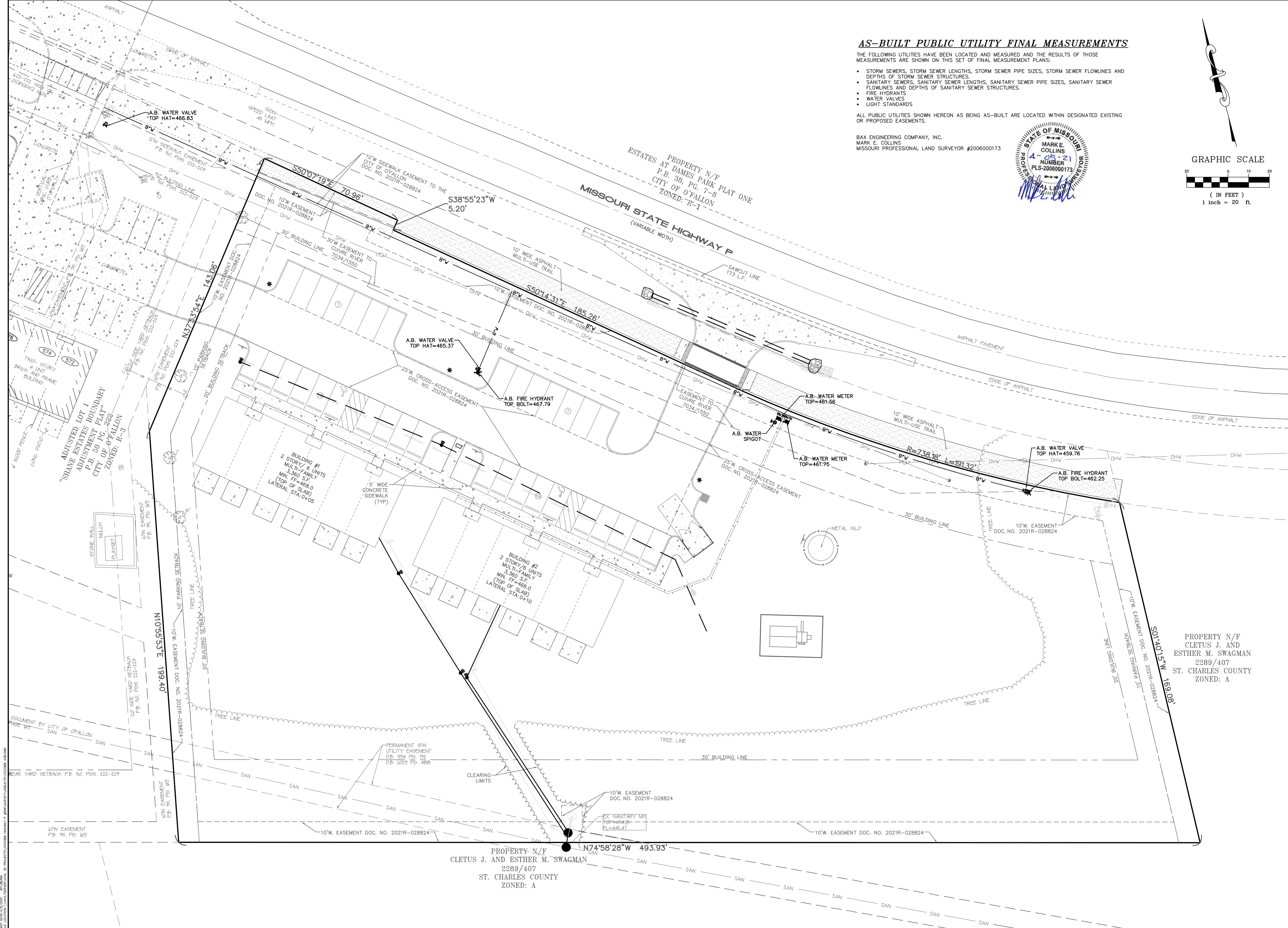
02/04/21	CITY COMMENT REVS.
04/05/21	CITY COMMENT REVS.

**Developer / Owner:**  
ELLA REAL PROPERTY HOLDINGS, L.L.C.  
428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

**SITE PLAN**

**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019  
**City No.** #City number

**Page No.**  
4 of 14



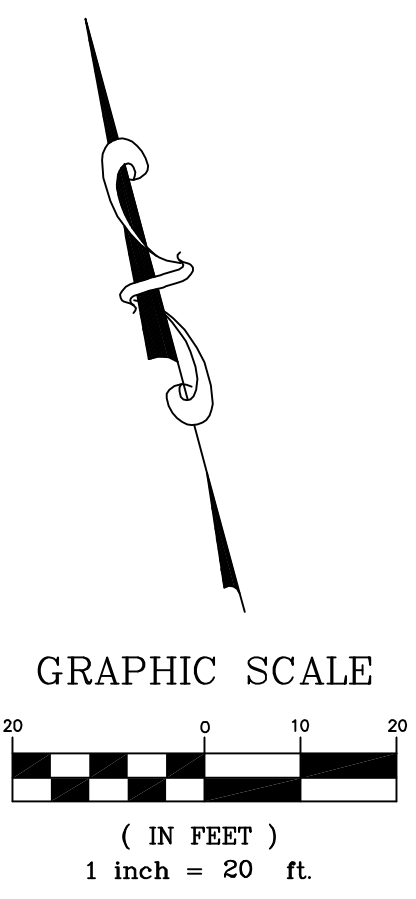
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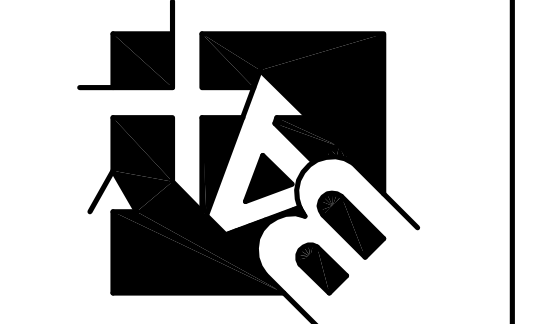
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BAY ENGINEERING COMPANY, INC.  
 MARK E. COLLINS  
 MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



**PROJECT TITLE:**  
 SHANE ESTATES  
 PHASE TWO  
 AS-BUILT PLANS  
 #566 HIGHWAY P  
 CITY OF O'FALLON  
 ST. CHARLES COUNTY, MO. 63366

**ENGINEERING SURVEYING**  
 221 Point View Blvd.  
 St. Charles, MO 63301  
 636-928-5552  
 FAX 928-1718



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 Surveying #000144

**REVISIONS**

DATE	REVISION
02/04/21	CITY COMMENT REVS.
04/05/21	CITY COMMENT REVS.

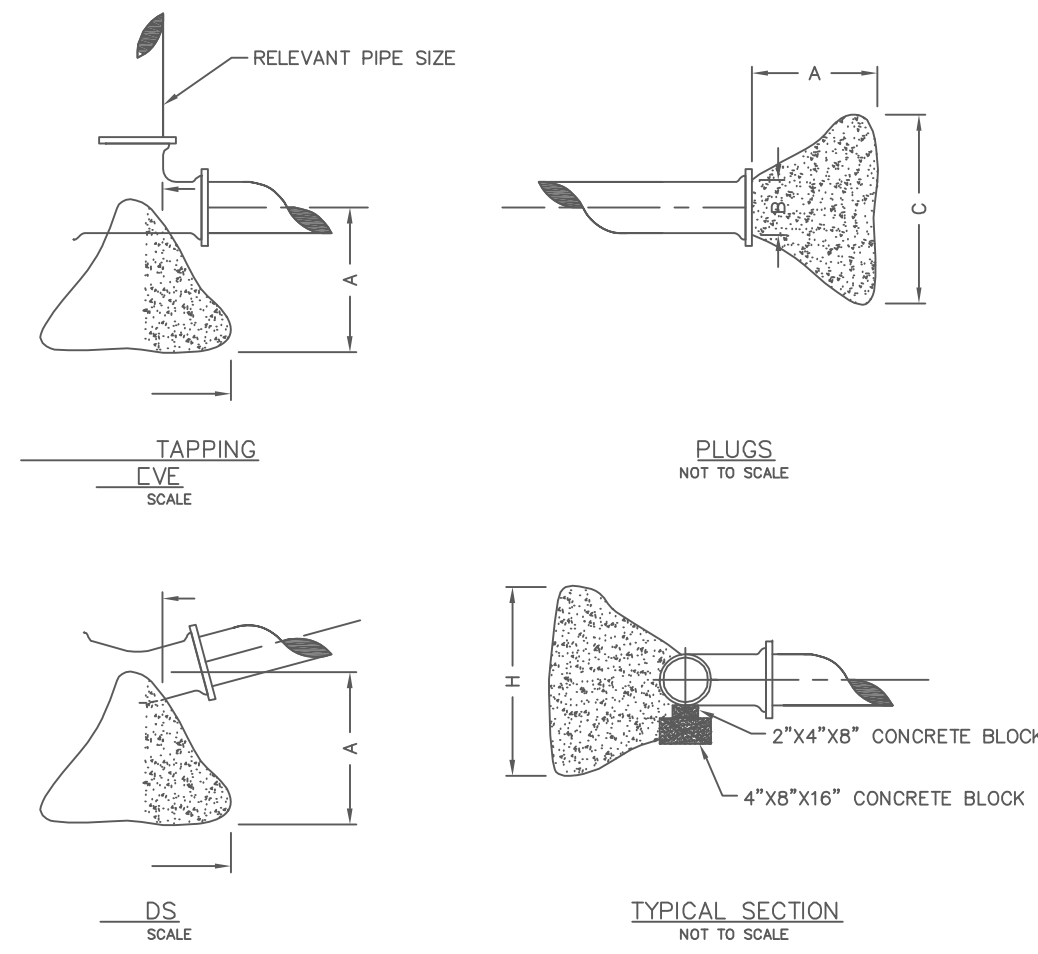
**Developer / Owner:**  
 ELLA REAL PROPERTY HOLDINGS, L.L.C.  
 428 NORTH MAIN STREET  
 O'FALLON, MO 63366  
 (636) 577-2458

**WATER PLAN**

**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019  
**City No.** #City number

**Page No.**  
 6 of 14

NOTE: THIS DETAIL IS FROM PWS#2



**THRUST BLOCK DIMENSIONS - INCHES**

FTGS.	TEE PLUG TAPPING		90 DEGREE BEND		45 DEGREE BEND		22-1/2 BEND		11-1/4 BEND	
	A	B	C	H	C	H	C	H	C	H
14	4	24	12	26	15	18	12	12	12	12
16	6	36	18	36	24	30	18	24	12	12
20	8	36	30	42	36	36	24	24	18	12
20	10	48	36	66	36	36	28	24	18	18
24	12	68	36	82	42	52	36	40	24	18

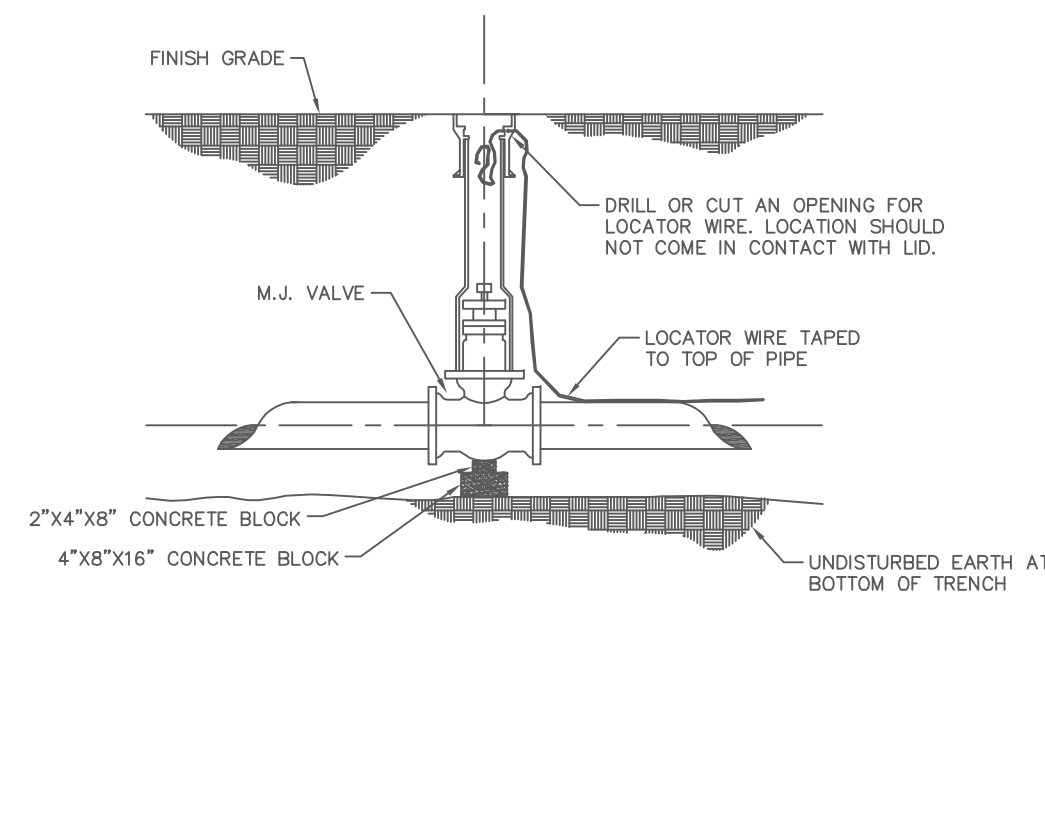
**NOTE**

FOR FITTINGS LARGER THAN 12", SPECIAL RESTRAINT DESIGNS ARE REQUIRED.

HORIZONTAL THRUST BLOCKING  
DETAIL "C"

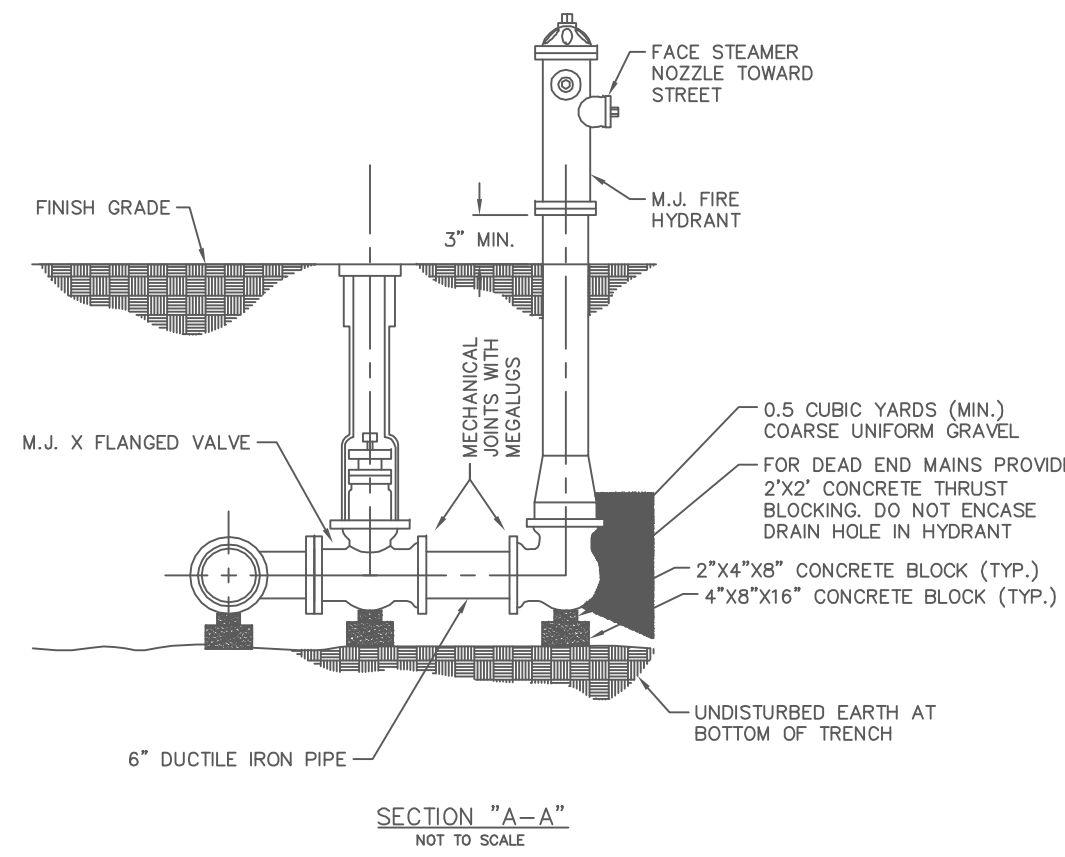
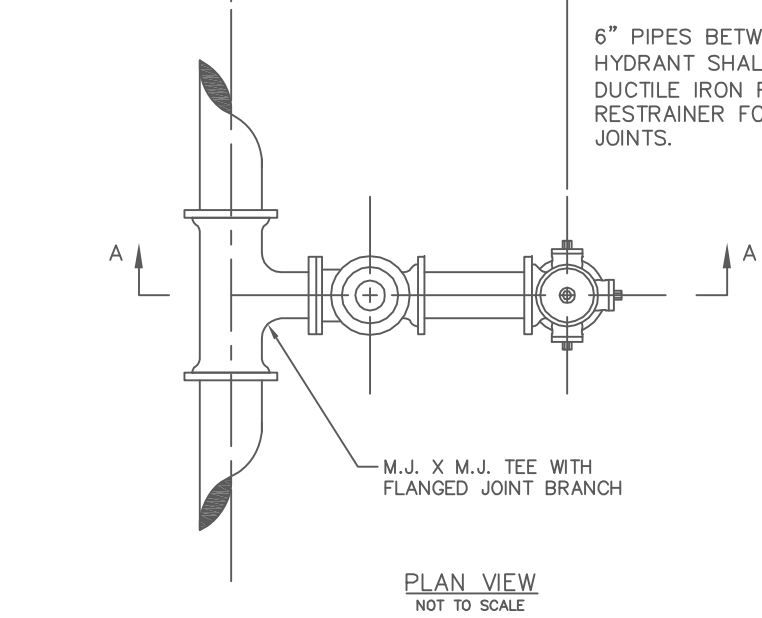
NOTE: THIS DETAIL IS FROM PWS#2

Buffalo box is an acceptable product to use. Tyler 562-S and 564-S are acceptable products.



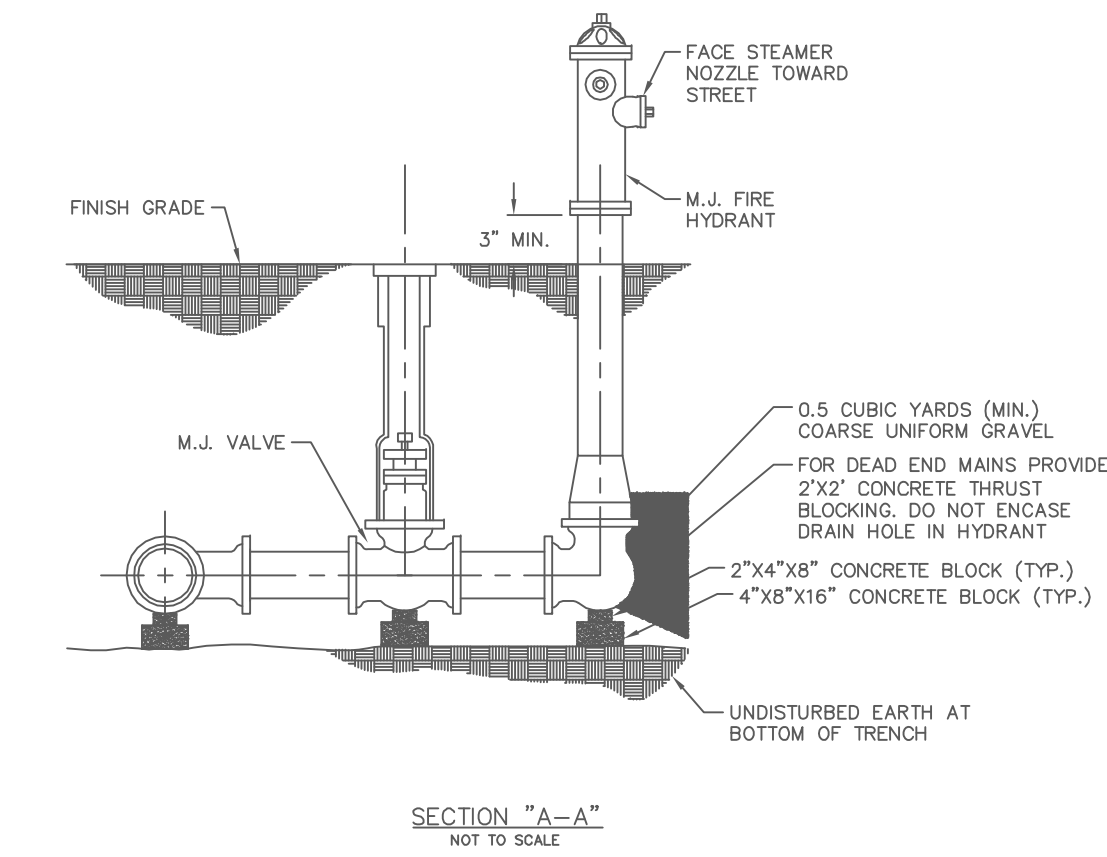
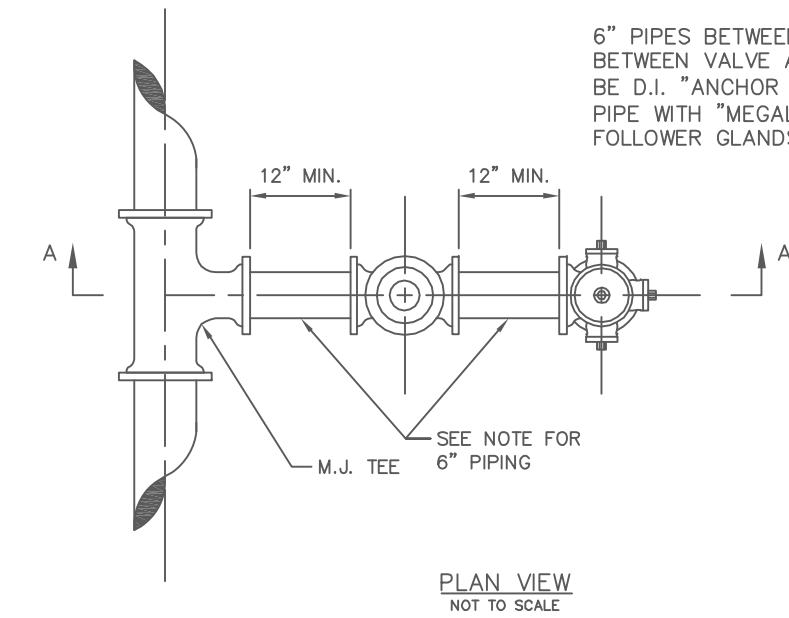
GATE VALVE DETAIL  
NOT TO SCALE  
DETAIL "D"

NOTE: THIS DETAIL IS FROM PWS#2



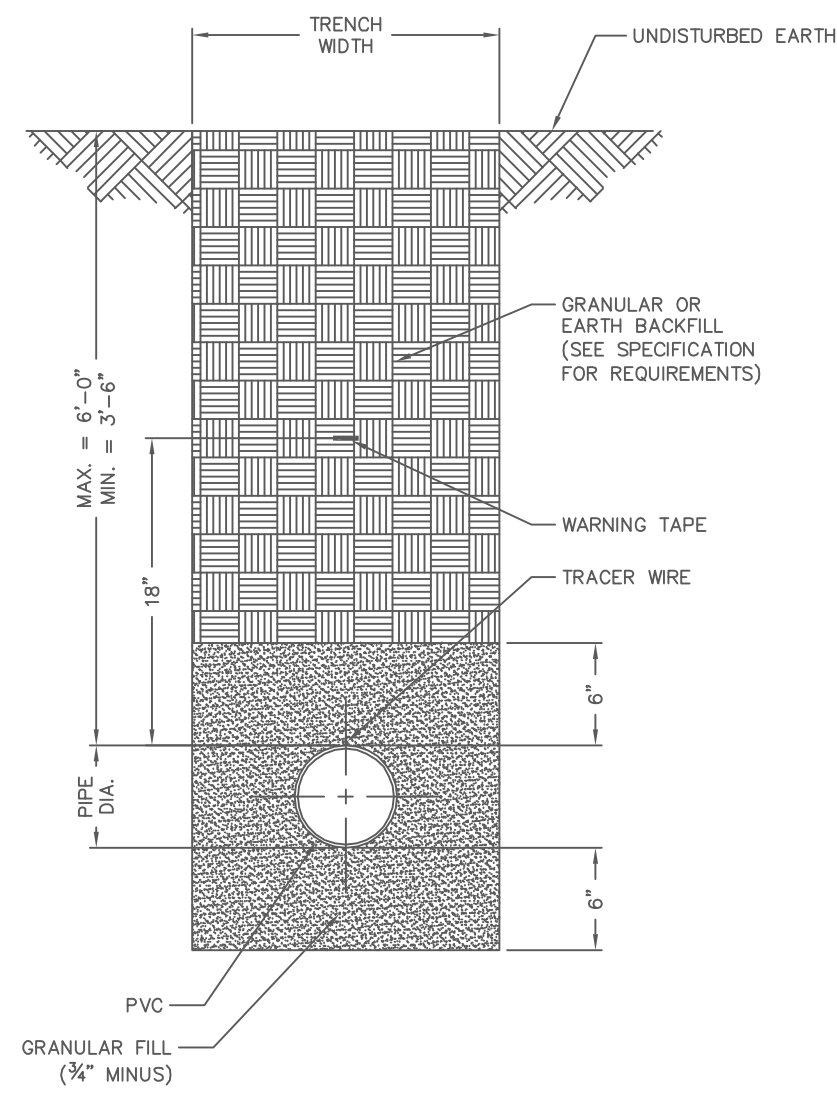
FIRE HYDRANT DETAIL  
DETAIL "B"  
PAGE 1 OF 3

NOTE: THIS DETAIL IS FROM PWS#2



FIRE HYDRANT DETAIL  
DETAIL "B"  
PAGE 2 OF 3

NOTE: THIS DETAIL IS FROM PWS#2

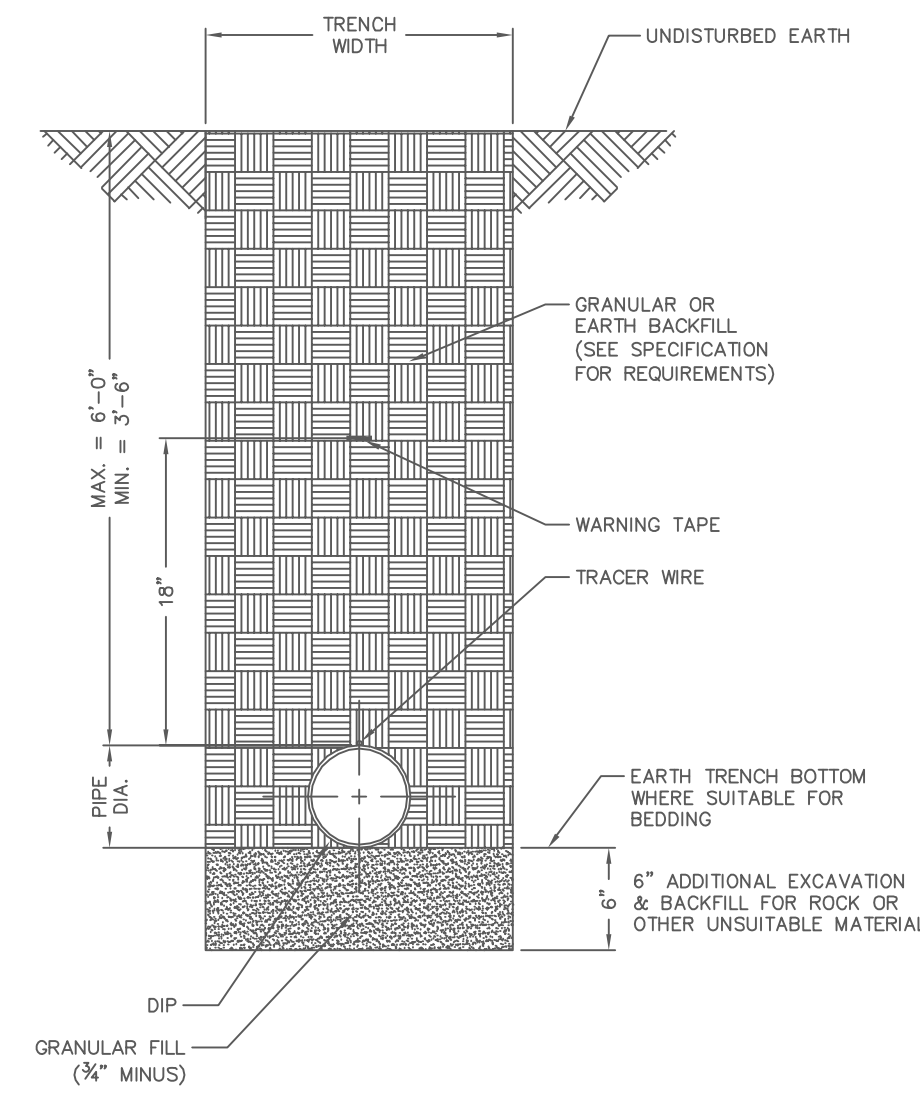


**NOTES**

- SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

TYPICAL TRENCH SECTION FOR PVC PIPE  
NOT TO SCALE  
DETAIL "A"  
PAGE 1 OF 2

NOTE: THIS DETAIL IS FROM PWS#2

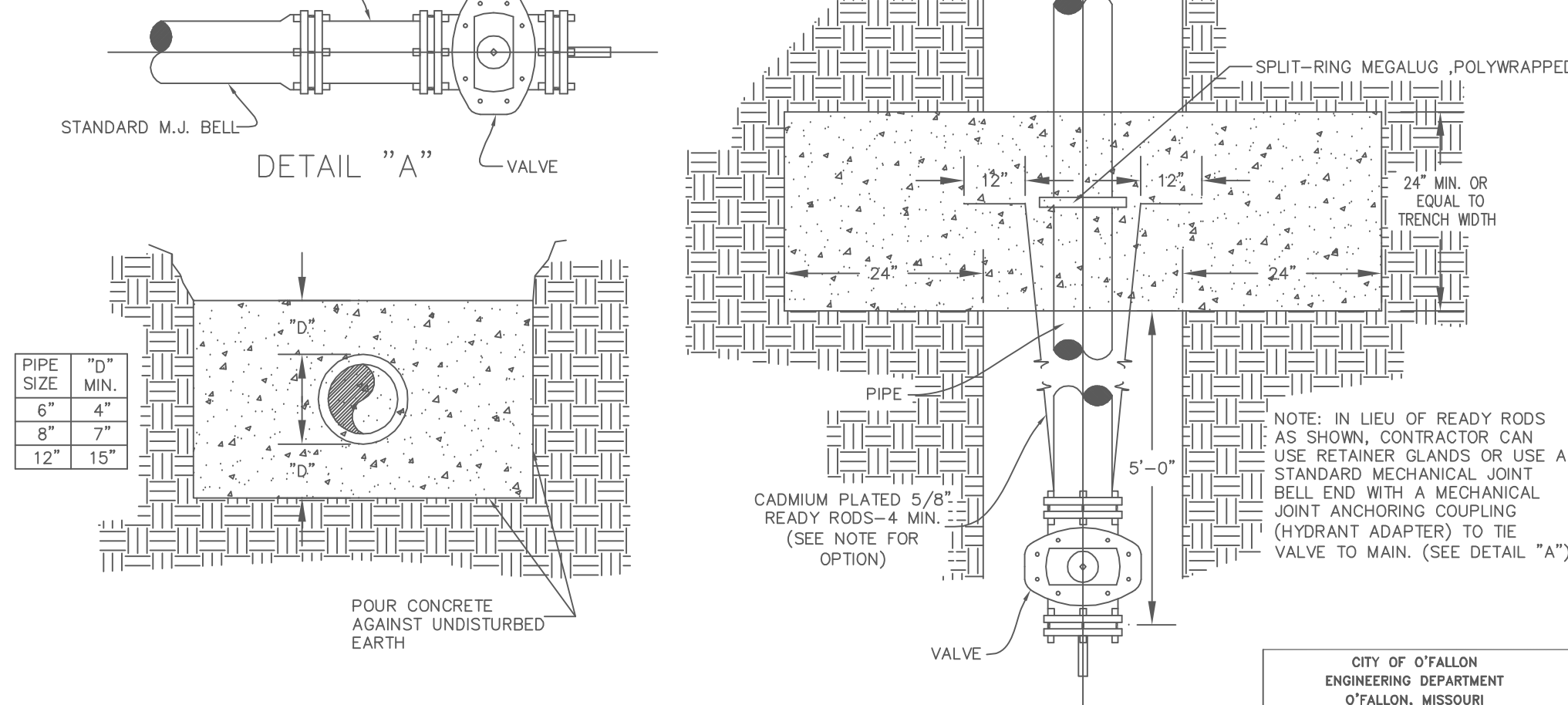


**NOTES**

- POLYWRAP REQUIRED FOR DUCTILE IRON PIPE
- SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

TYPICAL TRENCH SECTION FOR DUCTILE IRON PIPE  
NOT TO SCALE  
DETAIL "A"  
PAGE 2 OF 2

NOTE: THIS DETAIL IS FROM PWS#2



CROSS BLOCK DETAIL  
NOT TO SCALE

CROSS BLOCK DETAILS

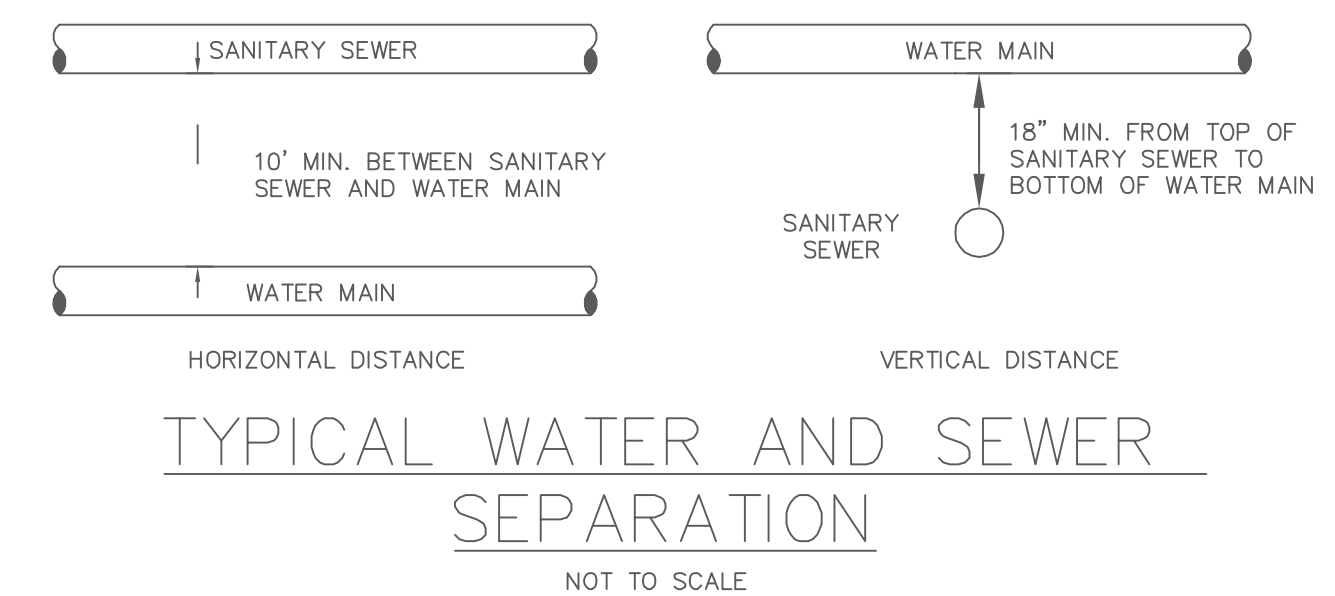
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BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



TYPICAL WATER AND SEWER SEPARATION  
NOT TO SCALE

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI  
WATER AND SEWER SEPARATION DETAIL

PROJECT TITLE:  
**SHANE ESTATES  
PHASE TWO  
AS-BUILT PLANS**  
#566 HIGHWAY P  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MO. 63366

ENGINEERING  
PLANNING  
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221 Point Park Blvd.  
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Missouri State Certificate of Authority  
Engineering #000555  
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Surveying #000144

REVISIONS	
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04/05/21	CITY COMMENT REVS.

Developer / Owner:  
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428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

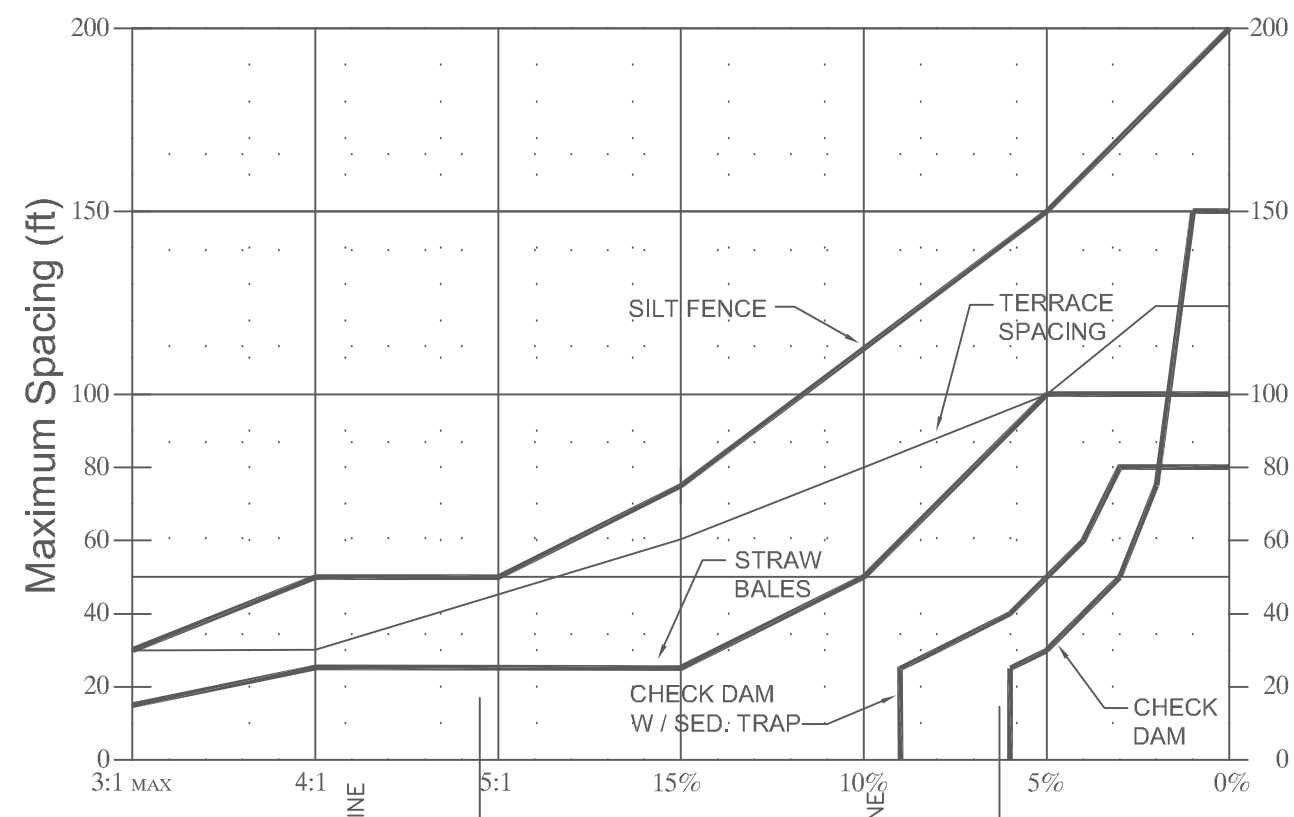
**WATER DETAILS**

P+Z No. #19-009651  
Approval Date: 11/07/2019  
City No. #City number

Page No.

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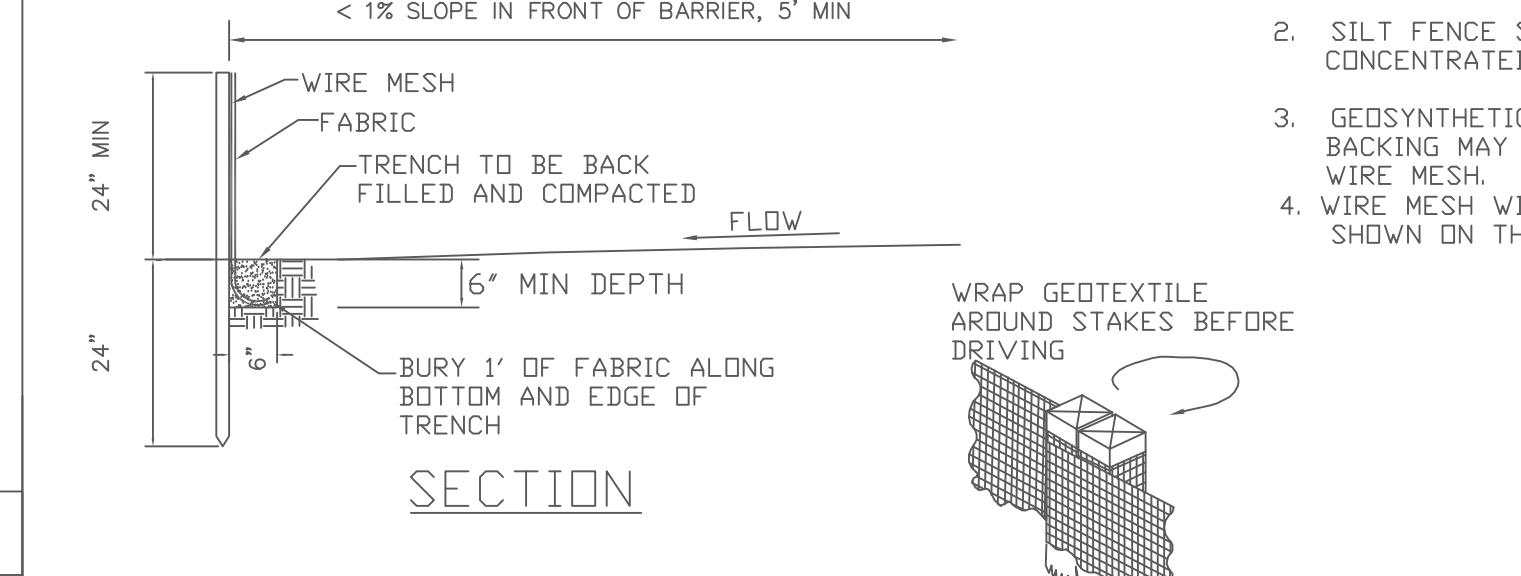
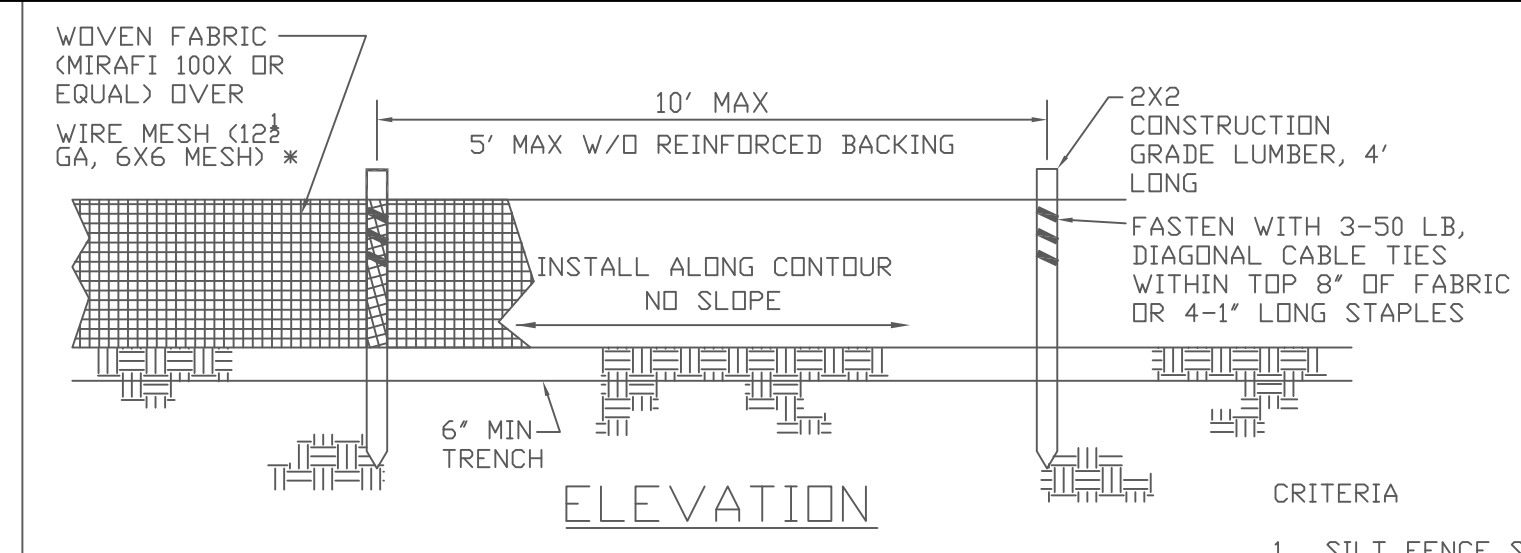
LAND SURVEYOR'S SEAL DOES NOT APPLY TO CITY OF O'FALLON DETAILS ON THIS SHEET.



- DESIGN CRITERIA**
- SILT FENCE FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  - STRAW BALE BARRIERS FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  - REFER TO INDIVIDUAL ESC FIGURE FOR INSTALLATION.
  - TERRACING INCLUDES LOGS, WATTLES & FILTER SOCKS.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

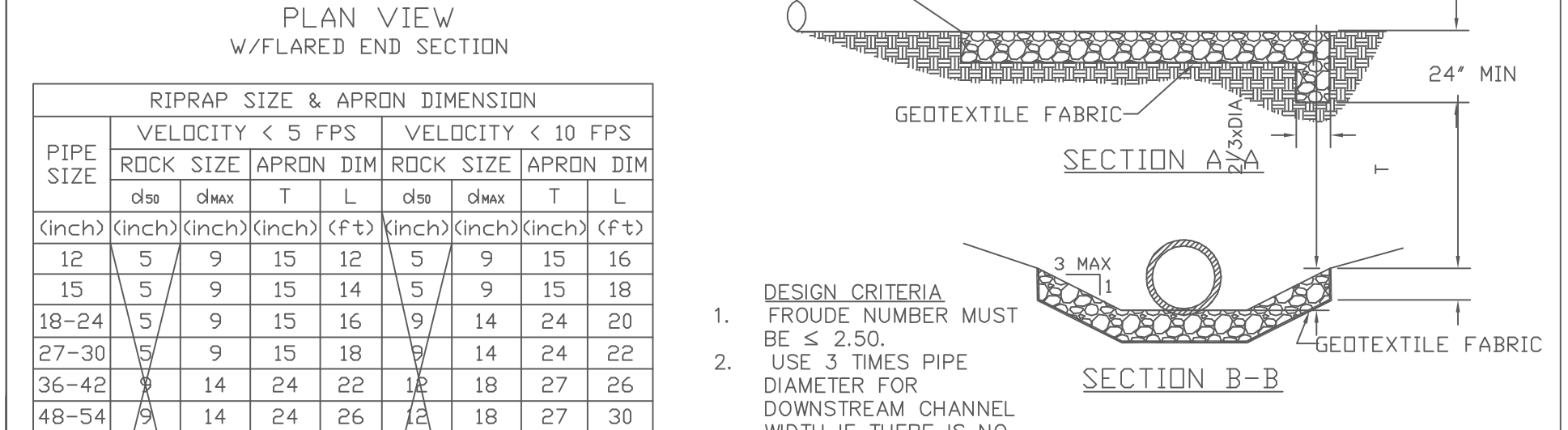
**SPACING CHART FOR ESC DEVICES**



- CRITERIA**
- SILT FENCE SHALL BE 24 INCHES HIGH.
  - SILT FENCE SHALL NOT BE USED FOR CONCENTRATED FLOWS.
  - GEOSYNTHETIC REINFORCED SILT FENCE BACKING MAY BE USED IN LIEU OF WIRE MESH.
  - WIRE MESH WILL BE USED AT LOCATIONS SHOWN ON THE APPROVED SWPPP.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

**SILT FENCE INSTALLATION SHEET FLOW (ONLY)**



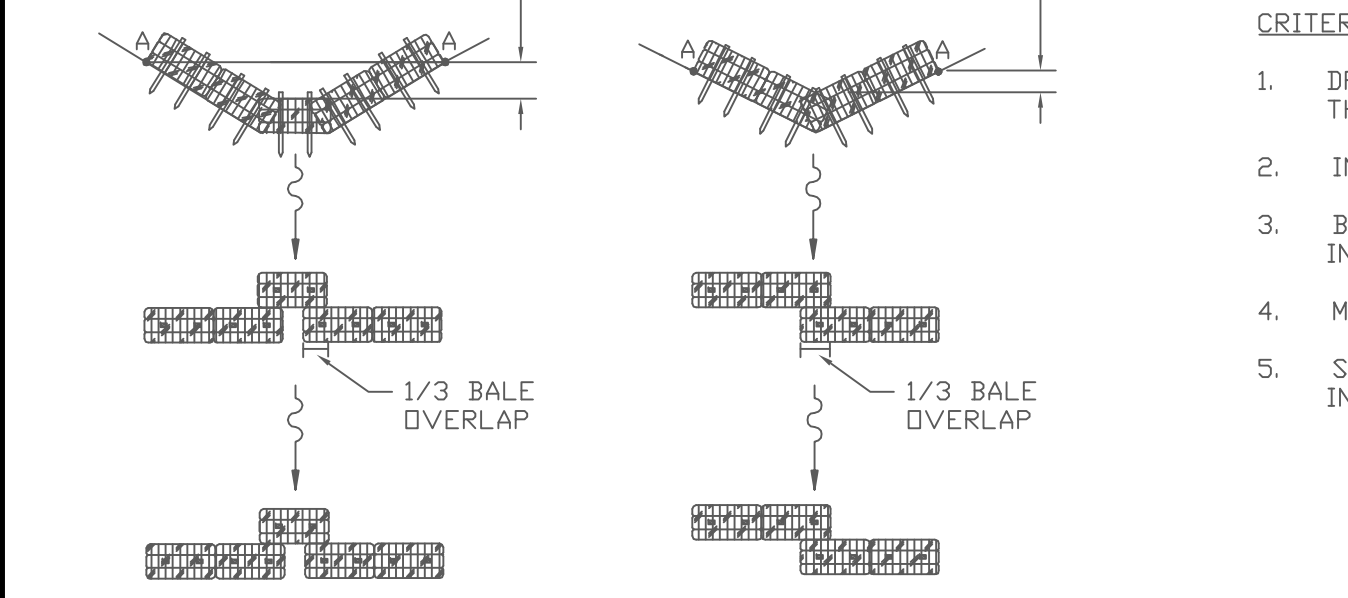
**RIPRAP SIZE & APRON DIMENSION**

PIPE SIZE (inch)	VELOCITY < 5 FPS				VELOCITY < 10 FPS			
	ROCK SIZE (inch)	APRON DIM (inch)	ROCK SIZE (inch)	APRON DIM (inch)	ROCK SIZE (inch)	APRON DIM (inch)	ROCK SIZE (inch)	APRON DIM (inch)
12	5	9	15	12	5	9	15	16
15	5	9	15	14	5	9	15	18
18-24	5	9	15	16	9	14	24	20
27-30	9	15	18	9	14	24	22	
36-42	14	24	22	18	18	27	26	
48-54	14	24	26	18	18	27	30	
60-66	12	18	27	34	15	24	30	38
72-84	15	24	30	42	15	24	30	46
96	18	27	30	50	18	27	30	54

- DESIGN CRITERIA**
- FROUDE NUMBER MUST BE  $\leq 2.50$ .
  - USE 3 TIMES PIPE DIAMETER FOR DOWNSTREAM CHANNEL WIDTH IF THERE IS NO DEFINED CHANNEL.
  - BANK PROTECTION HEIGHT TO BE 2/3 TIMES PIPE DIAMETER.
  - ROCK SLOPES SHALL BE NO STEEPER THAN 3:1.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

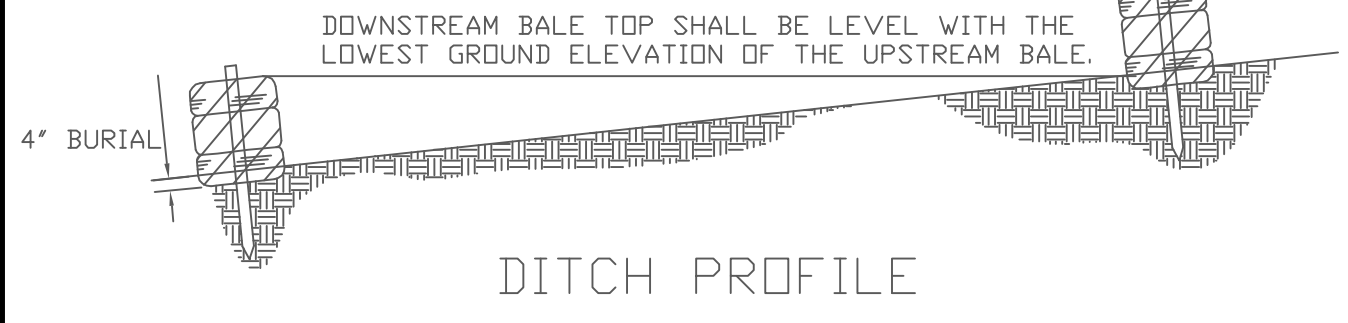
**TEMPORARY OUTLET PIPE DISCHARGE PROTECTION**



- CRITERIA FOR LOW CONCENTRATED FLOWS**
- DRAINAGE AREAS SHALL BE LESS THAN 1 ACRE.
  - INSTALL TWO STAKES PER BALE.
  - BALES WILL BE TRENCHED 4\"/>

**CHECK DAM SPACING**

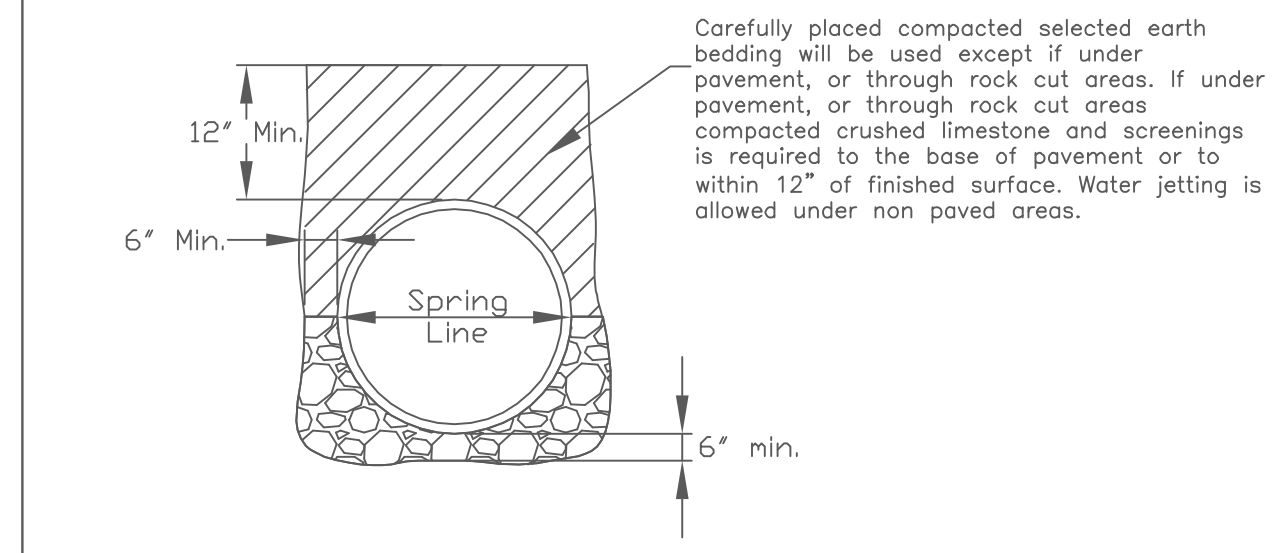
Ditch Slope	Maximum Spacing
3%	50'
2%	75'



CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

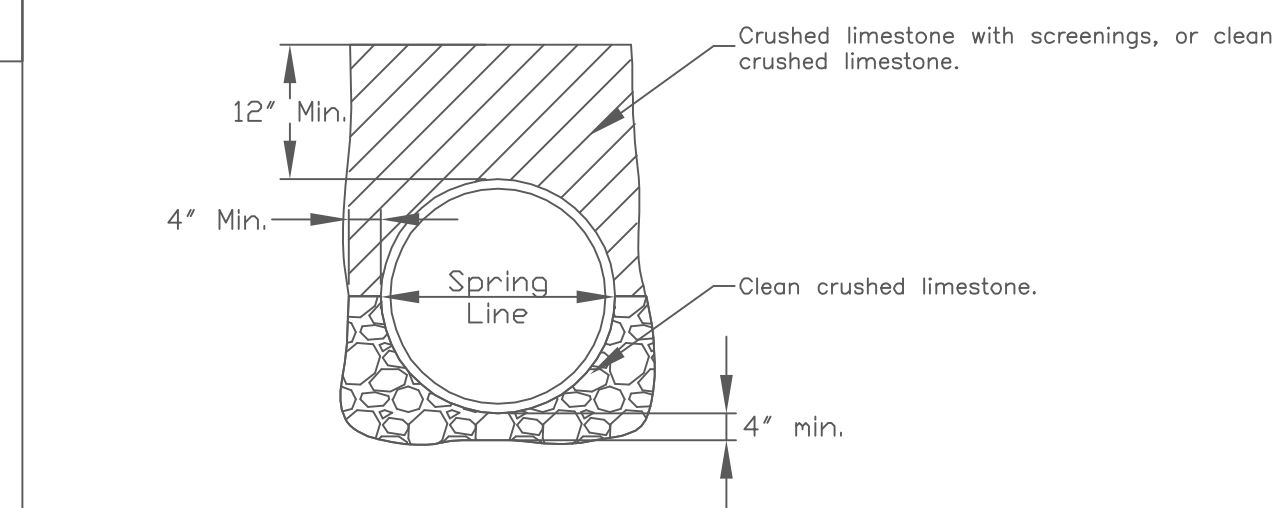
**STRAW BALE CHECK DAM**

- All other Storm or Sanitary Sewer Details will be by M.S.D. Standards and Specifications.
- All inlets shall have 5/8\"/>



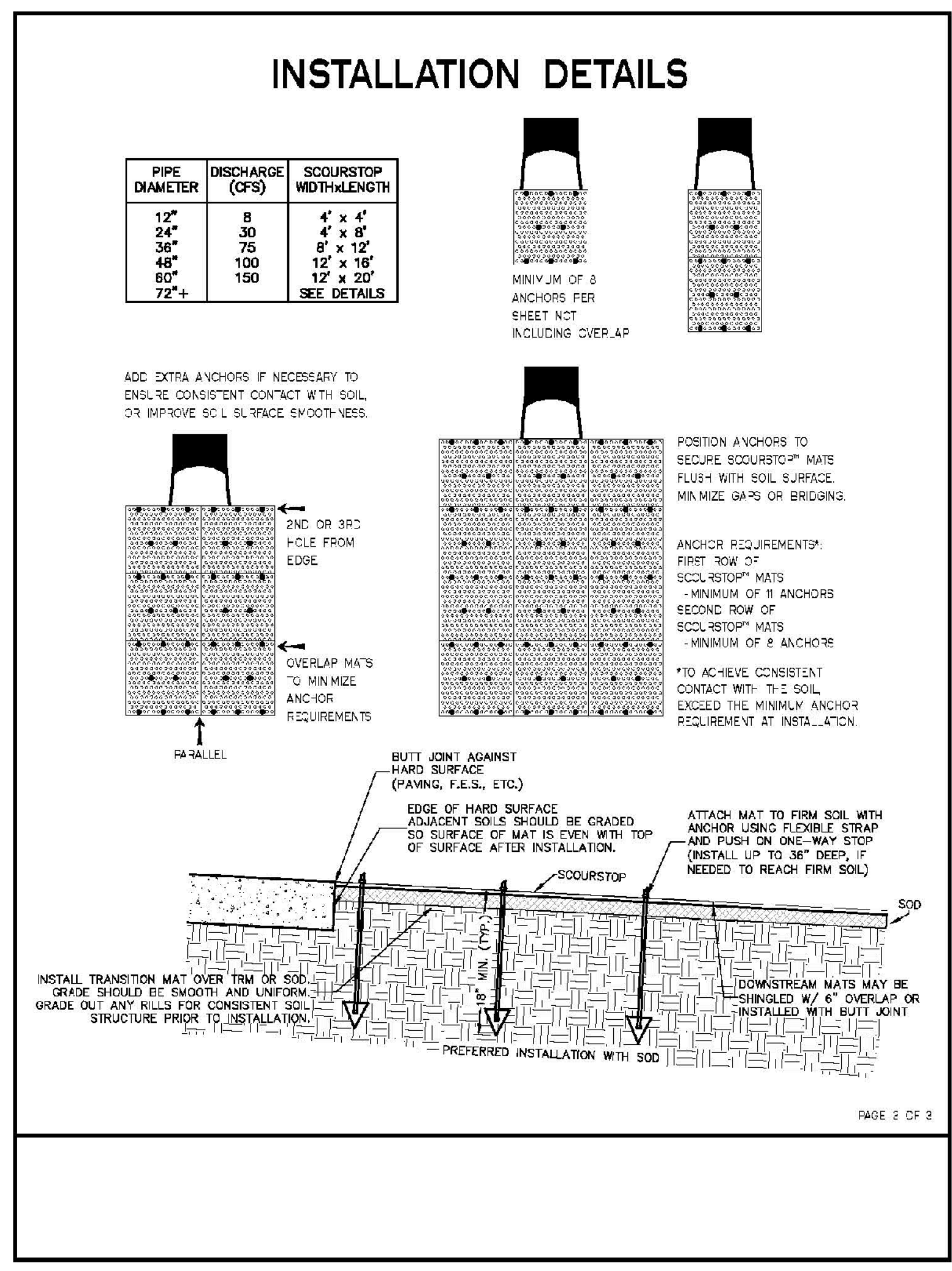
CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

**STORM SEWER TRENCH DETAIL**

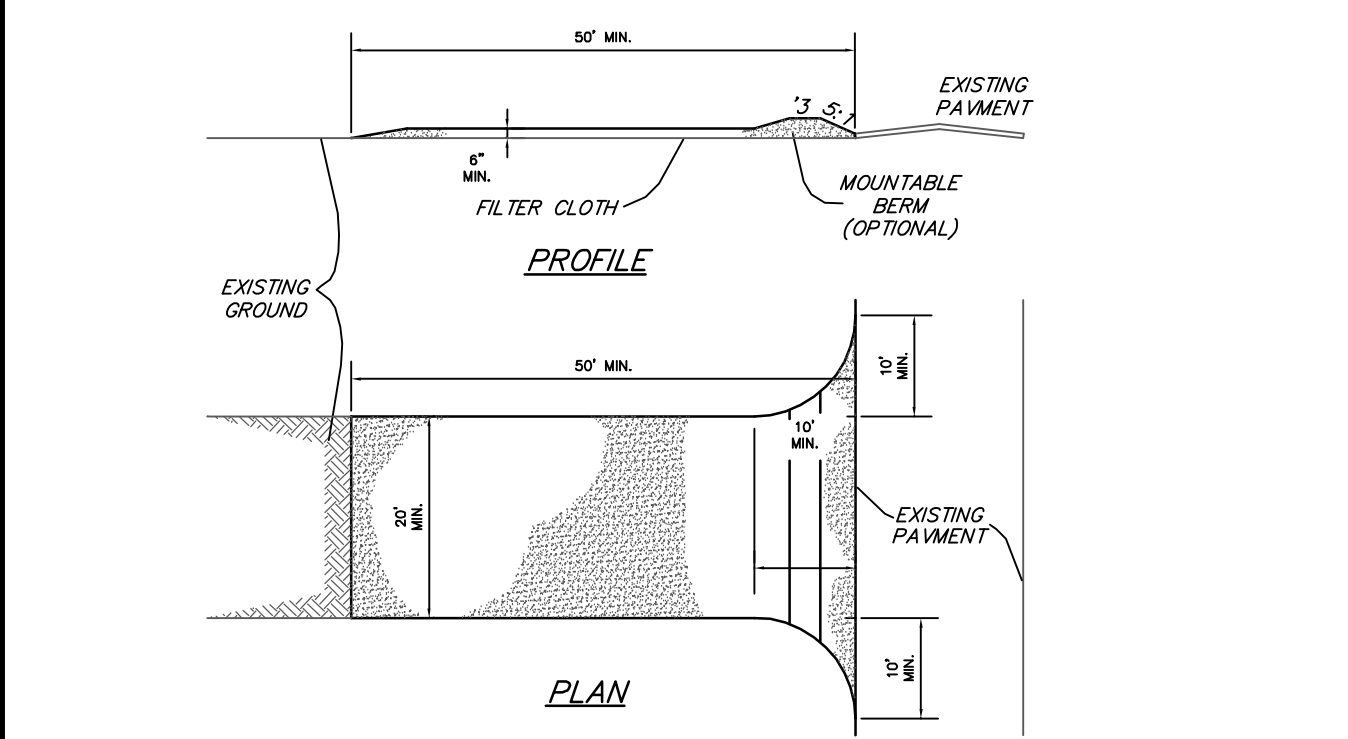
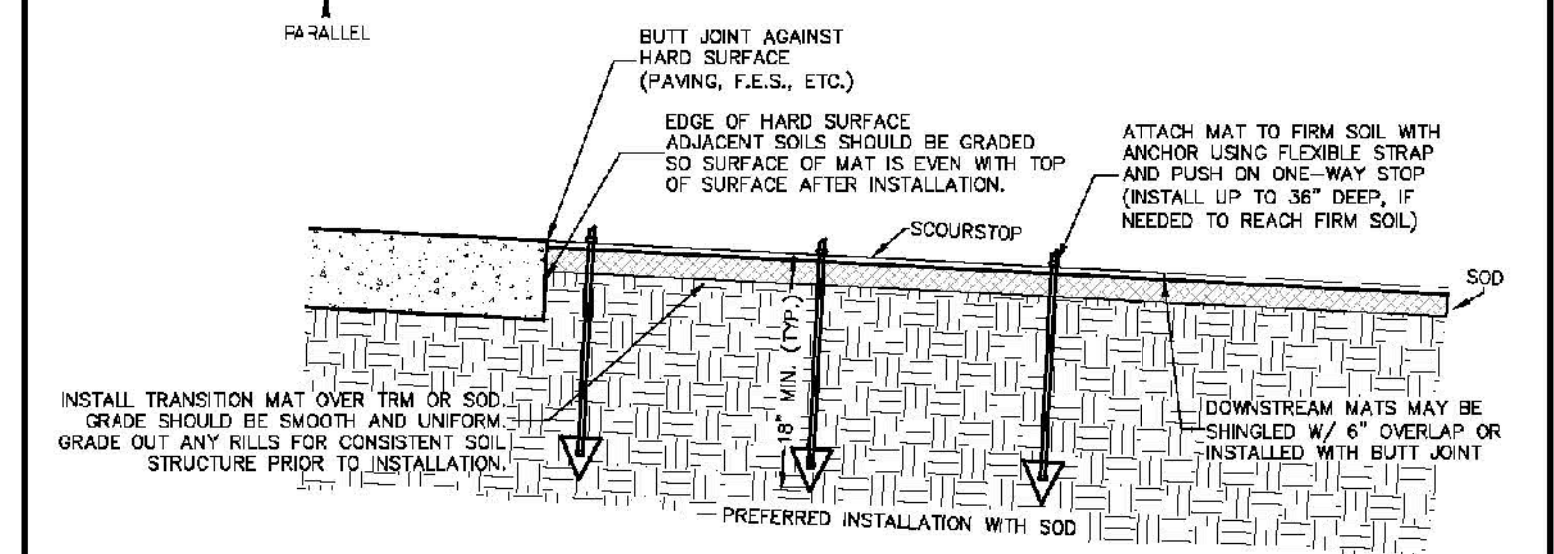


CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

**SANITARY SEWER TRENCH DETAIL**



PIPE DIAMETER	DISCHARGE (CFS)	SCOURSTOP WIDTH/LENGTH
12"	8	4' x 4'
24"	30	4' x 8'
36"	75	8' x 12'
48"	100	12' x 16'
60"	150	12' x 20'
72"+		SEE DETAILS



- CONSTRUCTION SPECIFICATIONS**
- Stone Size - Use 2\"/>

**STABILIZED CONSTRUCTION ENTRANCE/WASHDOWN AREA**  
NOT TO SCALE

**AS-BUILT PUBLIC UTILITY FINAL MEASUREMENTS**

THE FOLLOWING UTILITIES HAVE BEEN LOCATED AND MEASURED AND THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS:

- STORM SEWERS, STORM SEWER LENGTHS, STORM SEWER PIPE SIZES, STORM SEWER FLOWLINES AND DEPTHS OF STORM SEWER STRUCTURES.
- SANITARY SEWERS, SANITARY SEWER LENGTHS, SANITARY SEWER PIPE SIZES, SANITARY SEWER FLOWLINES AND DEPTHS OF SANITARY SEWER STRUCTURES.
- FIRE HYDRANTS
- WATER VALVES
- LIGHT STANDARDS

ALL PUBLIC UTILITIES SHOWN HEREON AS BEING AS-BUILT ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS.

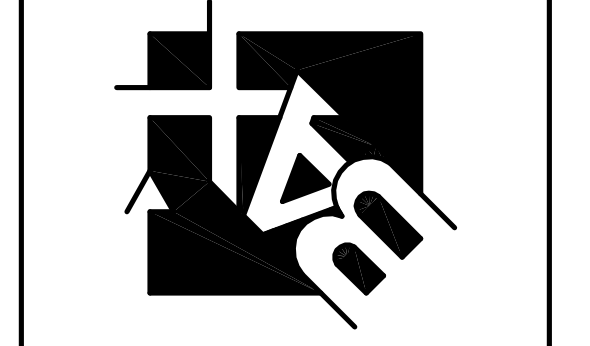
BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



**LAND SURVEYOR'S SEAL DOES NOT APPLY TO DETAILS ON THIS SHEET.**

**PROJECT TITLE:**  
SHANE ESTATES  
PHASE TWO  
AS-BUILT PLANS  
#566 HIGHWAY P  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MO. 63366

**ENGINEERING SURVEYING**  
221 Point Park Blvd.  
St. Charles, MO 63301  
636-928-5552  
FAX 636-928-1718



**DISCLAIMER OF RESPONSIBILITY**  
I hereby specify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

Bax Engineering Company, Inc.  
Missouri State Certificate of Authority  
Engineering #000555  
Missouri State Certificate of Authority  
Surveying #000144

**REVISIONS**

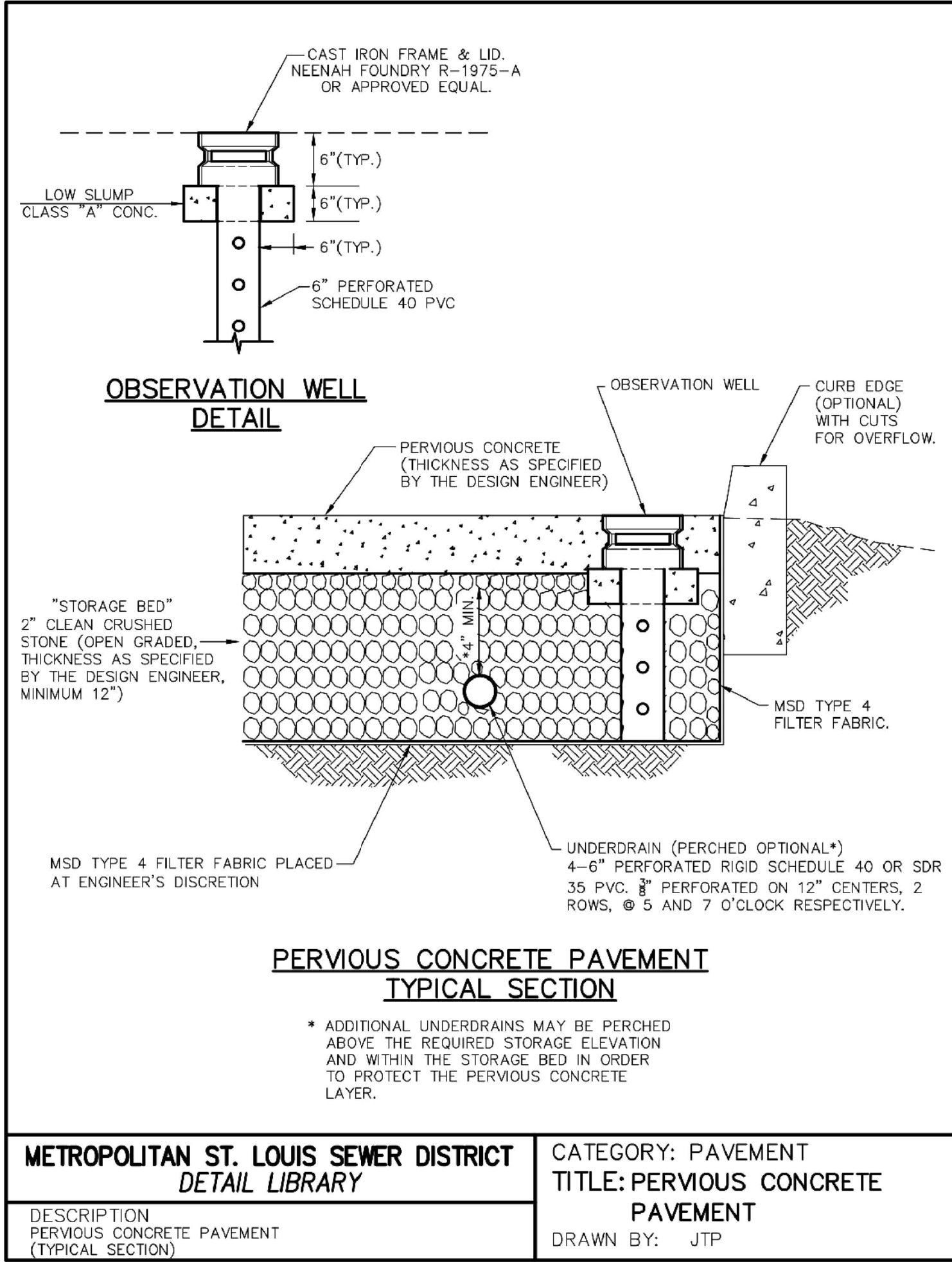
DATE	CITY COMMENT REVS.
02/04/21	CITY COMMENT REVS.
04/05/21	CITY COMMENT REVS.

**Developer / Owner:**  
ELLA REAL PROPERTY HOLDINGS, L.L.C.  
428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

**CONSTRUCTION DETAILS**

**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019  
**City No.** #City number

**Page No.**  
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<b>METROPOLITAN ST. LOUIS SEWER DISTRICT</b> <i>DETAIL LIBRARY</i>	CATEGORY: PAVEMENT TITLE: PERVIOUS CONCRETE PAVEMENT DRAWN BY: JTP
DESCRIPTION PERVIOUS CONCRETE PAVEMENT (TYPICAL SECTION) 09/10/2014	

## PERVIOUS CONCRETE PAVEMENT

POWER WASHING, RESURFACING, AND THE USE OF SAND ABRASIVES FOR WINTER TIRE TRACKING ARE PROHIBITED.

CARE SHALL BE TAKEN DURING SNOW PLOWING.

**PERVIOUS CONCRETE INFORMATION SIGN**  
(NOT TO SCALE)

NOTES:

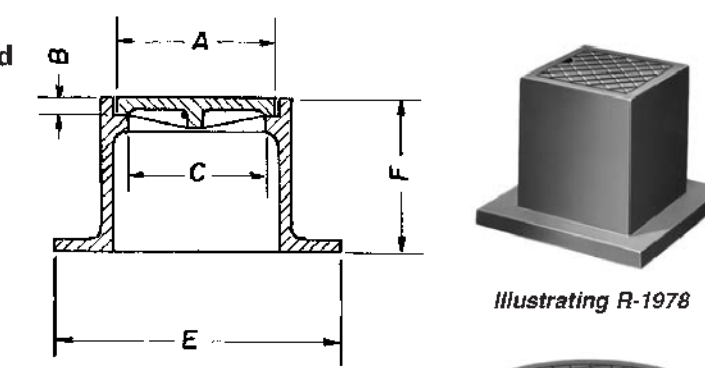
- STANDARD 18"x12"x0.080" ALUMINUM SIGN FACE WITH BLACK TEXT ON WHITE BACKGROUND GALVANIZED STEEL POST 9'-6" LONG.
- SET BOTTOM OF SIGN 5'-0" ABOVE GRADE.
- SET BOTTOM OF POST 3'-0" BELOW GRADE.

<b>METROPOLITAN ST. LOUIS SEWER DISTRICT</b> <i>DETAIL LIBRARY</i>	CATEGORY: PAVEMENT TITLE: PERVIOUS CONCRETE INFORMATION SIGN DRAWN BY: JTP
DESCRIPTION PERVIOUS CONCRETE PAVEMENT (INFORMATION SIGN) 06/21/2010	

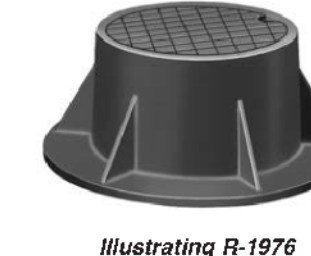
**R-1970 to R-1978 Series**  
**Lamphole/Monument/Inspection Frame, Solid Lid**

Heavy Duty

Furnished standard with as-cast bearing surfaces unless otherwise noted.



Illustrating R-1978



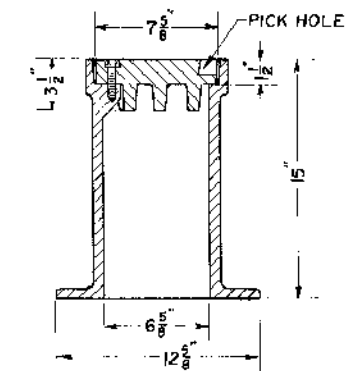
Illustrating R-1976

Catalog No.	Dimensions in inches				
	A	B	C	E	F
<i>Round</i>					
R-970	7	2 1/8	5 3/4	13 1/8	7
R-971	8	3/4	8 1/2	10 1/2	10
R-972	7 1/2	3/4	8 1/2	13 1/4	7
R-973-1	7 3/4	3/4	8 3/4	13 1/4	7
R-973-A	8 7/8	11/16	7 3/4	15 3/4	8
R-974-A	8	1	8	16	6 1/2
R-975	9 1/2	1 1/2	8 1/2	20	11
R-975-A	9 7/8	7/8	9	15 5/8	9
R-975-A2	10	1	9	15	8
R-975-A3	10	2	9	16	8
R-976	11 1/4	1 1/4	10	20	9
R-977	11 1/2	1 1/2	8 1/2	18	12
<i>Square</i>					
R-978	6 7/8 x 6 7/8	1	5 x 5	13 x 13	10
R-978-A5	7 7/8 x 7 7/8	7/8	6 1/2 x 6 1/2	16 1/2 x 16 1/2	6 7/8
R-978-A10	7 7/8 x 7 7/8	7/8	6 1/2 x 6 1/2	16 3/4 x 16 3/4	10
R-978-A15	7 7/8 x 7 7/8	7/8	6 5/8 x 6 5/8	17 1/4 x 17 1/4	15
R-978-B	12 x 12	3/4	10 5/8 x 10 5/8	20 1/2 x 20 1/2	7 3/8

\* Basic consists of 4 bolting legs for 1/2" bolt on 3/16" bolt circle unless of full frame.  
 \*\* Furnished with machined horizontal bearing surfaces.  
 \*\*\* Lid bolted to frame.

**R-1978-A2**  
**Lamphole/Monument/Inspection Frame, Solid Lid**

Heavy Duty



CLICK HERE to return to the Table of Contents



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**CLUSTER BOX UNIT (CBU)**  
**-ANCHORING METHODS-**

CBU's must be level and mounted firmly in concrete, using one of the following methods.

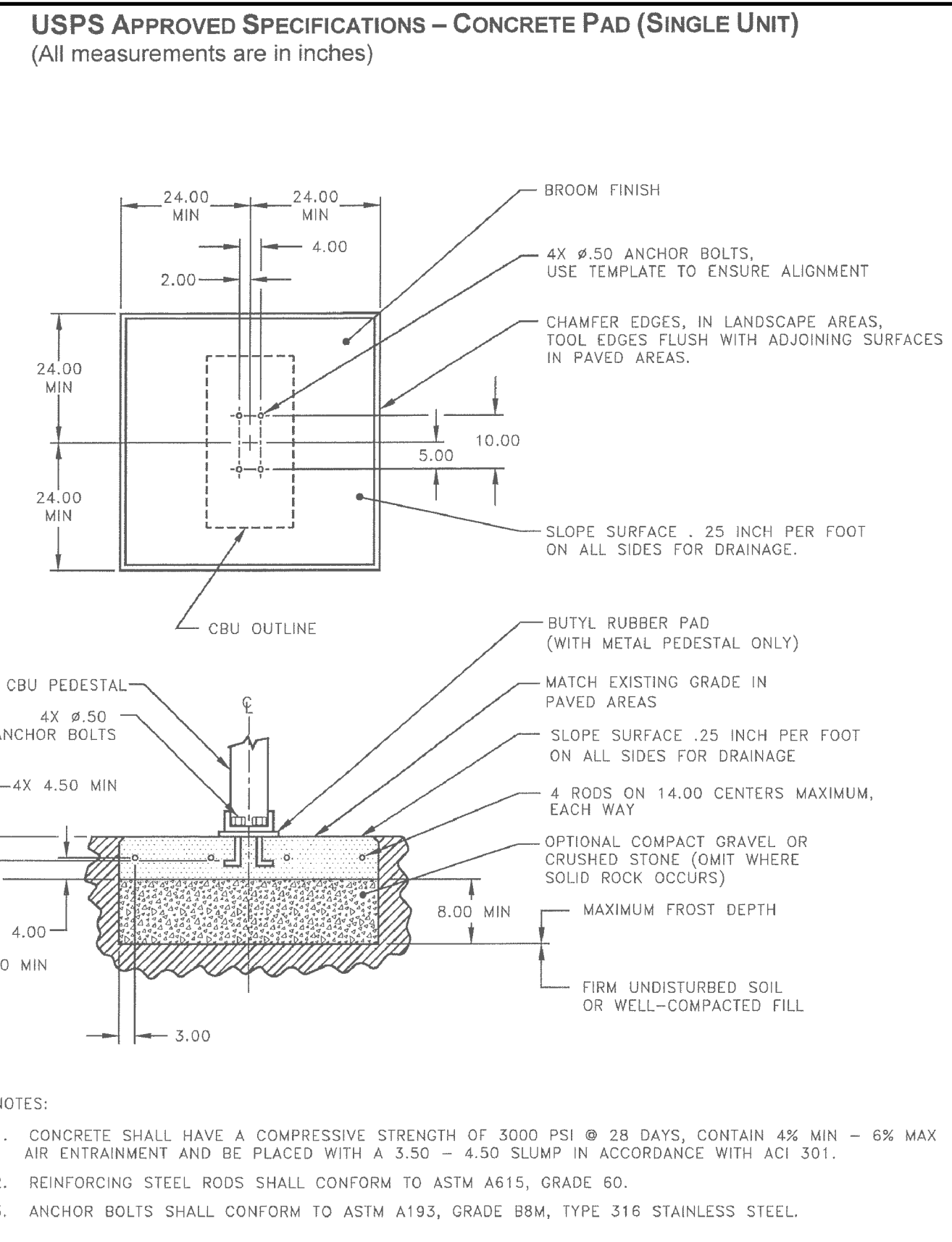
- The J-bolt method is the preferred method of installation of CBU's on concrete pads; however, the J-bolt pattern must be accurate with the CBU pedestal plate. When using J-bolts, in order to prevent any damage or accidents that could result from the exposed bolts, consideration should be given as to the time lapse between pouring the concrete and the actual installation. Expansion anchors must be installed in accordance with the manufacturer's instructions.
- The use of anchor bolts for the installation of CBU's on concrete pads is also acceptable as long as the methods described below are followed.
  - Hilti Kwik bolt II, 1/2" diameter X 5-1/2" overall length  
Catalog Number: 000-453-696, KB II 12-512  
Stainless Steel Catalog Number: 000-454-744  
Minimum embedment in concrete must be no less than 3-1/2"
  - ITW Ramset Redhead Trubolt, galvanized, 1/2" diameter X 7" overall length
  - Rawl Stud, 1/2" diameter X 5 1/2" overall length, galvanized.  
Catalog Number: 7324  
Minimum embedment in concrete must be no less than 4"

**CLUSTER BOX UNIT (CBU)**  
**-CONCRETE PAD REQUIREMENTS-**

- ALL FREE STANDING PADS MUST BE 8" THICK -

1 UNIT	SINGLE PAD	4' X 4'
2 UNITS	DOUBLE PAD	4' X 7'
3 UNITS	TRIPLE PAD	4' X 10'
4 UNITS	QUAD PAD	4' X 13'

\*\*\* WHEN PLACING A PARCEL LOCKER AT ANY CBU LOCATION, INCREASE THE PAD SIZE BY AN ADDITIONAL 4' X 4' \*\*\*



**AS-BUILT PUBLIC UTILITY FINAL MEASUREMENTS**

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- LIGHT STANDARDS

ALL PUBLIC UTILITIES SHOWN HEREON AS BEING AS-BUILT ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS.

BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173



**PROJECT TITLE:**  
**SHANE ESTATES**  
**PHASE TWO**  
**AS-BUILT PLANS**  
#666 HIGHWAY P  
CITY OF FALLON  
ST. CHARLES COUNTY, MO. 63366

**ENGINEERING**  
**PLANNING**  
**SURVEYING**

221 Point View Blvd.  
St. Charles, MO 63301  
636-928-5552  
FAX 636-928-1718

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Bax Engineering Company, Inc.  
Missouri State Certificate of Authority  
Engineering #000555  
Missouri State Certificate of Authority  
Surveying #000144

**REVISIONS**

02/04/21	CITY COMMENT REVS.
04/05/21	CITY COMMENT REVS.

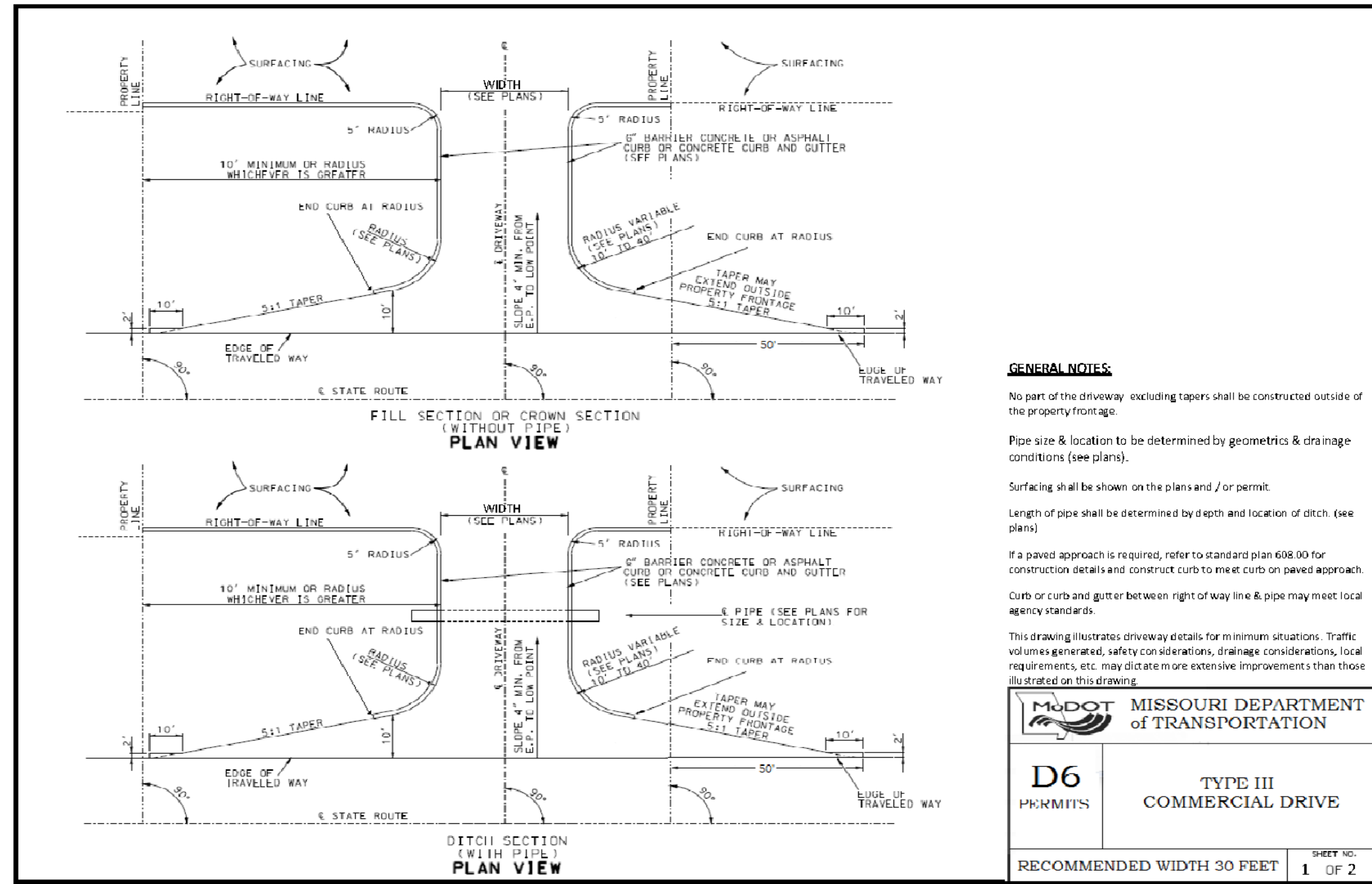
**Developer / Owner:**  
ELLA REAL PROPERTY HOLDINGS, L.L.C.  
428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

**DETAILS**

**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019  
**City No.** #City number

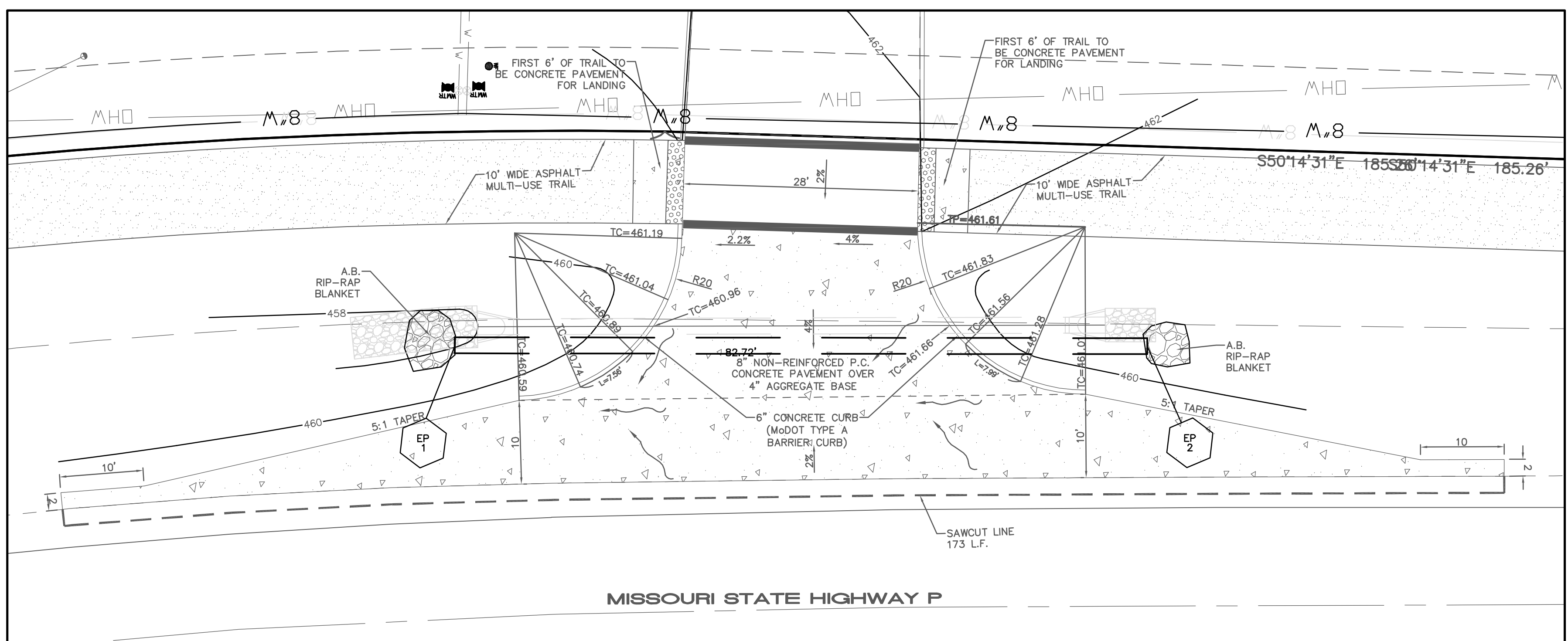
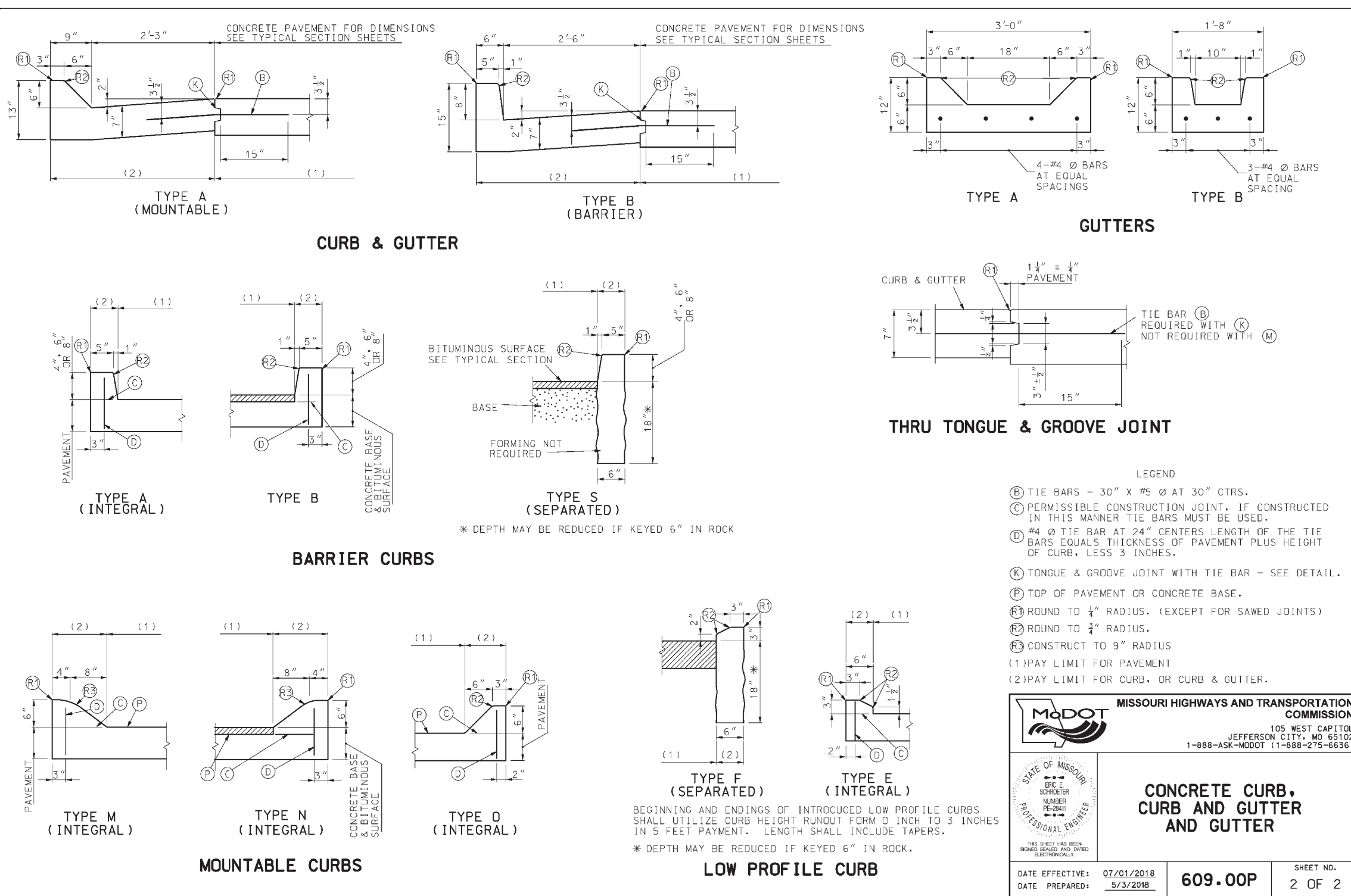
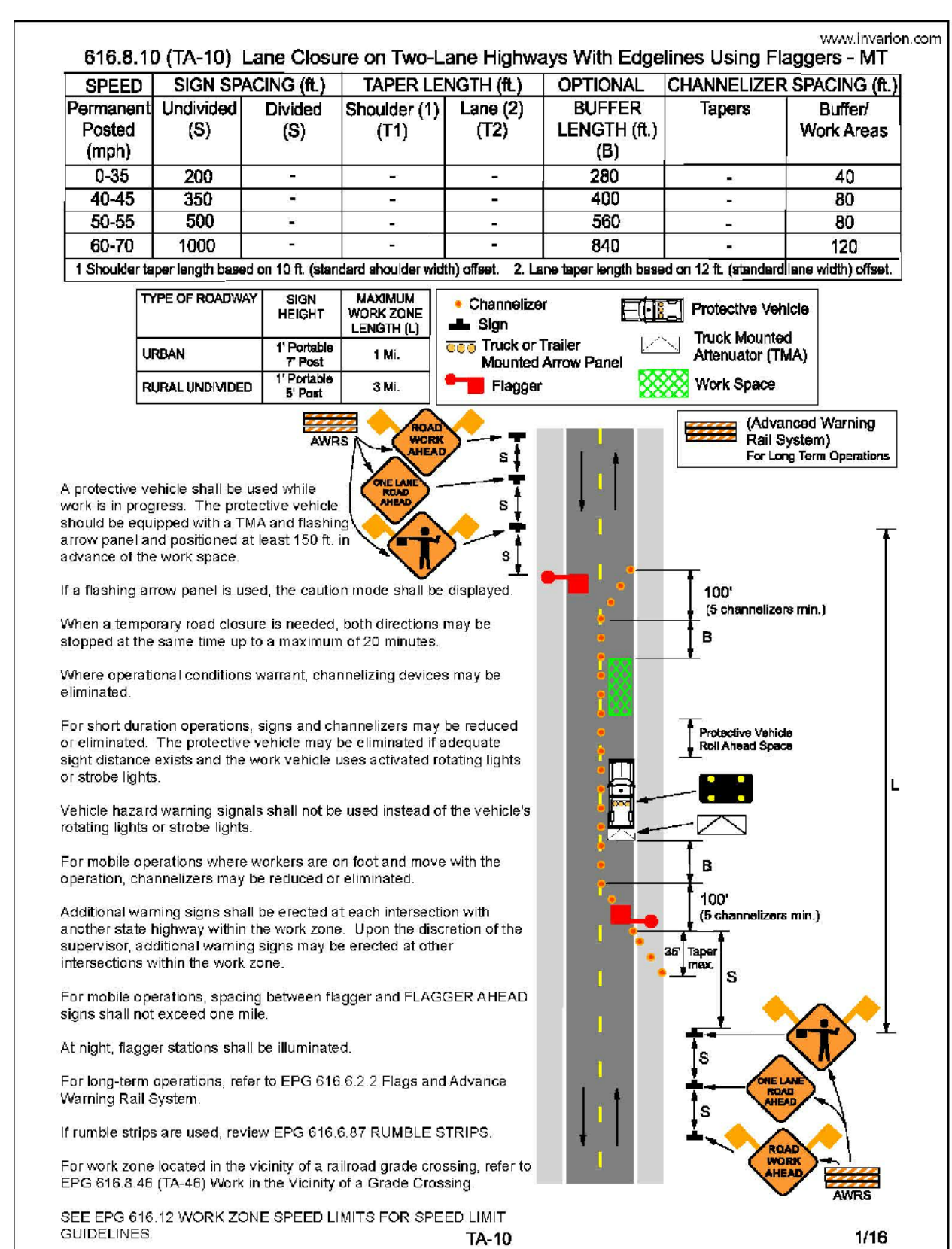
**Page No.**  
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**LAND SURVEYOR'S SEAL DOES NOT APPLY TO DETAILS ON THIS SHEET.**



CROSS SECTION	CONDITION		TREATMENT	SIGN	
	DIFFERENTIAL	TIME		MAINLINE (1)	SIDE ROAD (2)
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2" TO 5"	NON-WORKING HOURS	WEDGE SLOPE TO 1:1.5H OR FLATTER	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		WORKING HOURS	NO EDGE TREATMENT REQUIRED	W08-11 (S)	W08-11 (S)
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2" TO 5"	NON-WORKING HOURS	WEDGE SLOPE TO 1:1.5H OR FLATTER	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		WORKING HOURS	NO EDGE TREATMENT REQUIRED	W08-11 (S)	W08-11 (S)
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2"	NON-WORKING HOURS	WEDGE SLOPE TO 1:1.5H OR FLATTER	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		WORKING HOURS	DELINEATE DIFFERENTIAL WITH CHANNELIZERS	W08-11 (S)	W08-11 (S)
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2"	NON-WORKING AND WORKING HOURS	NO EDGE TREATMENT REQUIRED	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		NON-WORKING AND WORKING HOURS	NO EDGE TREATMENT REQUIRED	NO SIGNS REQUIRED	NO SIGNS REQUIRED
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2"	NON-WORKING AND WORKING HOURS	WEDGE SLOPE TO 1:1.5H OR FLATTER	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		NON-WORKING AND WORKING HOURS	DELINEATE DIFFERENTIAL WITH CHANNELIZERS	W08-11 (S)	W08-11 (S)
EDGE DROP-OFF 1:1.5H SLOPE OR FLATTER	PAVEMENT EDGE DIFFERENTIAL > 2"	NON-WORKING AND WORKING HOURS	WEDGE SLOPE TO 1:1.5H OR FLATTER	NO SIGNS REQUIRED	NO SIGNS REQUIRED
		NON-WORKING AND WORKING HOURS	DELINEATE DIFFERENTIAL WITH CHANNELIZERS	W08-11 (S)	W08-11 (S)

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION**  
 MISSOURI DEPARTMENT OF TRANSPORTATION  
 DATE EFFECTIVE: 12/05/2018  
 DATE PREPARED: 8/16/2021  
**PAVEMENT EDGE TREATMENT**  
 619.10J  
 SHEET NO. 1 OF 1



**LAND SURVEYOR'S SEAL DOES NOT APPLY TO TRAFFIC CONTROL OR MODOT DETAILS ON THIS SHEET**

**PROJECT TITLE:**  
**SHANE ESTATES**  
**PHASE TWO**  
**AS-BUILT PLANS**  
 #566 HIGHWAY P  
 CITY OF FALLON  
 ST. CHARLES COUNTY, MO. 63366  
 Bax Project # 99-103339B Issue Date: 01/10/2020

**ENGINEERING SURVEYING**  
 221 Point View Blvd.  
 St. Charles, MO 63301  
 636-928-5552  
 FAX 636-928-1718

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Box Engineering Company, Inc.  
 Missouri State Certificate of Authority  
 Engineering #000555  
 Missouri State Certificate of Authority  
 Surveying #000144

**REVISIONS**

DATE	REVISION
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04/05/21	CITY COMMENT REVS.

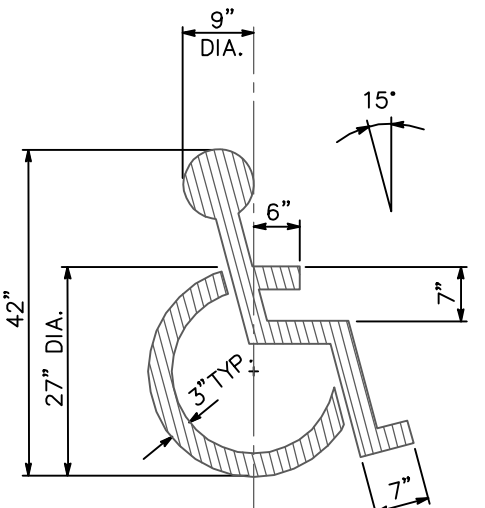
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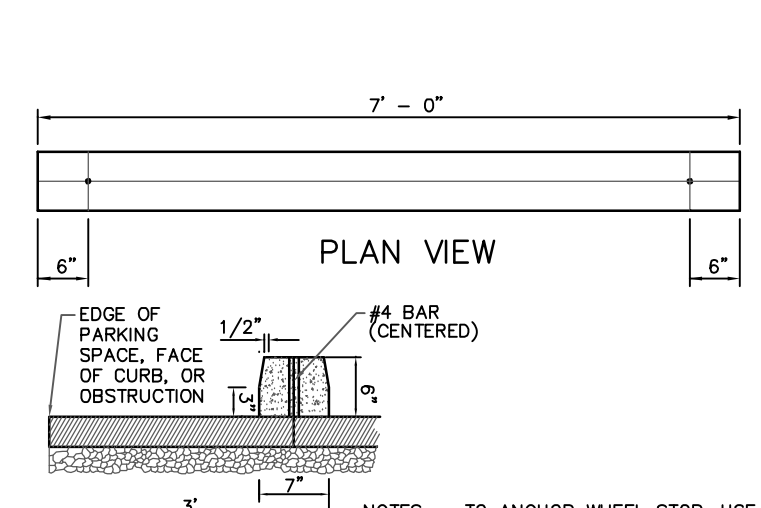
**Page No.**  
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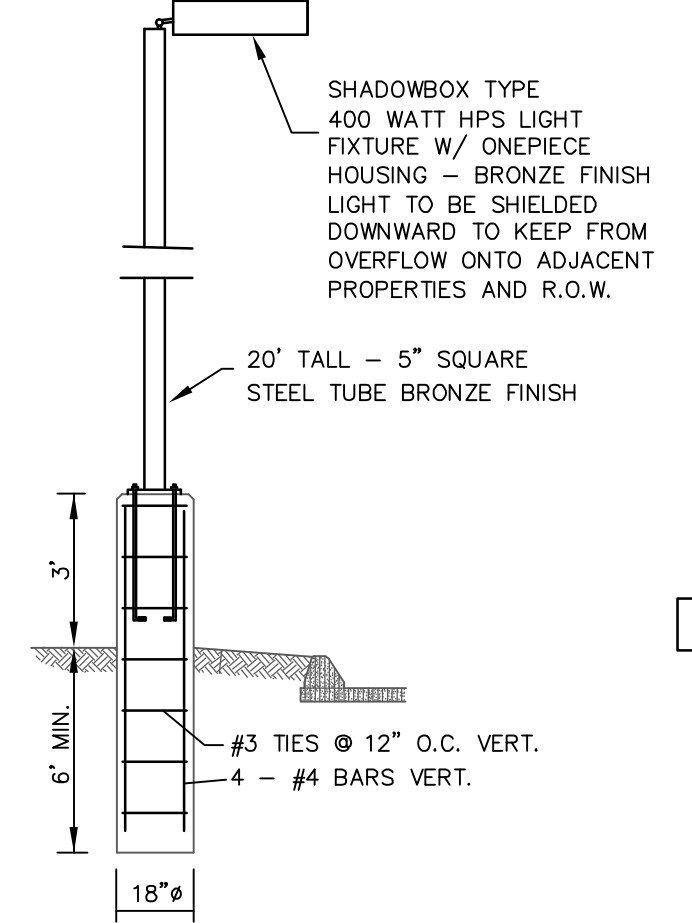




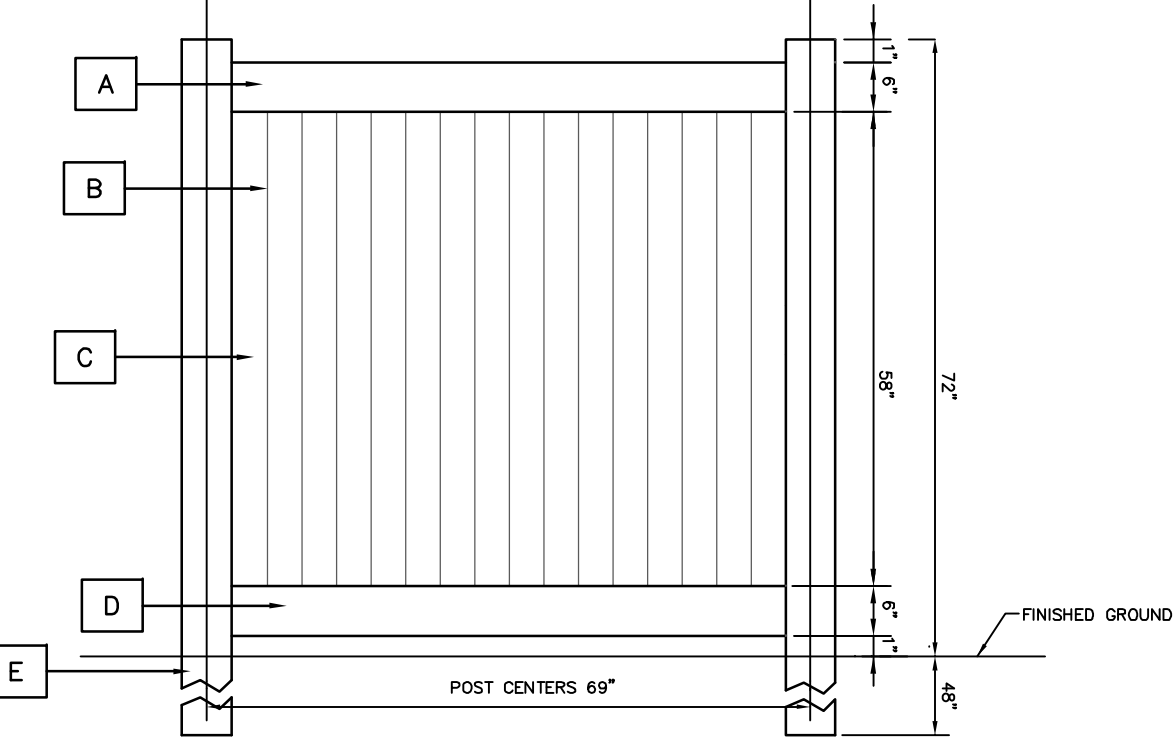
**PAINTED HANDICAPPED PARKING SYMBOL**  
NOT TO SCALE



**PRECAST CONCRETE WHEELSTOP**  
NOT TO SCALE

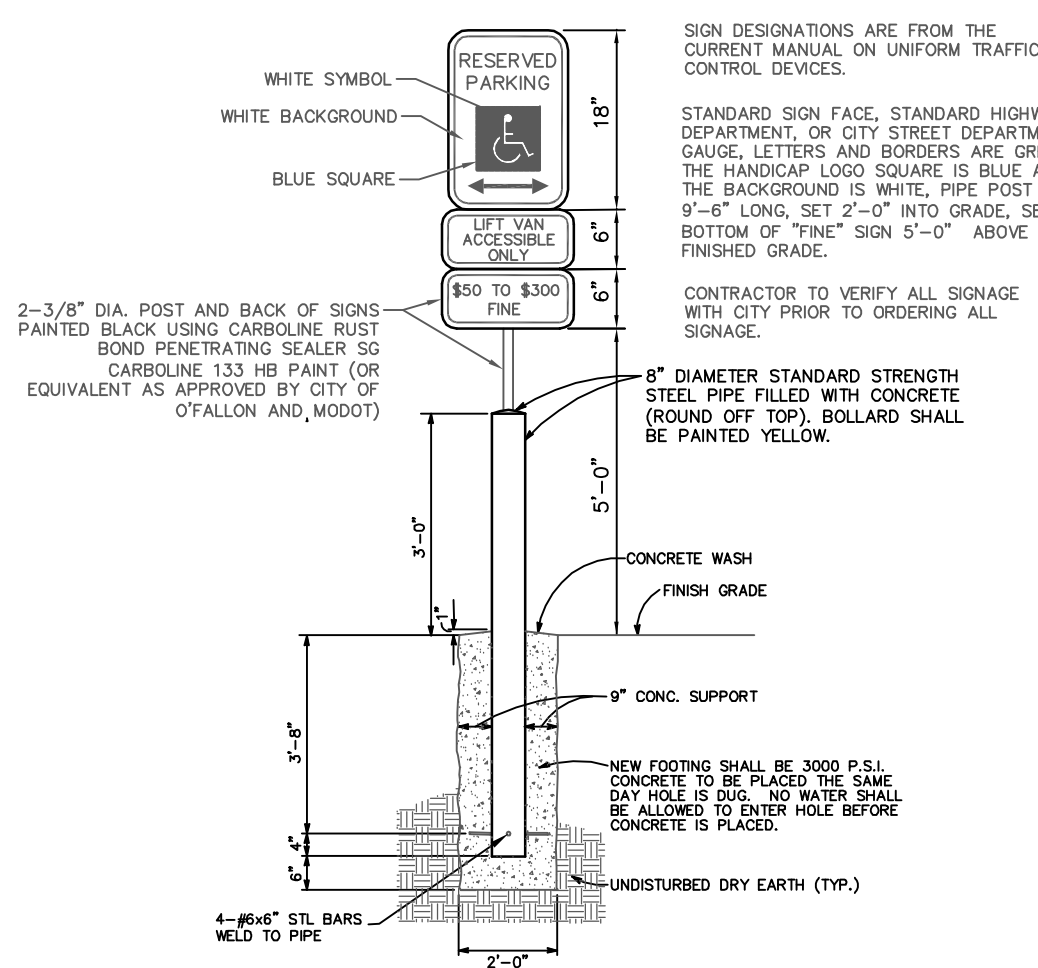


**LIGHT POLE & BASE**  
NOT TO SCALE

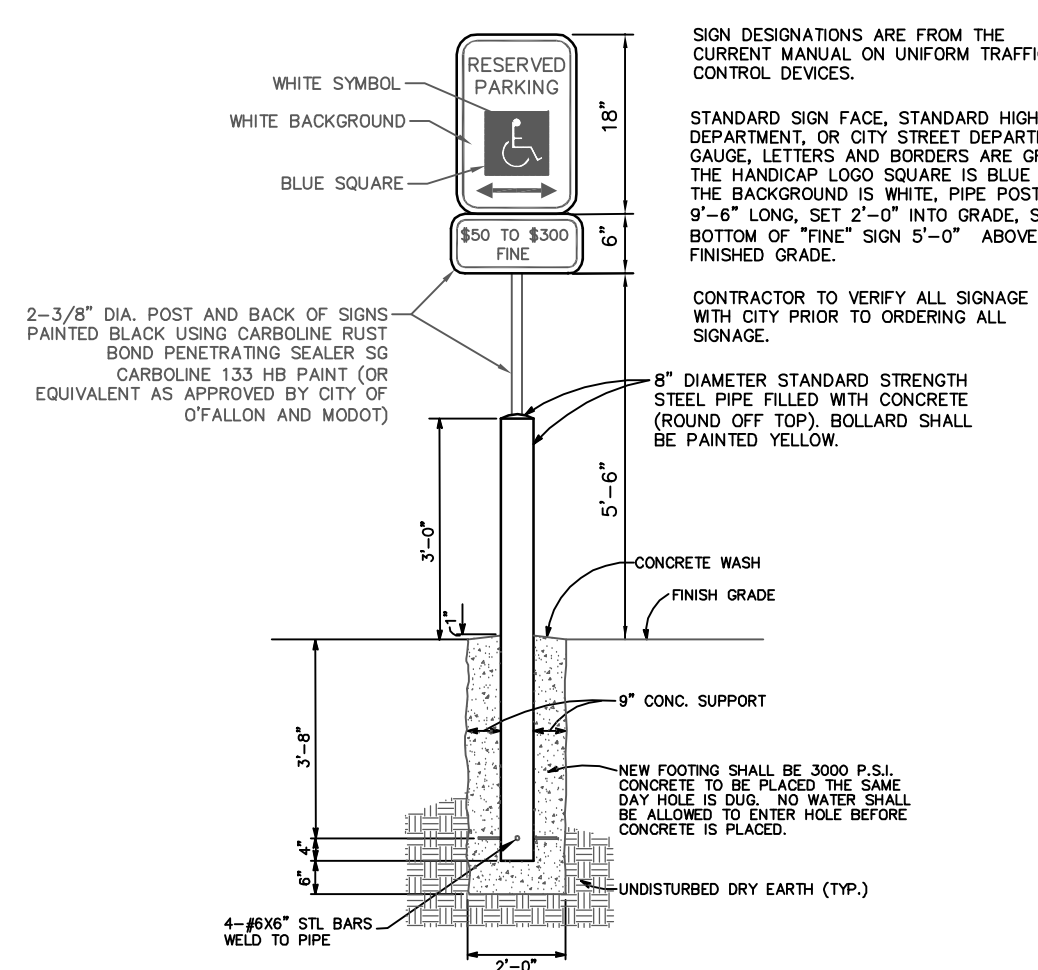


**6' HIGH VINYL PRIVACY FENCE FOR TRASH ENCLOSURE AND GATE**  
NOT TO SCALE

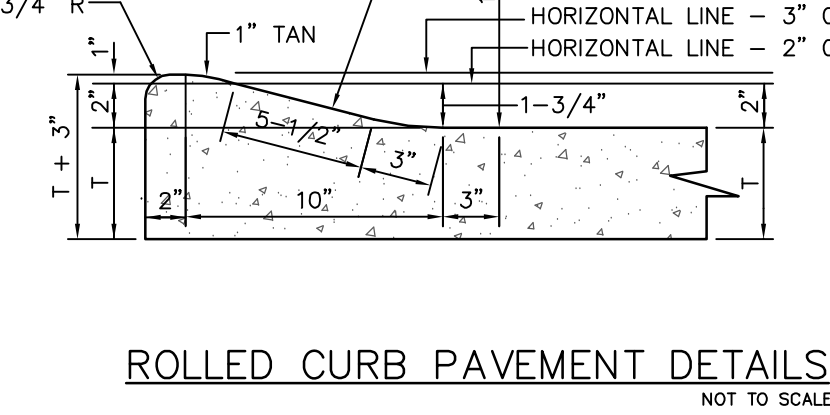
- A TOP RAIL 2" x 6" x 67" RIBBED CHANNEL TO ACCEPT PICKETS INCLUDES REINFORCING CHANNEL
  - B PICKET SPACING NONE
  - C PICKETS 9 PANELS OF 7/8" x 7" x 60"
  - D BOTTOM RAIL 2" x 6" x 67" RIBBED CHANNEL TO ACCEPT PICKETS INCLUDES REINFORCING CHANNEL
  - E POST 6" x 6" x 120" (48" BELOW FINISHED GROUND 72" ABOVE FINISHED GROUND)
- ACTUAL DIMENSIONS AND MATERIAL SIZING WILL BE BASED ON SELECTED FENCE MANUFACTURER. DETAIL SHOWN IS FOR REFERENCE ONLY.



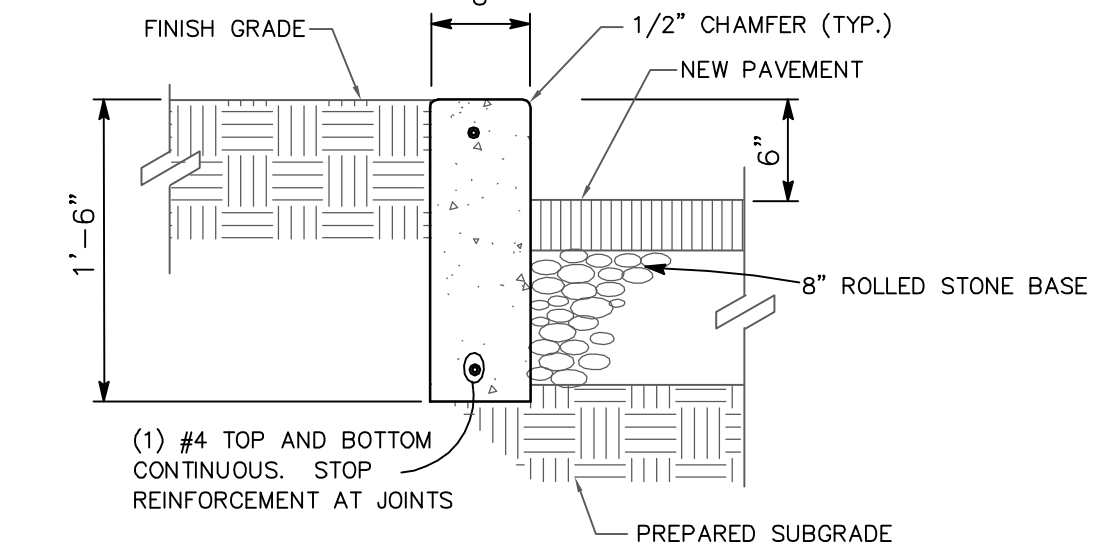
**PIPE BOLLARD ACCESSIBLE VAN PARKING SIGN**  
NOT TO SCALE



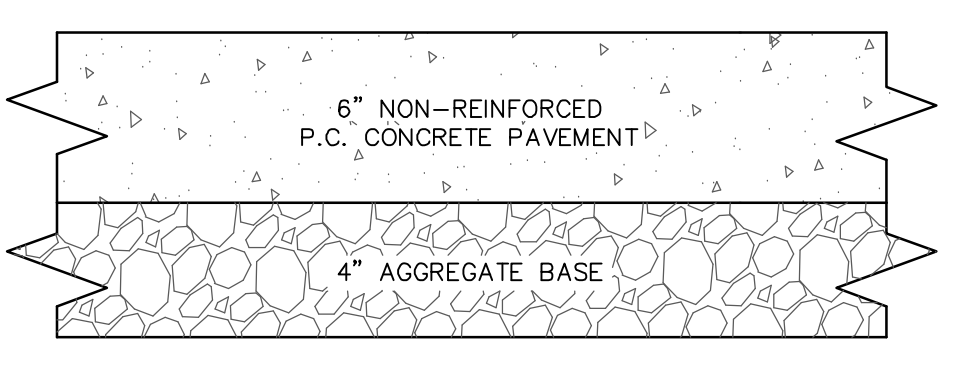
**PIPE BOLLARD ACCESSIBLE PARKING SIGN**  
NOT TO SCALE



**ROLLED CURB PAVEMENT DETAILS**  
NOT TO SCALE

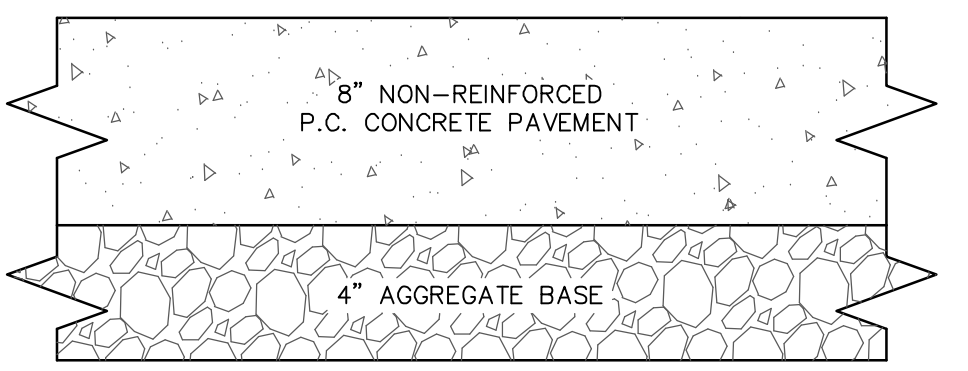


**CONCRETE CURB DETAIL**  
NOT TO SCALE



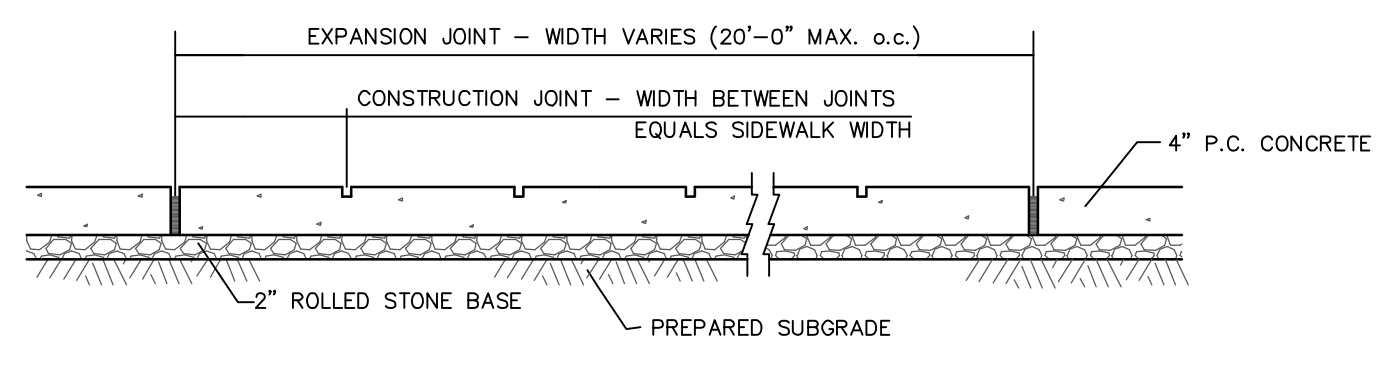
**PARKING LOT PAVEMENT DETAIL**  
NOT TO SCALE

\* CONCRETE PAVEMENT SHALL REACH A MINIMUM OF 4000 PSI IN 28 DAYS.  
\* ALL GRANULAR ROLLED STONE BASE UNDER PROPOSED CONCRETE MUST BE COMPACTED TO 100% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI IN 28 DAYS.



**ENTRANCE PAVEMENT & TRASH ENCLOSURE PAVEMENT DETAIL**  
NOT TO SCALE

\* CONCRETE PAVEMENT SHALL REACH A MINIMUM OF 4000 PSI IN 28 DAYS.  
\* ALL GRANULAR ROLLED STONE BASE UNDER PROPOSED CONCRETE MUST BE COMPACTED TO 100% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI IN 28 DAYS.



**CONCRETE SIDEWALK DETAIL**  
NOT TO SCALE

\* ALL GRANULAR ROLLED STONE BASE UNDER PROPOSED CONCRETE MUST BE COMPACTED TO 100% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI IN 28 DAYS.

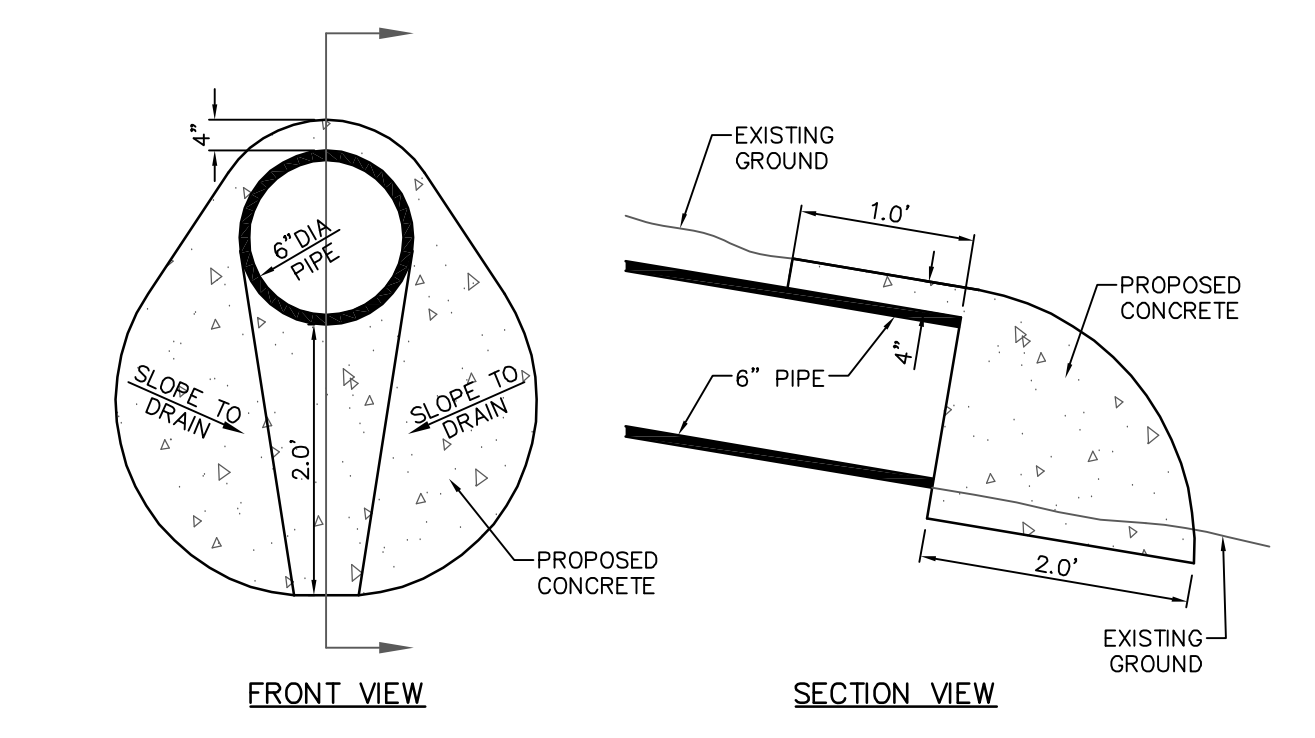
**AS-BUILT PUBLIC UTILITY FINAL MEASUREMENTS**

THE FOLLOWING UTILITIES HAVE BEEN LOCATED AND MEASURED AND THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS:

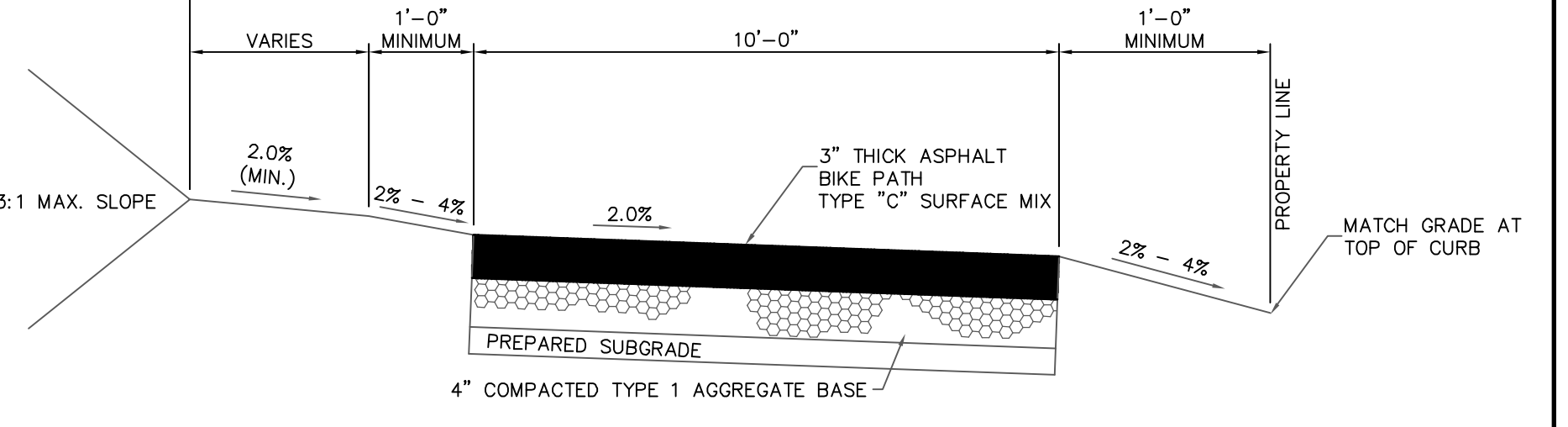
- STORM SEWERS, STORM SEWER LENGTHS, STORM SEWER PIPE SIZES, STORM SEWER FLOWLINES AND DEPTHS OF STORM SEWER STRUCTURES.
- SANITARY SEWERS, SANITARY SEWER LENGTHS, SANITARY SEWER PIPE SIZES, SANITARY SEWER FLOWLINES AND DEPTHS OF SANITARY SEWER STRUCTURES.
- FIRE HYDRANTS
- WATER VALVES
- LIGHT STANDARDS

ALL PUBLIC UTILITIES SHOWN HEREON AS BEING AS-BUILT ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS.

BAX ENGINEERING COMPANY, INC.  
MARK E. COLLINS  
MISSOURI PROFESSIONAL LAND SURVEYOR #2006000173

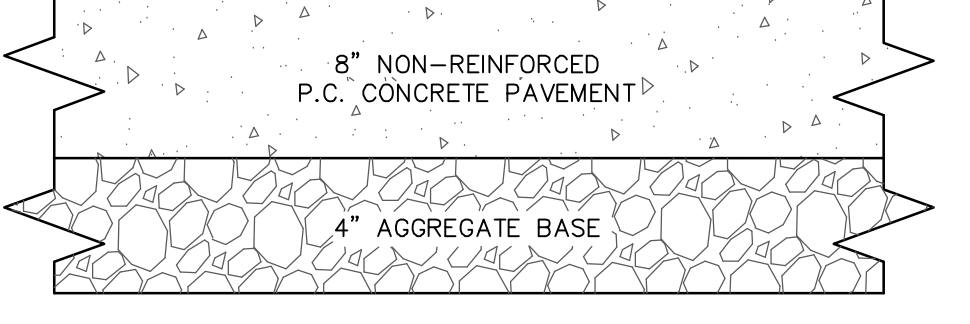


**6\"/>**



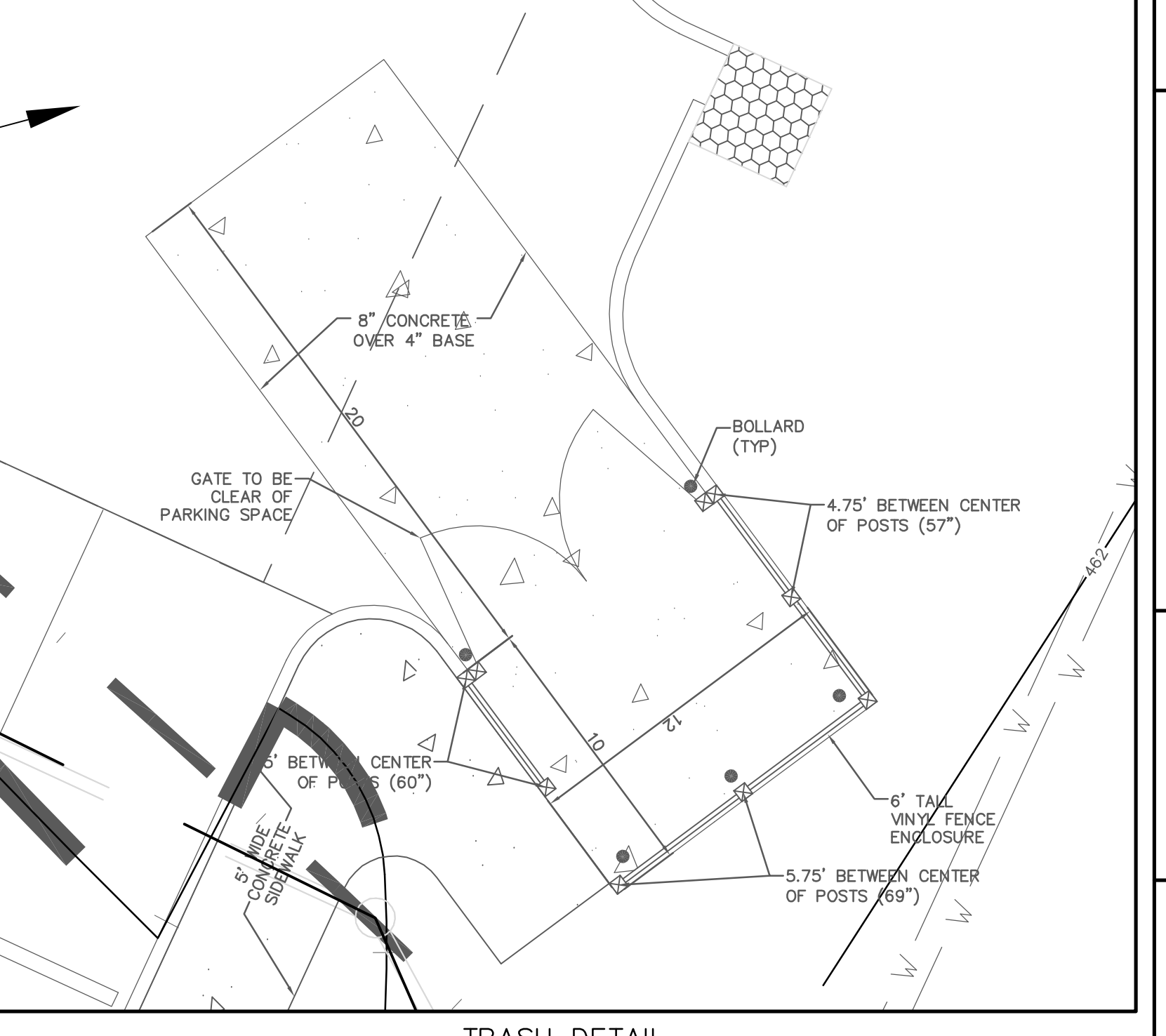
**MULTI-USE TRAIL DETAIL**  
NOT TO SCALE

- NOTES:
1. PROVIDE STRIPING OR A COLORED TEXTURED PAVEMENT THROUGH THE ACCESS DRIVES OR STREETS INTO THE DEVELOPMENT.
  2. MAXIMUM SLOPE OF THE PATH SHALL NOT EXCEED 8% AND 2% CROSS SLOPE PER CITY OF O'FALLON SPECIFICATIONS.
  3. THE ASPHALT SURFACE SHALL BE COMPACTED TO 98% MAXIMUM DENSITY.
  4. ALL GRANULAR ROLLED STONE BASE UNDER PROPOSED CONCRETE MUST BE COMPACTED TO 100% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99.
  5. THE TRAIL SHALL BE CONSTRUCTED WITH A CONSISTENT SLOPE WITH VERTICAL CURVES A MINIMUM OF 50' IN LENGTH. AFTER FINAL COMPRESSION, THE SURFACE SHALL BE SMOOTH AND TRUE TO THE ESTABLISHED CROWN AND GRADE. ANY LOW OR DEFECTIVE PLACES SHALL IMMEDIATELY BE REMEDIED BY CUTTING OUT THE COURSE AT SUCH SPOTS AND REPLACING IT WITH FRESH HOT MIXTURE, WHICH SHALL BE IMMEDIATELY COMPACTED TO CONFORM WITH THE SURROUNDING AREA AND SHALL BE THOROUGHLY BONDED TO IT. THE FINISHED PAVEMENT SHALL BE SET FREE FROM DEPRESSIONS EXCEEDING ONE-EIGHTH INCH AS MEASURED WITH A TEN-FOOT STRAIGHT EDGE PARALLELING THE CENTERLINE OF THE TRAIL.

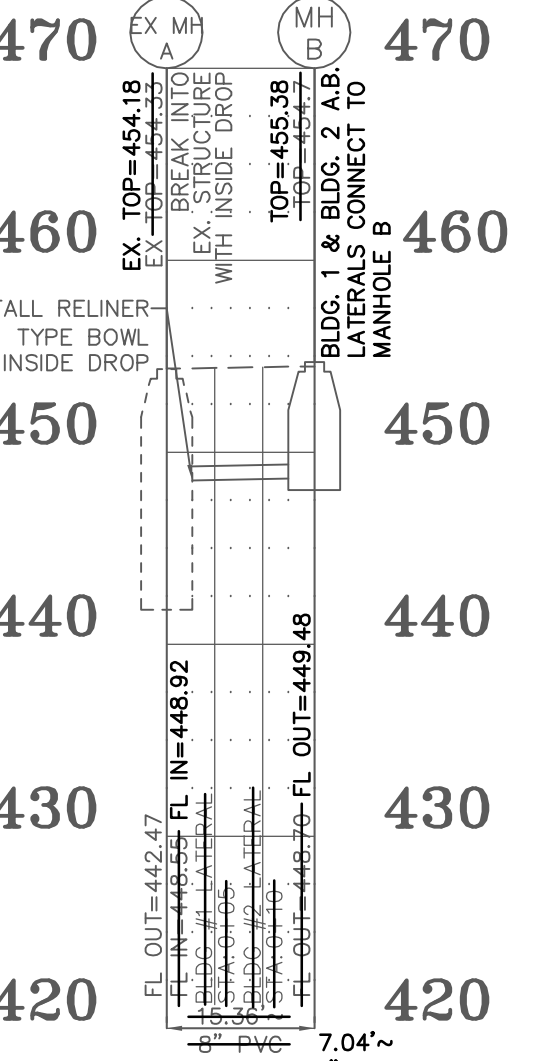


**10' WIDE TRAIL LANDING CONCRETE PAVEMENT DETAIL**  
NOT TO SCALE

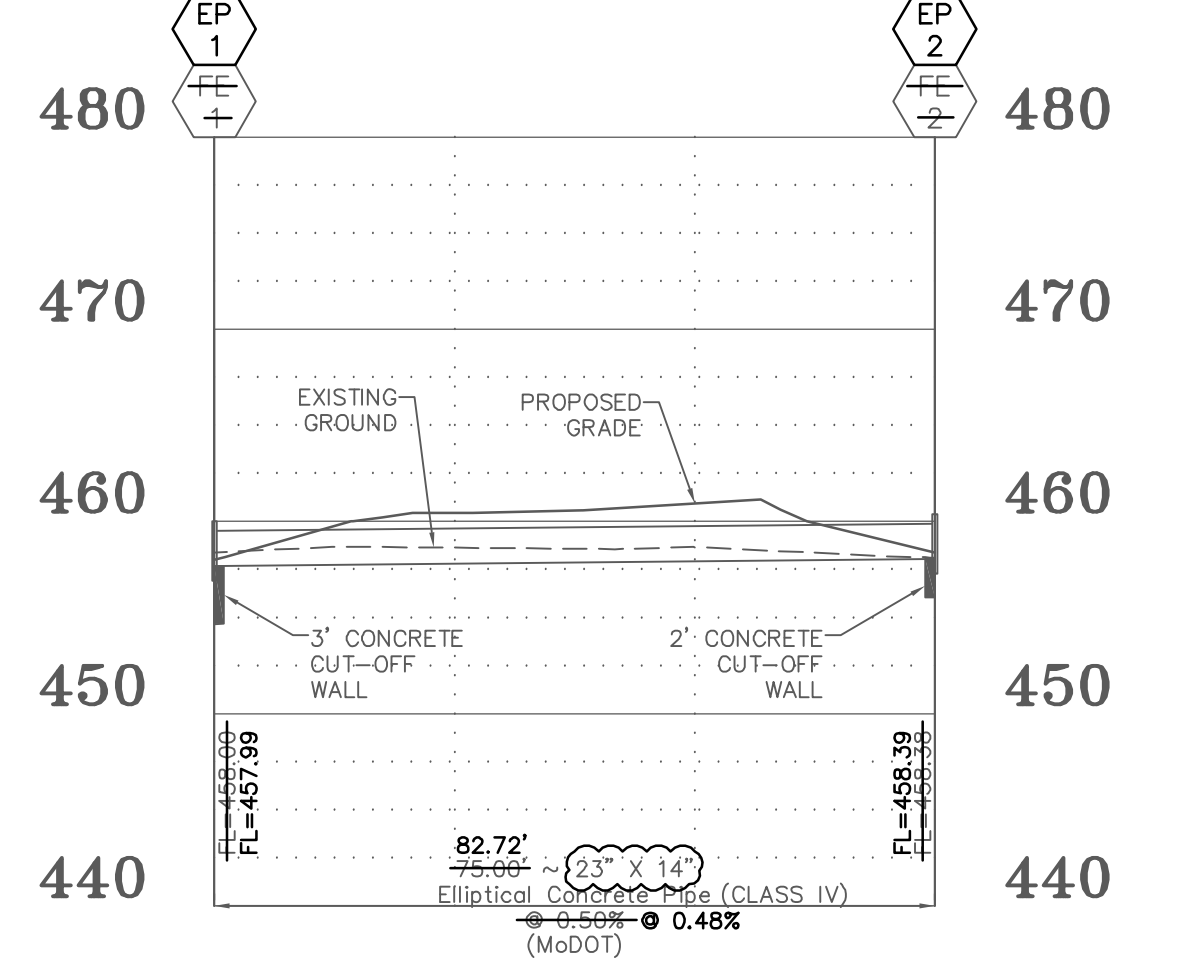
\* CONCRETE PAVEMENT SHALL REACH A MINIMUM OF 4000 PSI IN 28 DAYS.  
\* ALL GRANULAR ROLLED STONE BASE UNDER PROPOSED CONCRETE MUST BE COMPACTED TO 100% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI IN 28 DAYS.



**TRASH DETAIL**  
SCALE: 1"=5'



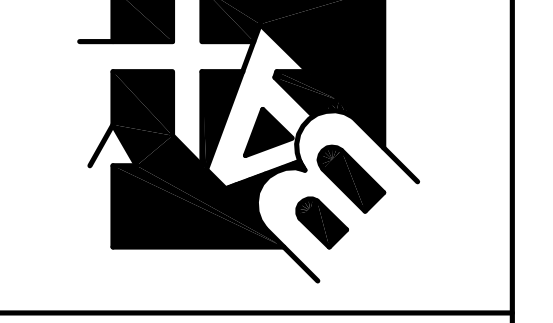
**SANITARY SEWER PROFILE**  
SCALES: HORIZ. 1"=20' VERT. 1"=10'



**STORM SEWER PROFILE**  
SCALES: HORIZ. 1"=20' VERT. 1"=10'

**PROJECT TITLE:**  
SHANE ESTATES  
PHASE TWO  
AS-BUILT PLANS  
#566 HIGHWAY P  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MO. 63366

**ENGINEERING**  
PLANNING  
SURVEYING  
221 Point View Blvd.  
St. Charles, MO 63301  
636-928-5552 FAX 928-1718



**DISCLAIMER OF RESPONSIBILITY**  
I hereby specify that the documents intended to be submitted by my seal are limited to this asset, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

Box Engineering Company, Inc.  
Missouri State Certificate of Authority  
Engineering #00055  
Missouri State Certificate of Authority  
Surveying #000144

**REVISIONS**

02/04/21	CITY COMMENT REVIS.
04/05/21	CITY COMMENT REVIS.

**Developer / Owner:**  
ELLA REAL PROPERTY HOLDINGS, L.L.C.  
428 NORTH MAIN STREET  
O'FALLON, MO 63366  
(636) 577-2458

**P+Z No.** #19-009651  
**Approval Date:** 11/07/2019  
**City No.** #City number

**Page No.**  
14 of 14

LAST DATE: 07/2021 BY: JEM/MLM PROJECT: 1333333333 HIGHWAY P # PHASE TWO AS-BUILT PLANS 03/2021 FILE LOCATION: \\BAX\PROJECTS\1333333333 HIGHWAY P # PHASE TWO AS-BUILT PLANS 03/2021