

THIS PROPERTY WILL BE SERVED BY THE FOLLOWING UTILITIES.

ELECTRIC:	AMEREN MISSOURI	866-992-6619
FIRE:	O'FALLON FIRE PROTECTION DISTRICT	636-272-3493
SANITARY:	DUCKETT CREEK	636-441-1244
TELEPHONE:	CENTURYLINK TELEPHONE COMPANY	636-970-0132
WATER:	PUBLIC WATER DISTRICT #2	636-561-3737
	CITY OF O'FALLON	636-240-2000
DATA:	CHARTER COMMUNICATIONS	636-265-0140

LEGAL DESCRIPTION:
 PARCEL NO. 2:
 A TRACT OF LAND BEING PART OF LOT 6 OF PLAT NO. 1 OF THE PARTITION OF LANDS OF JAMES BALDRIDGE LOCATED IN FRACTIONAL SECTION 11, TOWNSHIP 46 NORTH, RANGE 2 EAST, ST. CHARLES COUNTY, MISSOURI AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:
 COMMENCING AT THE INTERSECTION OF THE SOUTHWEST RIGHT OF WAY LINE OF INTERSTATE 64 (FORMERLY STATE HIGHWAY 64-61) (WIDTH VARIES) WITH THE NORTHWEST RIGHT OF WAY LINE OF FOX TROTTER (60 FOOT WIDE) DRIVE AS RECORDED BY PLAT BOOK 19, PAGE 53 OF THE ST. CHARLES COUNTY, MISSOURI RECORDER'S OFFICE, SAID COMMENCEMENT POINT ALSO BEING ON THE NORTH LINE OF PIN OAK PARC PLAT 1, A SUBDIVISION AS RECORDED IN PLAT BOOK 25, PAGES 78 & 79 OF SAID RECORDER'S OFFICE;
 THENCE ALONG SAID NORTH LINE OF PIN OAK PARC PLAT 1, SOUTH 71° 17' 33" WEST, A DISTANCE OF 16.19 FEET TO THE SOUTH RIGHT OF WAY LINE OF THE PROPOSED SOUTH OUTER ROAD (VARIABLE WIDTH), ALSO BEING THE POINT OF BEGINNING;
 THENCE CONTINUING ALONG SAID NORTH LINE THE FOLLOWING COURSES & DISTANCES: SOUTH 71° 17' 37" WEST, A DISTANCE OF 127.93 FEET;
 SOUTH 86° 37' 58" WEST, A DISTANCE OF 486.03 FEET TO THE EAST LINE OF LAND NOW OR FORMERLY OF SPRINGHURST, L.L.C., AS RECORDED BY DEED IN BOOK 3924, PAGE 458 OF SAID RECORDER'S OFFICE;
 THENCE ALONG SAID EAST LINE AND THE EAST LINE OF PROPERTY NOW OR FORMERLY 64N LAND & CATTLE COMPANY, L.L.C., AS RECORDED BY DEED IN BOOK 3924, PAGE 453 OF SAID RECORDER'S OFFICE, NORTH 08° 01' 16" WEST, A DISTANCE OF 312.78 FEET TO THE SOUTH RIGHT OF WAY LINE OF THE PROPOSED SOUTH OUTER ROAD (VARIABLE WIDTH);
 THENCE ALONG SAID SOUTH RIGHT OF WAY LINE, THE FOLLOWING COURSES AND DISTANCES:
 ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 661.00 FEET AND A CENTRAL ANGLE OF 15° 47' 02" (CHORD BEARING SOUTH 66° 50' 30" EAST, 181.52 FEET), AN ARC DISTANCE OF 182.09 FEET TO A NON-TANGENT LINE;
 SOUTH 82° 56' 00" EAST, A DISTANCE OF 48.83 FEET;
 SOUTH 74° 43' 25" EAST, A DISTANCE OF 81.31 FEET;
 SOUTH 81° 26' 06" EAST, A DISTANCE OF 77.11 FEET;
 SOUTH 74° 46' 31" EAST, A DISTANCE OF 50.05 FEET;
 SOUTH 86° 59' 09" EAST, A DISTANCE OF 23.49 FEET;
 SOUTH 74° 48' 25" EAST, A DISTANCE OF 47.67 FEET TO A TANGENT CURVE;
 ALONG A CURVE TO THE RIGHT, HAVING A RADIUS OF 560.00 FEET AND A CENTRAL ANGLE OF 05° 28' 28" (CHORD BEARING SOUTH 71° 53' 28" EAST, 53.48 FEET), AN ARC DISTANCE OF 53.50 FEET TO A NON-TANGENT LINE;
 SOUTH 56° 16' 17" EAST, A DISTANCE OF 56.57 FEET;
 SOUTH 49° 30' 34" EAST, A DISTANCE OF 84.61 FEET TO THE POINT OF BEGINNING.
 THE ABOVE DESCRIBED TRACT IS BASED UPON A BOUNDARY SURVEY EXECUTED BY GRIMES CONSULTING, INC. DURING THE MONTH OF OCTOBER, 2021.

Call Before you DIG
 TOLL FREE
 1-800-344-7483
 MISSOURI ONE-CALL SYSTEM INC.

Underground facilities, structures & utilities have been plotted from available surveys, records & information, and therefore, do not necessarily reflect the actual existence, nonexistence, size, type, number of, or location of these facilities, structures, & utilities. The Contractor shall be responsible for verifying the actual location of all underground facilities, structures, & utilities, either shown or not shown on these plans. The underground facilities, structures, & utilities shall be located in the field prior to any grading, excavation or construction of improvements. These provisions shall in no way absolve any party from complying with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMO.

PREPARED FOR:
BRINKMANN CONSTRUCTORS
 CONTACT: JACOB ENGLERT
 16650 CHESTERFIELD GROVE RD, SUITE 100
 CHESTERFIELD, MO 63005
 PH: (636) 537-9700
 E: JEnglert@brinkmannconstructors.com

LEGEND

EXISTING		PROPOSED
	UTILITY POLE	
	GUY WIRE	
	LIGHT STANDARD	
	ELECTRIC BOX	
	ELECTRIC METER	
	ELECTRIC MANHOLE	
	OVERHEAD ELECTRIC LINE	
	UNDERGROUND ELECTRIC LINE	
	TELEPHONE BOX	
	TELEPHONE MANHOLE	
	UNDERGROUND TELEPHONE LINE	
	FIRE HYDRANT	
	WATER METER	
	WATER VALVE	
	WATER MANHOLE	
	WATER LINE	
	GAS METER	
	GAS VALVE	
	GAS DRIP	
	GAS LINE	
	STREET SIGN	
	BOLLARD OR POST	
	MAILBOX	
	SANITARY SEWER	
	STORM SEWER	
	STORM DRAIN GRATE INLET	
	STORM DRAIN AREA INLET	
	STORM DRAIN MANHOLE	
	SANITARY SEWER MANHOLE	
	FLARED END SECTION	
	FENCE: CHAIN LINK OR WIRE	
	FENCE: WOOD CONSTRUCTION	
	GUARDRAIL	
	MINOR CONTOUR INTERVAL	
	MAJOR CONTOUR INTERVAL	
	SPOT ELEVATION	
	BUSH OR SHRUB	
	TREE W/APPROXIMATE DIAMETER SIZE	
	FOUND SURVEY MONUMENT AS NOTED	
	SET SURVEY MONUMENT AS NOTED	
	CLEAN-OUT/DOWN-SPOUT	
	SWALE	
	UTILITY EASEMENT	

GRIMES CONSULTING ENGINEERS, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. GRIMES CONSULTING ENGINEERS, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

BASIS OF BEARING

MISSOURI STATE PLANE GRID NORTH FROM GPS TIES TO THE MODOT COORS NETWORK

BENCHMARK:

DATUM: NAVD88 FROM GPS TIES TO THE MISSOURI DEPARTMENT OF TRANSPORTATION GNSS NETWORK

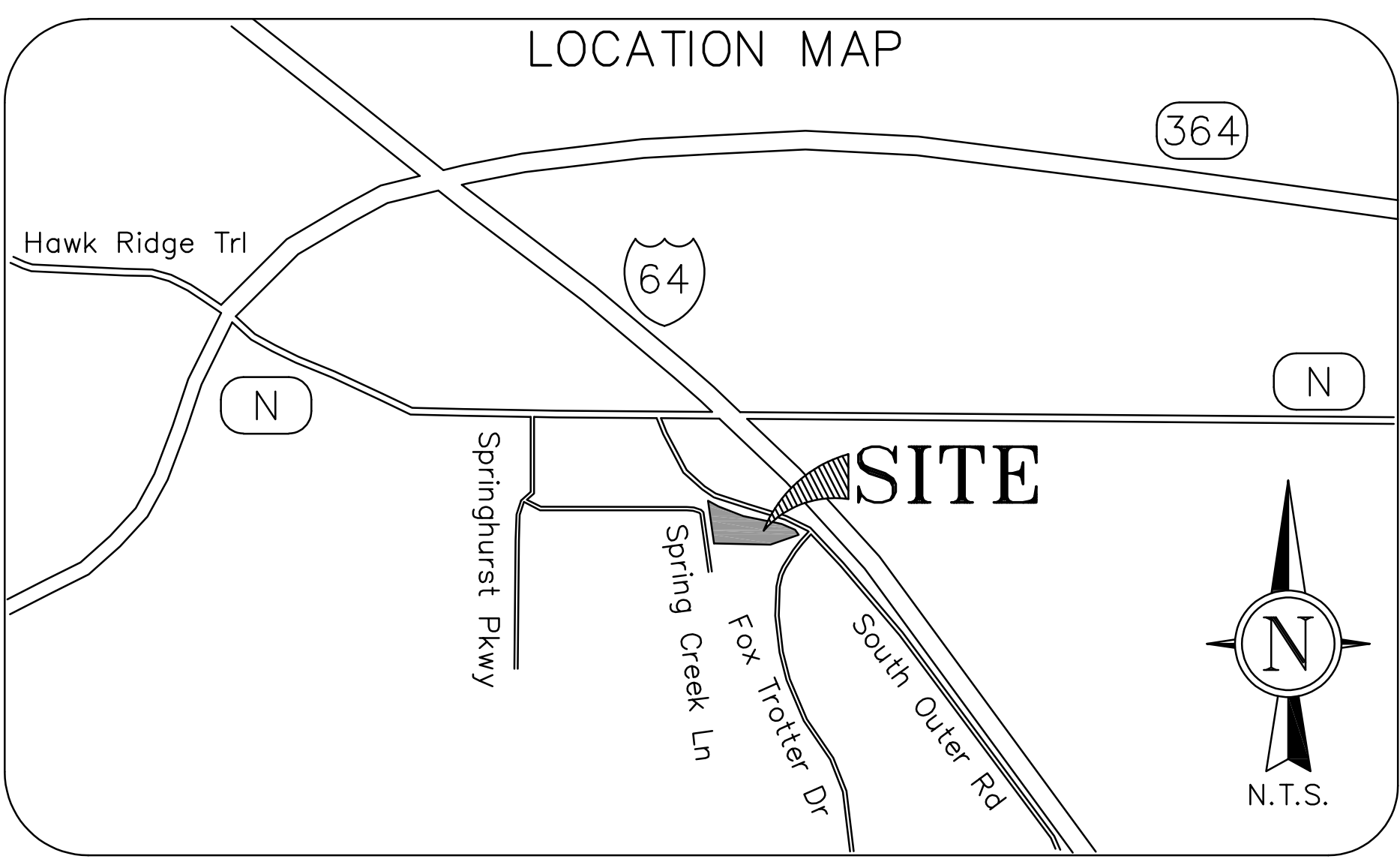
SITE BENCHMARK:

222.58 PLUS NAVD88 - FOUND 1/2 INCH IRON PIPE WITH CAP LABELED "BAX", LOCATED AT THE EAST CORNER OF THE SURVEYED TRACT; APPROXIMATELY 13 FEET ± WEST OF THE WEST CURB LINE OF FOX TROTTER DRIVE; APPROXIMATELY 18 FEET ± SOUTH OF THE SOUTH CURB LINE OF A CONCRETE SWALE LOCATED ALONG SOUTH OUTER ROAD.

O'FALLON U-HAUL

A TRACT OF LAND BEING PART OF U.S. SURVEY 297 TOWNSHIP 46 NORTH, RANGE 2 EAST, SECTION 11 O'FALLON, ST. CHARLES COUNTY, MISSOURI

SITE IMPROVEMENT PLANS



PROJECT LOCATION MAP

PROPERTY OWNER AREC 38 LLC
 2727 N. CENTRAL AVE.
 PHOENIX, AZ 85004

EXISTING ZONING C-2 GENERAL BUSINESS

SITE ACREAGE 2.437 ACRES

SITE ADDRESS 1195 S. OUTER ROAD
 O'FALLON, MO 63368

CITY OF O'FALLON
 COMMUNITY DEVELOPMENT DEPARTMENT
 ACCEPTED FOR CONSTRUCTION
 BY: Karl Ebert DATE 02/21/2023
 PROFESSIONAL ENGINEER'S SEAL
 INDICATES RESPONSIBILITY FOR DESIGN

Conditions of Approval From Planning and Zoning January 6, 2022

- PROVIDE TREE PRESERVATION CALCULATIONS
- PROVIDE A BREAKDOWN OF THE LANDSCAPING CALCULATIONS
- PROVIDE ADDITIONAL PLANTINGS/SCREENING ALONG SOUTH OUTER ROAD TO SCREEN THE SELF-STORAGE UNITS FROM THE ROAD
- PROVIDE A PHOTOMETRIC PLAN
- REMOVE THE PAVEMENT FROM THE SECOND ACCESS POINT
- PROVIDE A CONTRIBUTION FOR CONSTRUCTION OF THE 10' TRAIL ALONG THE FRONT OF THE PROPERTY
- ADD A NOTE TO THE PLAN STATING THAT THE DETENTION BASIN SHALL BE DESIGNED FOR THE 100 YEAR/20 MINUTE STORM
- PROVIDE APPROVAL FROM MODOT, DUCKETT CREEK SANITARY DISTRICT, AND PWD#2.
- WITH NEW INFORMATION ON THE OPERATION OF THE WAREHOUSE BUILDING, STAFF HAS QUESTIONS ON HOW THE EMPLOYEE FROM THE ADJACENT SITE WILL REACH THE SUBJECT PROPERTY. WILL THE EMPLOYEE CROSS THE SOUTH OUTER ROAD BY WALKING? WHERE WILL THE CROSS THE SOUTH OUTER ROAD?
- PROVIDE THE REQUIRED SIGHT TRIANGLE FENCING WITHIN THE BUFFERYARDS ALONG THE SOUTH AND WEST PROPERTY LINES.

SHEET INDEX

- C1.0 TITLE SHEET
- ~~C2.0 GENERAL NOTES~~
- ~~C3.0 EXISTING SITE & DEMO PLAN~~
- ~~C4.0 SITE PLAN~~
- ~~C4.1 GEOMETRICS PLAN~~
- ~~C4.2 EASEMENT PLAN~~
- ~~C5.0 GRADING PLAN~~
- ~~C6.0 SWPPP~~
- ~~C6.1 SWPPP DETAILS~~
- C7.0 UTILITY PLAN
- ~~C8.0 STORM AND SANITARY DETAILS~~
- ~~C8.1 WATER DETAILS~~
- ~~C8.2 WATER DETAILS~~
- ~~C8.3 PAVEMENT DETAILS~~
- ~~C8.4 PAVEMENT DETAILS~~
- ~~C8.5 SITE DETAILS~~
- C8.6 BMP DETAILS
- C8.7 BMP DETAILS
- ~~C8.8 MODOT & ENTRANCE DETAILS~~
- C9.0 PROFILES
- ~~C10.0 PROPOSED DRAINAGE AREA MAP~~
- ~~C10.1 BMP DRAINAGE AREA MAP~~
- ~~C11.0 SPECIFICATIONS~~
- ~~C11.1 SPECIFICATIONS~~
- ~~C11.2 SPECIFICATIONS~~

"AS-BUILT"

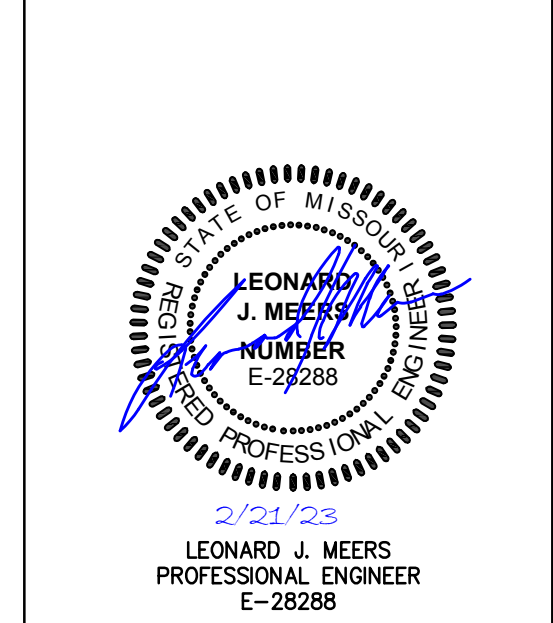
ABBREVIATIONS

ADS - ADVANCED DRAINAGE SYSTEMS, INC.	N.T.S. - NOT TO SCALE
ATG - ADJUST TO GRADE	O.C. - ON CENTER
B.M. - BENCHMARK	PAVT. - PAVEMENT
C.I. - CURB INLET	P.C. - PORTLAND CEMENT
C.O. - CLEAN OUT	PCC - PRECAST CONCRETE
OMP - CORRUGATED METAL PIPE	P.S.I - POUNDS/SQUARE INCH
CONC. - CONCRETE	PROP. - PROPOSED
C.Y. - CUBIC YARDS	R.C. - REINFORCED CONCRETE
D.C.I. - DOUBLE CURB INLET	R.R. - RAIL ROAD
DIP - DUCTILE IRON PIPE	RCP - REINFORCED CONCRETE PIPE
DIA. - DIAMETER	S.F. - SQUARE FOOT
DS - DOWNSPOUT	S.Y. - SQUARE YARD
ELEV. - ELEVATION	SAN - SANITARY
EX - EXISTING	SCH - SCHEDULE
FD - FLOOR DRAIN	SWPPP - STORM WATER POLLUTION PREVENTION PLAN
FF - FINISH FLOOR	TBA - TO BE ABANDONED
FL - FLOW LINE	TBR - TO BE REMOVED
G.I. - GRATE INLET	TYP. - TYPICAL
GAL. - GALLON	UIP - USE IN PLACE
H.G. - HYDRAULIC GRADE	VCP - VITRIFIED CLAY PIPE
HYD - HYDRANT	YD - YARD DRAIN
MAX - MAXIMUM	WV - WATER VALVE
MH - MANHOLE	
MIN - MINIMUM	

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	02-24-2022
2	CITY/UTIL COMMENTS	03-14-2022
3	MINI UNITS F.F.	08-01-2022
4	DOCK GRADING	08-10-2022
5	WATER REVISIONS	08-15-2022
6	GRADING REVISIONS	10-05-2022

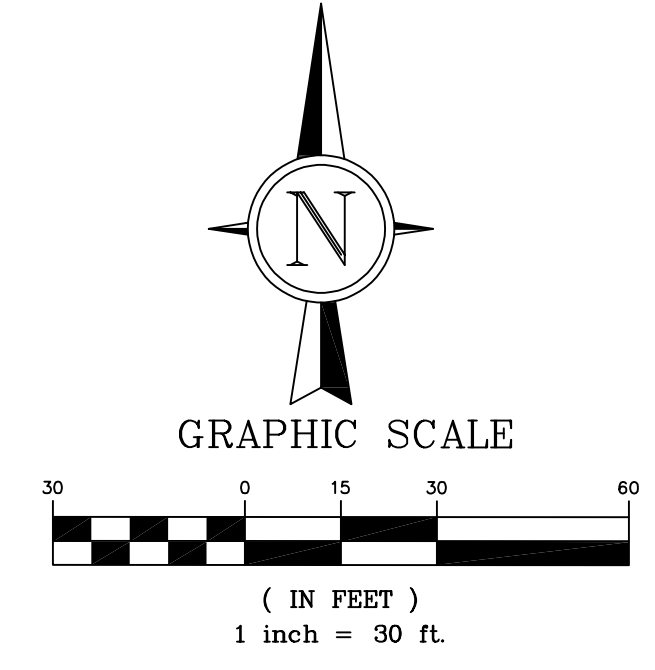
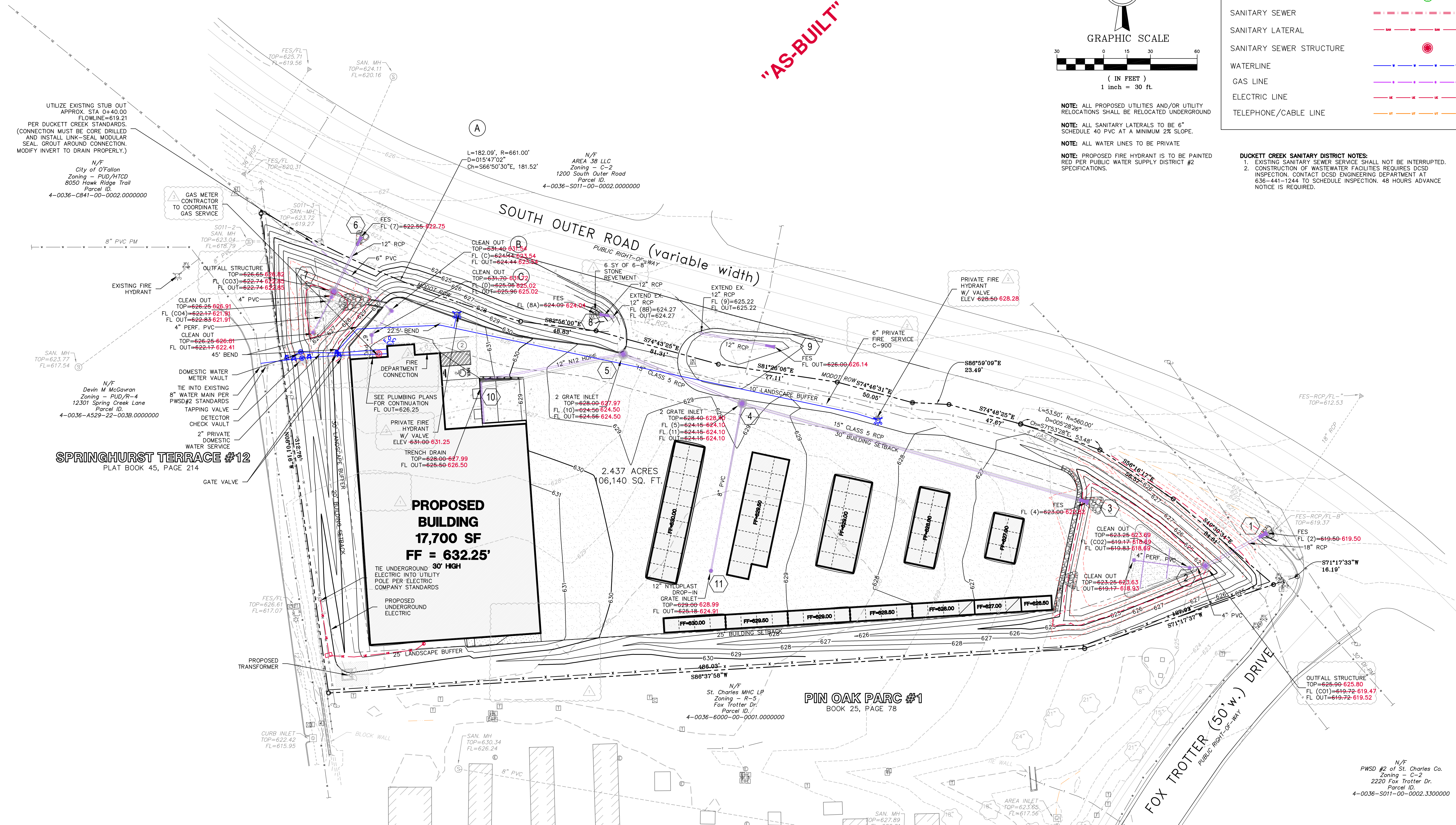
PROJECT TITLE
 O'FALLON U-HAUL
 1200 S. OUTER ROAD
 O'FALLON, MO 63366

GRIMES CONSULTING, INC.
 Civil Engineering & Surveying Services
 12300 OLD TESSON ROAD
 ST. LOUIS, MO 63128
 PH. (314) 849-6100
 FAX (314) 849-6010
 www.grimesconsulting.com



Developer / Owner Information
 UHAUL
 CONTACT: MICHAEL WHITE
 314-952-6203
 Email: michael.white@uhaul.com

P+Z No.
Approval Date:
City No.
Page No.
C1.0



PROPOSED UTILITY LEGEND	
STORM SEWER	
PERFORATED STORM SEWER	
STORM SEWER STRUCTURE	
SANITARY SEWER	
SANITARY LATERAL	
SANITARY SEWER STRUCTURE	
WATERLINE	
GAS LINE	
ELECTRIC LINE	
TELEPHONE/CABLE LINE	

NOTE: ALL PROPOSED UTILITIES AND/OR UTILITY RELOCATIONS SHALL BE RELOCATED UNDERGROUND

NOTE: ALL SANITARY LATERALS TO BE 6" SCHEDULE 40 PVC AT A MINIMUM 2% SLOPE.

NOTE: ALL WATER LINES TO BE PRIVATE

NOTE: PROPOSED FIRE HYDRANT IS TO BE PAINTED RED PER PUBLIC WATER SUPPLY DISTRICT #2 SPECIFICATIONS.

DUCKETT CREEK SANITARY DISTRICT NOTES:

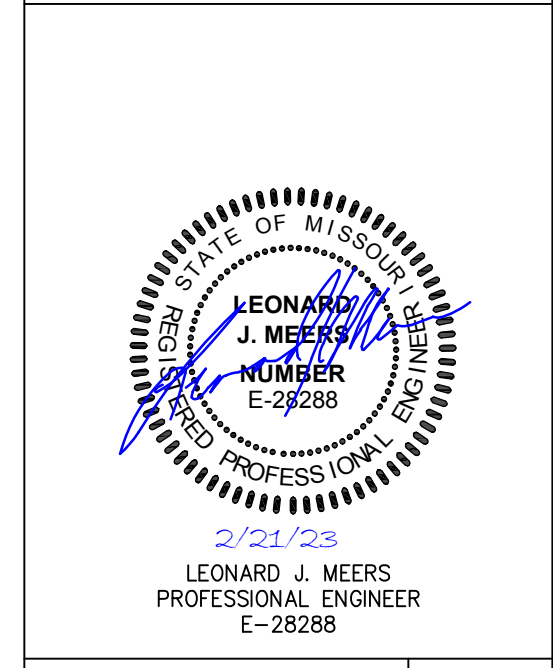
- EXISTING SANITARY SEWER SERVICE SHALL NOT BE INTERRUPTED.
- CONSTRUCTION OF WASTEWATER FACILITIES REQUIRES DCSD INSPECTION. CONTACT DCSD ENGINEERING DEPARTMENT AT 636-441-1244 TO SCHEDULE INSPECTION. 48 HOURS ADVANCE NOTICE IS REQUIRED.

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	02-24-2022
2	CITY/UTIL COMMENTS	03-14-2022
3	MINI UNITS F.F.	08-01-2022
4	DOCK GRADING	08-10-2022
5	WATER REVISIONS	08-15-2022
6	GRADING REVISIONS	10-05-2022

PROJECT TITLE
O'FALLON U-HAUL
1200 S. OUTER ROAD
O'FALLON, MO 63366

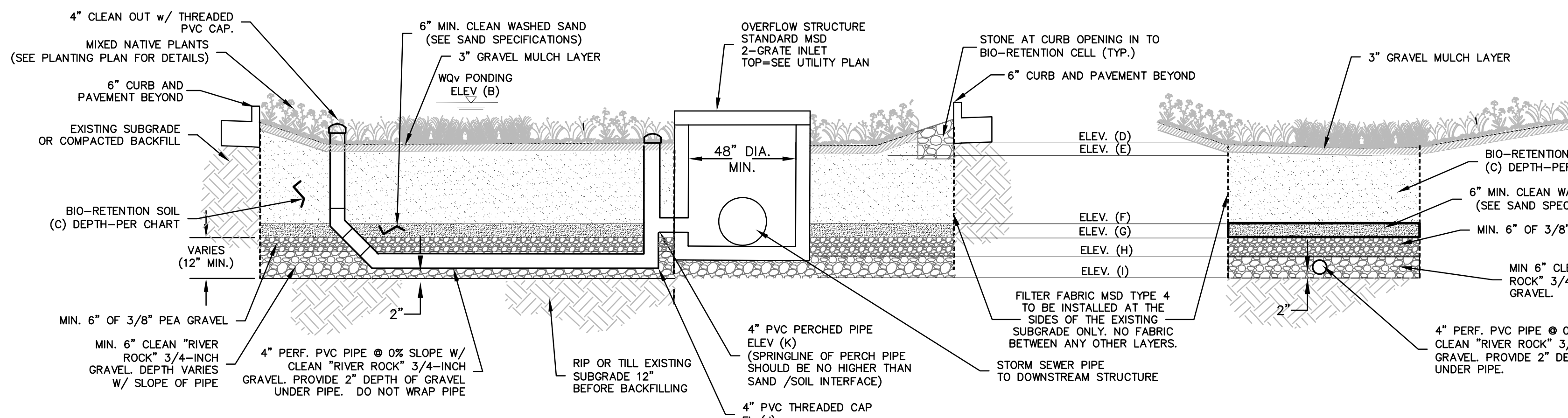
GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services

12300 OLD TESSON ROAD
ST. LOUIS, MO 63128
PH. (314) 849-6100
FAX (314) 849-6010
www.grimesconsulting.com



Developer / Owner Information
UHAUL
CONTACT: MICHAEL WHITE
314-952-6203
Email: michael_white@uhaul.com

P+Z No.
Approval Date:
City No.
Page No.
C7.0



1 BIO-RETENTION DETAIL
SCALE : NTS

BIO-RETENTION ELEVATION TABLE

AREA	OVERFLOW STRUCTURE NUMBER	CPv Ponding TOP Elev (A)	WQv Ponding Elev (B)	Depth of Soil (C)	Mulch Elev (D)	Soil Elev (E)	Sand Elev (F)	Pea Gravel Elev (G)	Clean Gravel Elev (H)	Bottom Elev (I)	4" PVC Perched 4" PVC Elev (J)	15-Year, 20-Min Q Elev (K)	15-Year, 20-Min HW Elev (L)	100-Year, 20-Min Q Elev (M)	100-Year, 20-Min Min HW Elev (N)	Min. Berm Elevation
A	2	625.90	n/a	2.50	622.75	622.50	620.00	619.50	619.00	618.50	619.17	619.83	5.17	626.23	7.15	626.07
B	7	626.85	n/a	2.50	625.75	625.50	623.00	622.50	622.00	621.50	622.17	622.83	1.88	628.82	2.91	628.89

100 YR HW Elev = FROM LFB STORM REPORT

TABLE 3: PLANTING, WATER AND MULCH REQUIREMENTS

WATER AVAILABILITY	REQUIRED PLANTING PERIOD	MINIMUM CONTAINER SIZE	WATER REQUIREMENT FIRST 3 WEEKS*	WATER REQUIREMENT AFTER 3 WEEKS*	MAXIMUM MULCH DEPTH****
NO ABILITY TO WATER AFTER INITIAL PLANTING	LATE FEB. - APRIL ONLY	2.25" X 3.75" OR LARGER (PLUG)	WATER EACH PLUG IMMEDIATELY AFTER PLANTING**	1" (60 MIN) EVERY 4 DAYS	1.5" FOR PLUGS
MANUAL WATERING WITH STANDARD SPRINKLER	LATE FEB. - EARLY JUNE SEPT. - OCTOBER	4.5" X 5" (QUART) OR LARGER IN SUMMER & FALL	1" (60 MIN) EVERY 4 DAYS	1" (60 MIN) EVERY 7 DAYS UNTIL PLANTS ESTABLISHED***	1.5" FOR PLUGS LARGER IN SUMMER & FALL
AUTOMATIC IRRIGATION (SET TO WATER MORE)	LATE FEB. - EARLY OCT.	2.25" X 3.75" (PLUG) OR LARGER IN SUMMER & FALL	1" (60 MIN) EVERY 4 DAYS IN SPRING AND FALL	1" (60 MIN) EVERY 7 DAYS UNTIL PLANTS ESTABLISHED***	1.5" FOR PLUGS LARGER IN SUMMER & FALL
FREQUENTLY THAN NORMAL DURING FIRST TWO MONTHS AFTER PLANTING		4.5" X 5" (QUART) OR LARGER IN SUMMER & FALL	1" (60 MIN) EVERY 3 DAYS IN SUMMER		2.5" FOR QUARTS

*THIS WATER AMOUNT INCLUDES NATURAL RAINFALL. IF YOU GET A 1/2 INCH OF NATURAL RAIN THEN YOU WILL NEED TO ADD A 1/2 INCH OF WATER TO MEET THE 1 INCH REQUIREMENT.

**REQUIRES TRANSPORT OF WATER TO THE PLANTING SITE IN LARGE CONTAINERS AND POURING ENOUGH WATER ONTO EACH PLANT (AFTER PLANTING) TO MOISTEN THE ENTIRE PLANTING PIT.

***PLANTS ARE ESTABLISHED WHEN ROOTS HAVE GROWN OUT OF THE CONTAINER SOIL AND INTO THE NATIVE SOIL BY 3-5 INCHES. THIS NORMALLY TAKES 3-4 MONTHS FOR MOST PERENNIALS AND GRASSES AND UP TO 6-7 MONTHS FOR TREES AND SHRUBS.

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL [2.5' TO 4.5' DEEP]	SAND MIN OF 60% CLAY MAX OF 10%	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM OR LOAM
GRAVEL MULCH	MERAMEC PEA GRAVEL	1/4" TO 3/8"	
GEOTEXTILE	MSD TYPE 4	N/A	FOR USE ON SIDES ONLY
SAND [6" DEEP]	CLEAN ASTM-C-33 FINE AGGREGATE	0.02' TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND
GRAVEL LAYER [6" DEEP]	ASTM C-33 NO. 8	3/8" #	
UNDERDRAIN GRAVEL [6" DEEP]	ASTM C-33 NO. 6 OR 67	0.75" #	
UNDERDRAIN PIPING		4" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 12" ON CENTER, 2 HOLES PER ROW AT 5 & 7 O'CLOCK FACING; DOWN; MINIMUM OF 2" OF GRAVEL UNDER PIPES

Bioretention Basin/Channel Protection design and As-Built Verification Information Table

Basin ID	Design Filter Surface Area (ft ²)	As-Built Filter Surface Area (ft ²)	Design Filter Surface Elev (ft)	As-Built Filter Surface Elev (ft)	Design Overflow Sill Elev (ft)*	As-Built Overflow Sill Elev (ft)*	Required WQ Volume (ft ³)	As-Built WQ Volume (ft ³)	Required Forebay Volume (ft ³)	As-Built Forebay Volume (ft ³)
A	1123	1,266	622.75	622.50	625.90	625.80	3,701	16,268	N/A	N/A
B	592	494	625.75	625.75	626.65	626.82	1,353	2,641	N/A	N/A

* Overflow Sill Elevation = Maximum Water Quality Storage Elevation
As-built portion of table to be certified by a Professional Engineer or Professional Land Surveyor licensed in Missouri

PLANTING SOIL

The planting soil should be a sandy loam or loamy sand (should contain a minimum of 60 percent sand, by volume). The clay content for these soils should be less than 10 percent by volume. A permeability of at least 1.0 feet per day (0.5 inches per hour) is required (a conservative value of 0.5 feet per day is used for design). The design rate may be increased to 2 feet/day if field observation, post-construction infiltration testing, or other equivalent testing (as determined by the District) is provided to confirm the design rate is achieved.) The soil should be free of stones, stumps, roots, or other woody material over 1 inch in diameter. For best results, brush or seeds from noxious weeds, such as Johnson grass, mugwort, nutsedge and Canadian thistle should not be present in the soils. Placement of the planting soil should be in lifts of 12 to 18 inches, loosely compacted (rubber wheeled heavy equipment and mechanical tamping devices are not recommended for compaction). The specific characteristics are presented in the following table.

Table 1: Planting Soil Characteristics. Source: Maryland Stormwater Manual

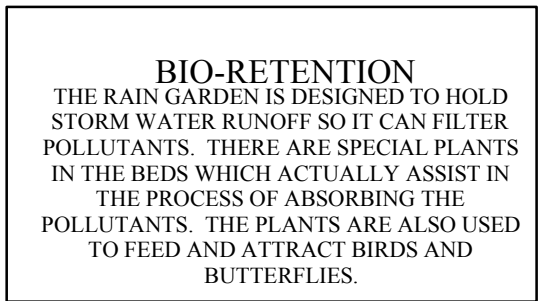
Parameter	Value
pH range	5.2 to 8.00
Organic matter	1.5 to 5.0%
Magnesium	35 lbs. per acre, minimum
Phosphorus (P205)	75 lbs. per acre, minimum
Potassium (K20)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm

The mulch layer plays an important role in the performance of the bioretention system. It helps maintain soil moisture and avoids surface sealing that reduces permeability. Mulch helps prevent erosion and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments that remain suspended after the primary pretreatment. The mulch layer should be free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch. Pea gravel or other similar natural gravel may be used.

SAND SPECIFICATIONS

Washed ASTM C33 Fine Aggregate Concrete Sand is utilized for stormwater management applications. In addition to the ASTM C33 specifications, sand must meet ALL of the following conditions.

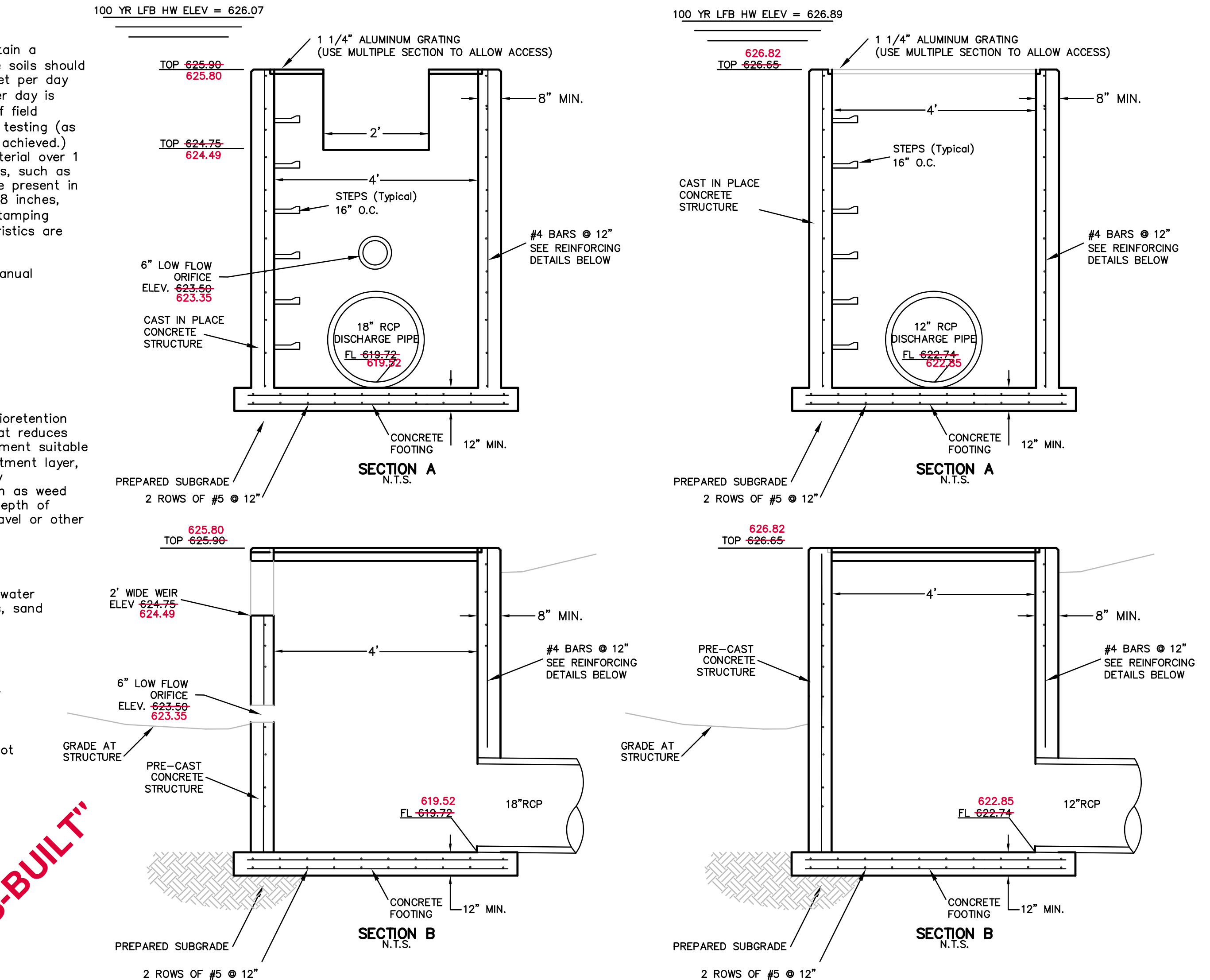
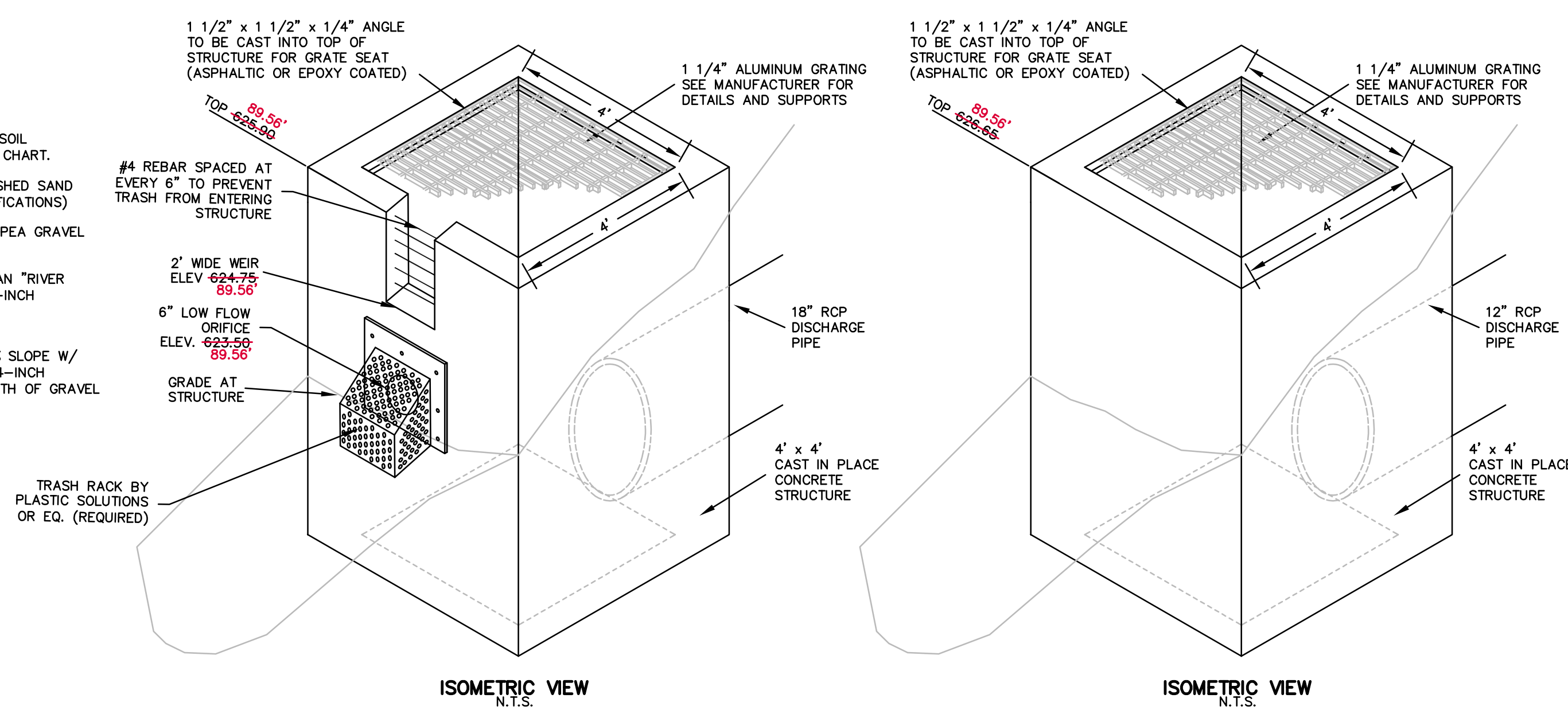
- Sand must meet gradation requirements for ASTM C-33 Fine Aggregate Concrete Sand.
- Sand must be silica based...no limestone based products may be used. If the material is white or gray in color, it is not acceptable.
- Sand must be clean. Natural, unwashed sand deposits may not be used. Likewise, sand that has become contaminated by improper storage or installation practices will be rejected.
- Manufactured sand or stone dust is not acceptable under any circumstance.



BIO-RETENTION INFO SIGN

STANDARD 18"x12"x.080" ALUMINUM SIGN FACE WITH BLACK 0.625" SERIES 2000 STANDARD ALPHABET ON WHITE BACKGROUND GALVANIZED STEEL POST 9'6" LONG. SET BOTTOM OF SIGN 5' ABOVE GRADE. SET BOTTOM OF POST 3' BELOW GRADE.

2 BIO-RETENTION SIGN
SCALE : NTS



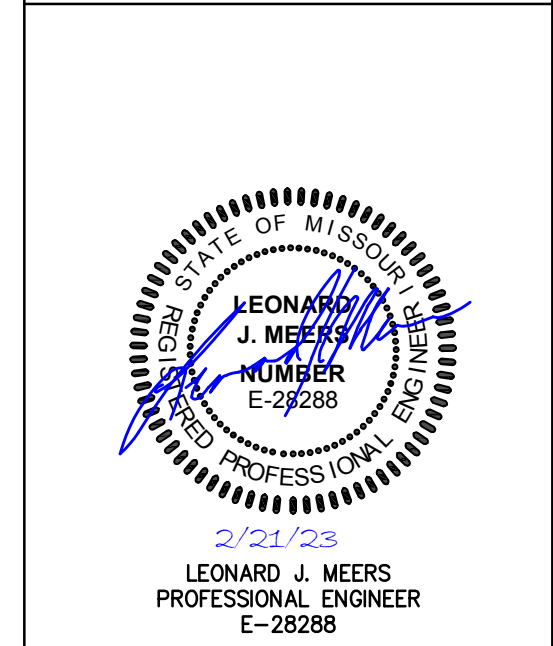
3 OUTFALL STRUCTURE #2
SCALE : NTS

4 OUTFALL STRUCTURE #7
SCALE : NTS

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	02-24-2022
2	CITY/UTIL COMMENTS	03-14-2022
3	MINI UNITS F.F.	08-01-2022
4	DOCK GRADING	08-10-2022
5	WATER REVISIONS	08-15-2022
6	GRADING REVISIONS	10-05-2022

PROJECT TITLE
O'FALLON U-HAUL
1200 S. OUTER ROAD
O'FALLON, MO 63366

GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services
GRIMES CONSULTING, INC.
PROFESSIONAL ENGINEER CORPORATION, E-147P-D
PROFESSIONAL LAND SURVEYOR CORPORATION, LS-34-D
12300 OLD TESSON ROAD
ST. LOUIS, MO 63128
PH: (314) 849-6100
FAX: (314) 849-6010
www.grimesconsulting.com



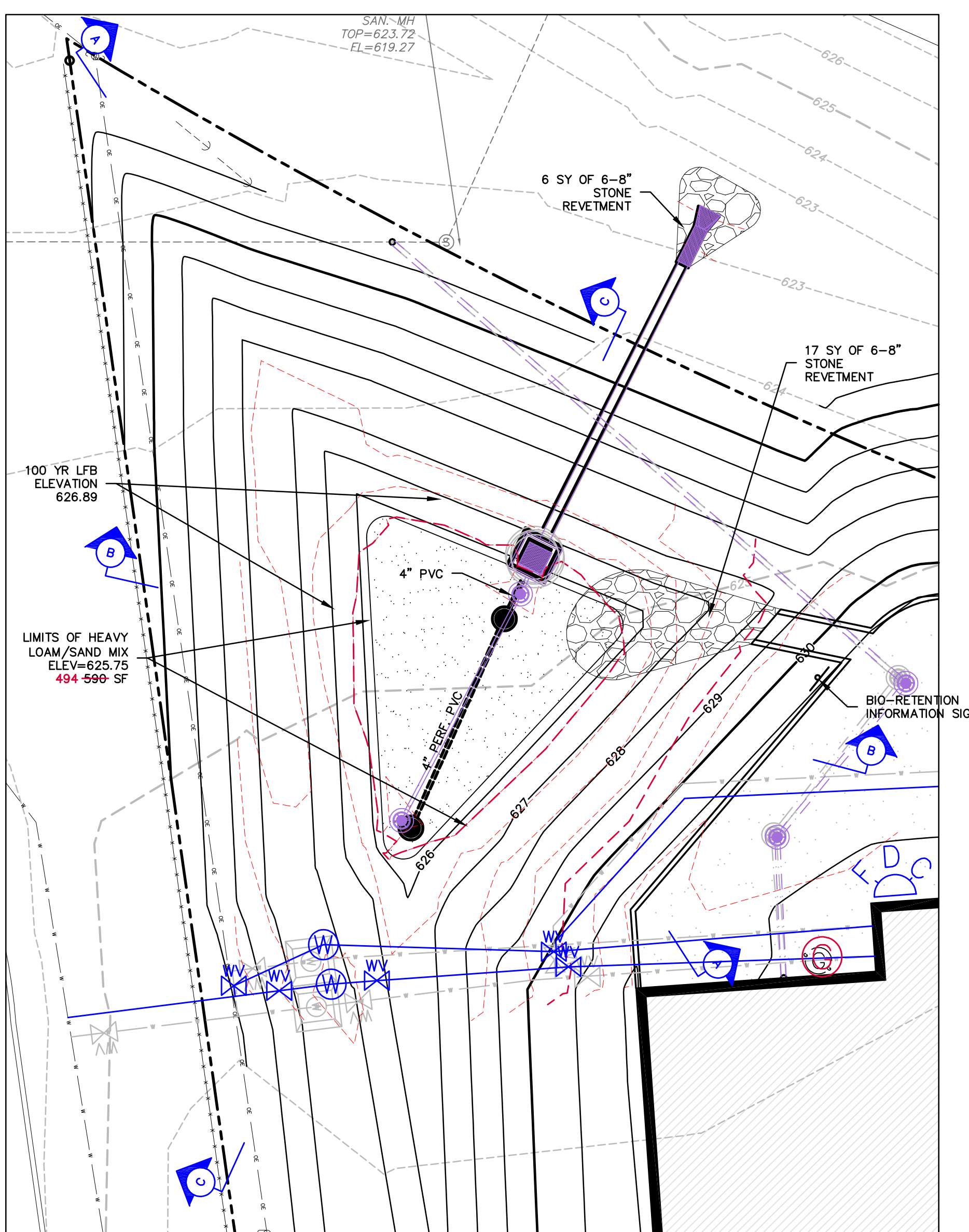
LEONARD J. WEERS
PROFESSIONAL ENGINEER
E-29288

Developer / Owner Information
UHAUL
CONTACT: MICHAEL WHITE
314-952-6203
Email: michael_white@uhaul.com

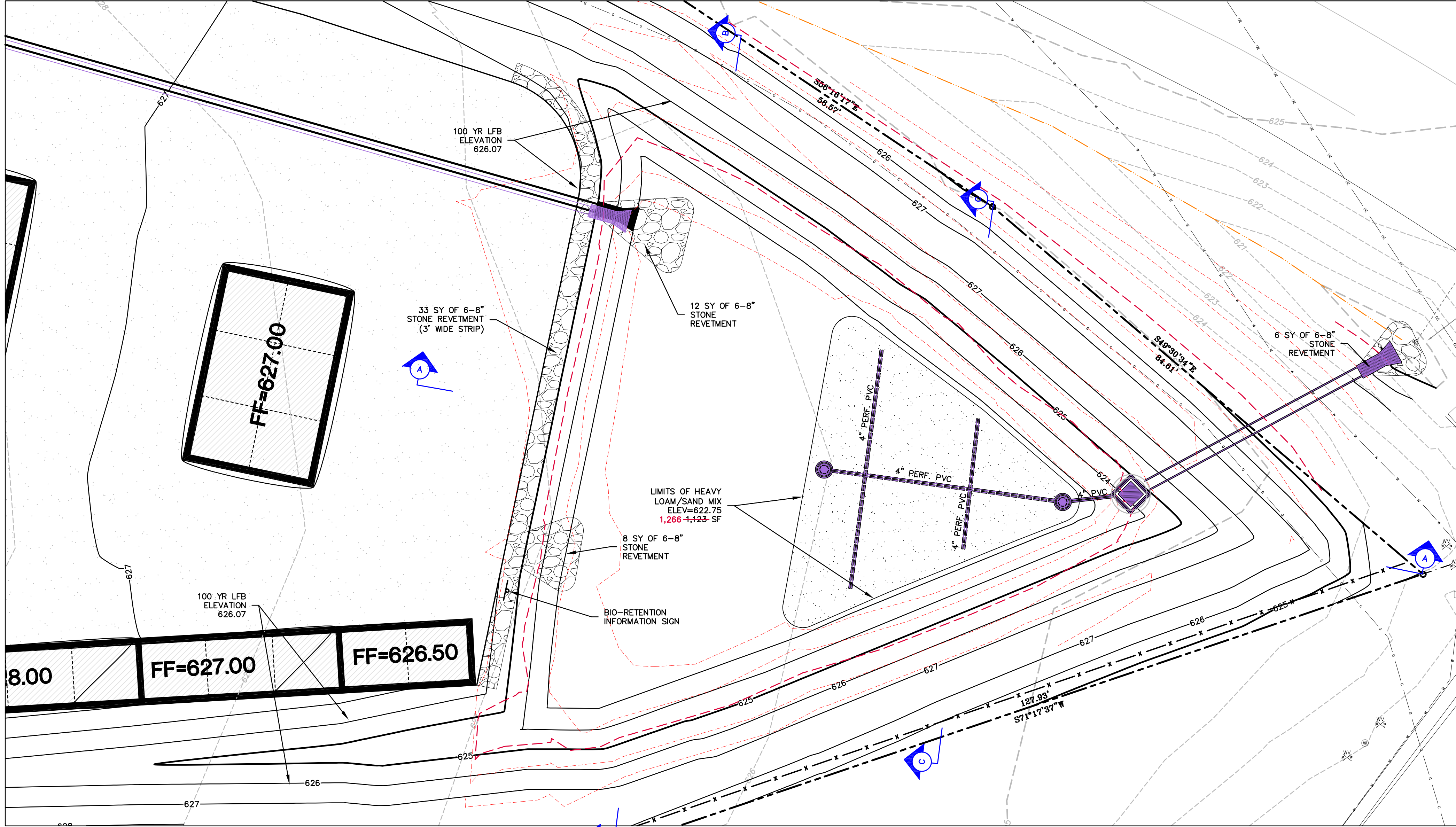
P+Z No.
Approval Date:
City No.

Page No.
C8.6

BMP DETAILS



1 BIO-RETENTION B
C8.7 SCALE : NTS

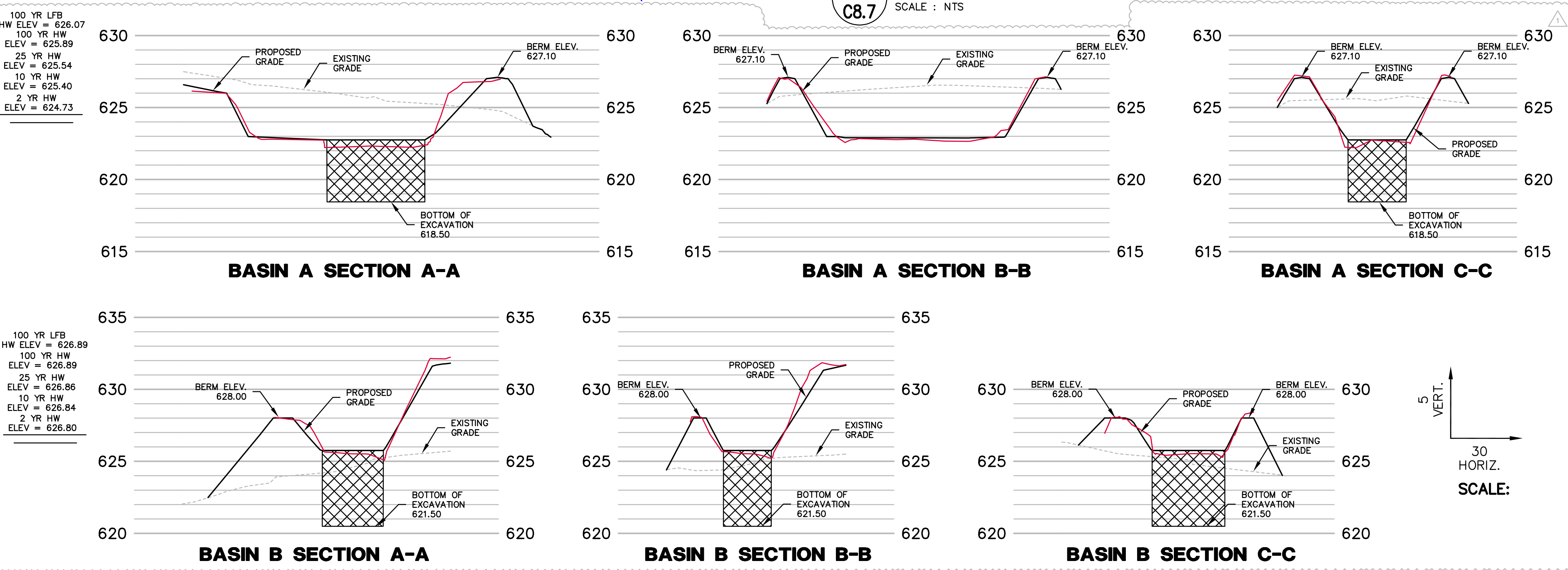
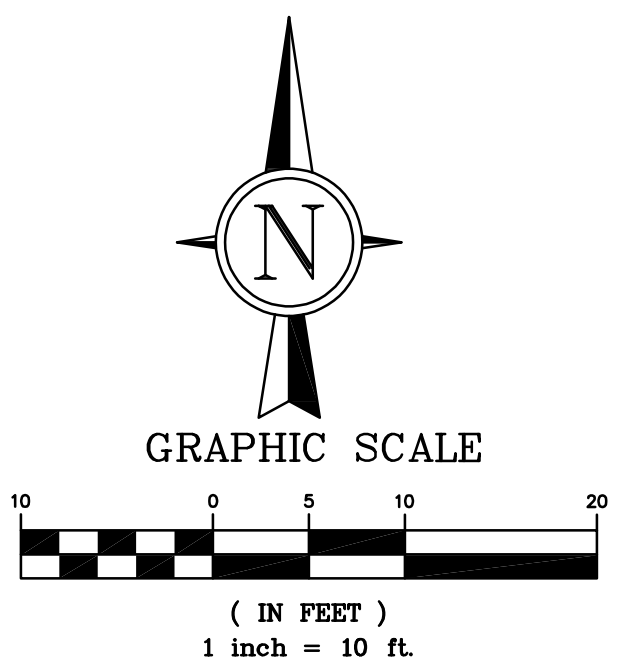


2 BIO-RETENTION A
C8.7 SCALE : NTS

"AS-BUILT"

SEDIMENT BASIN CALCULATIONS

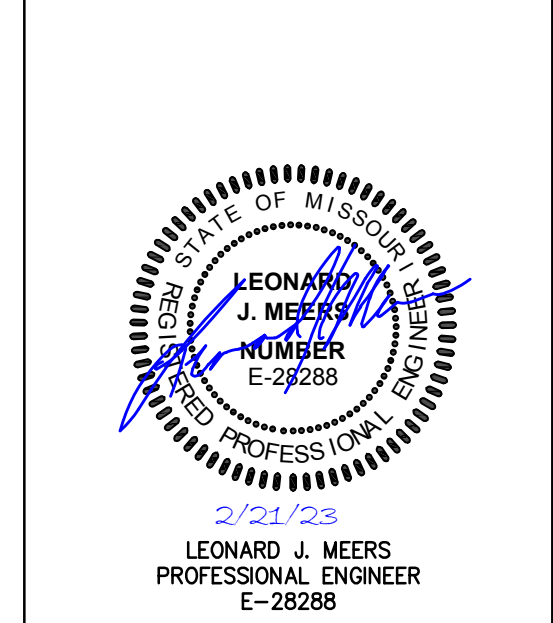
	SEDIMENT BASIN #A	SEDIMENT BASIN#B
TRIBUTARY AREA:	1.71 AC	0.62 AC
APPROX. ANNUAL SEDIMENT STORAGE	140 CF/AC/YR	140 CF/AC/YR
REQUIRED STORAGE 2-YEAR	479 CF	174 CF
2-YEAR STORM	1.71 AC @ 2.39 cfs/AC 4.07 * 60sec * 30min	0.62 AC @ 2.39 cfs/AC 1.48 * 60sec * 30min
REQUIRED STORAGE	7,356 CF	2,667 CF
TOTAL REQUIRED STORAGE	7,835 CF	2,841 CF
STORAGE PROVIDED	26,872 CF	3,380 CF



NO.	DESCRIPTION	DATE
1	CITY COMMENTS	02-24-2022
2	CITY/UTIL COMMENTS	03-14-2022
3	MINI UNITS F.F.	08-01-2022
4	DOCK GRADING	08-10-2022
5	WATER REVISIONS	08-15-2022
6	GRADING REVISIONS	10-05-2022

PROJECT TITLE
O'FALLON U-HAUL
1200 S. OUTER ROAD
O'FALLON, MO 63366

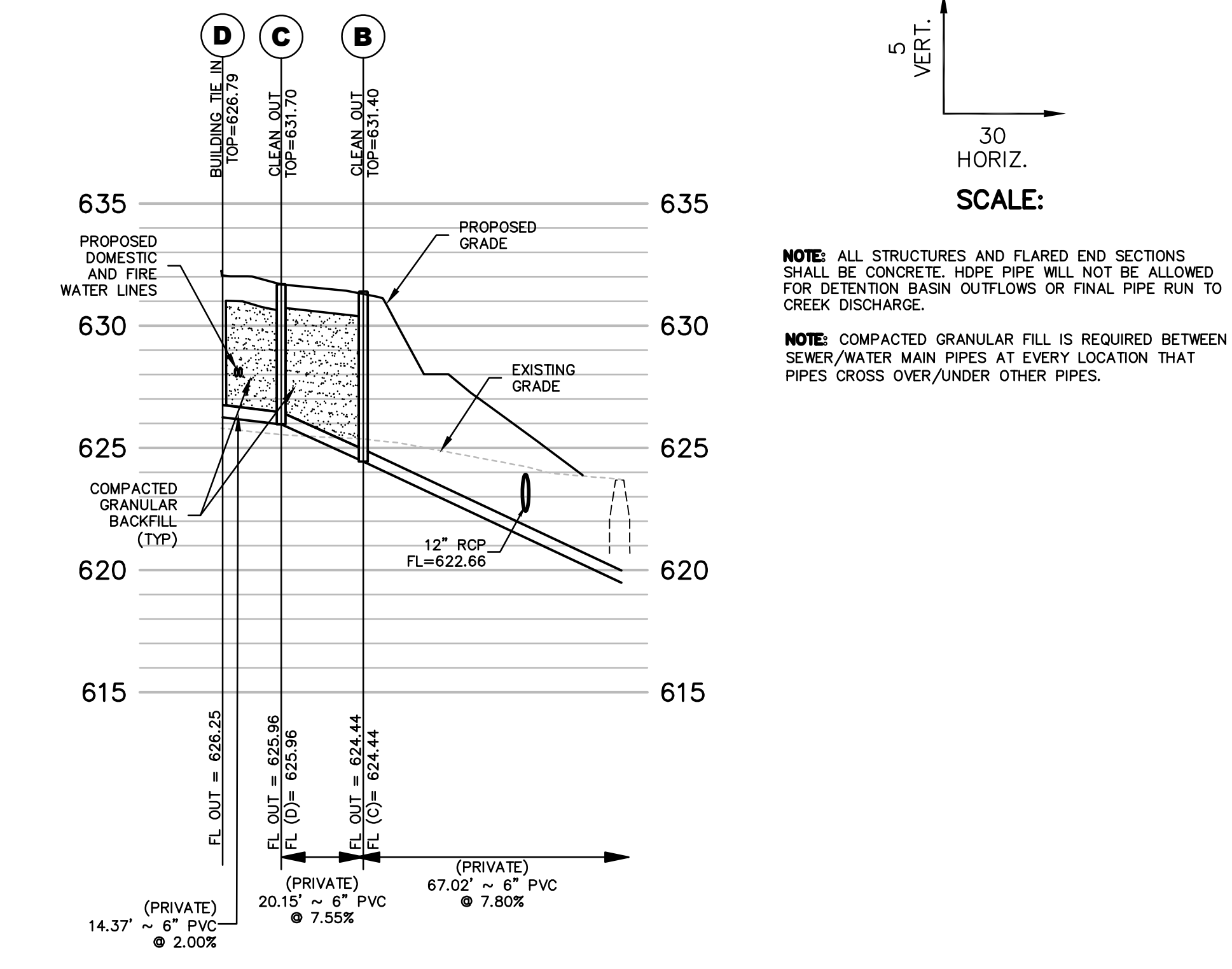
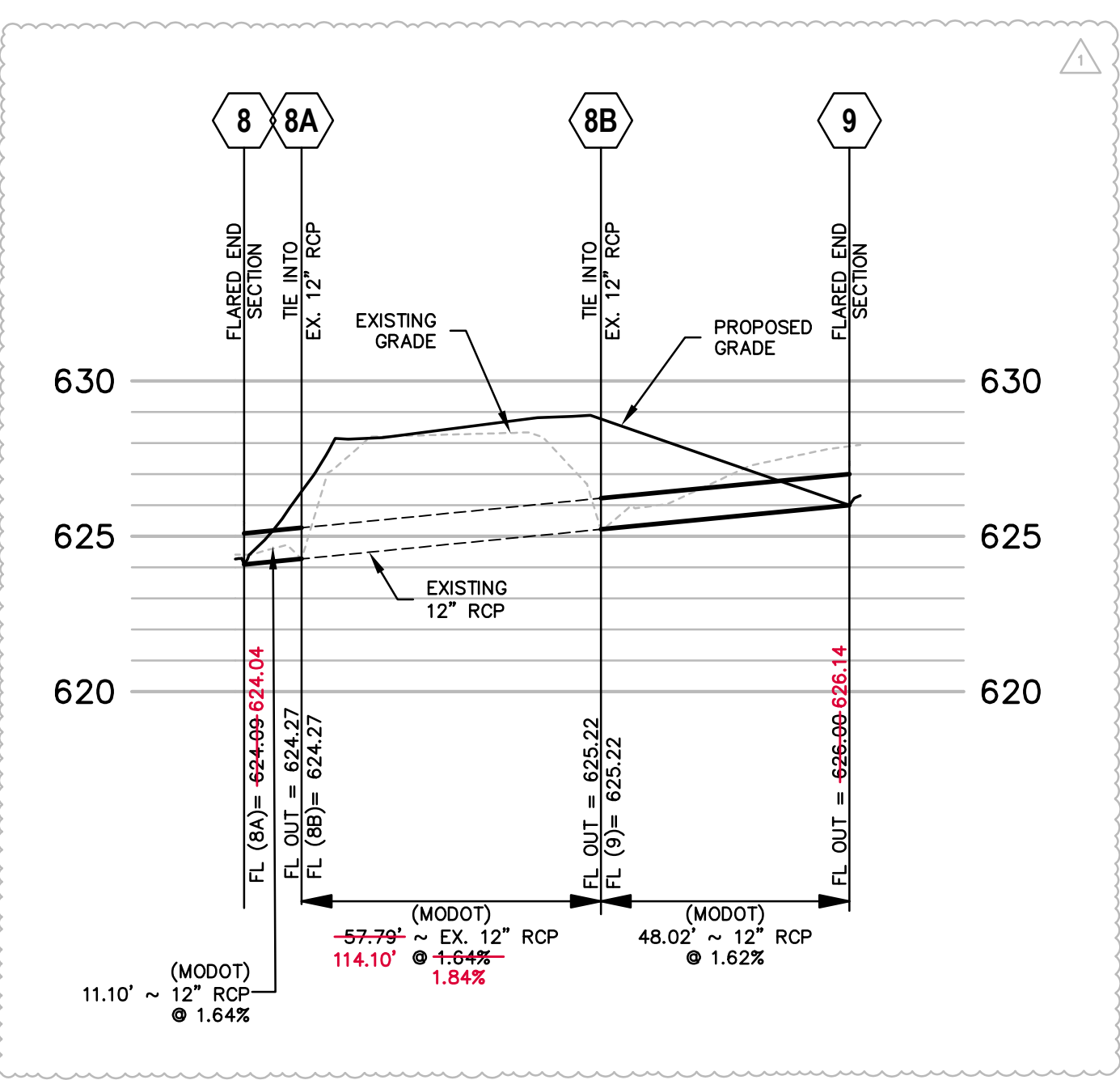
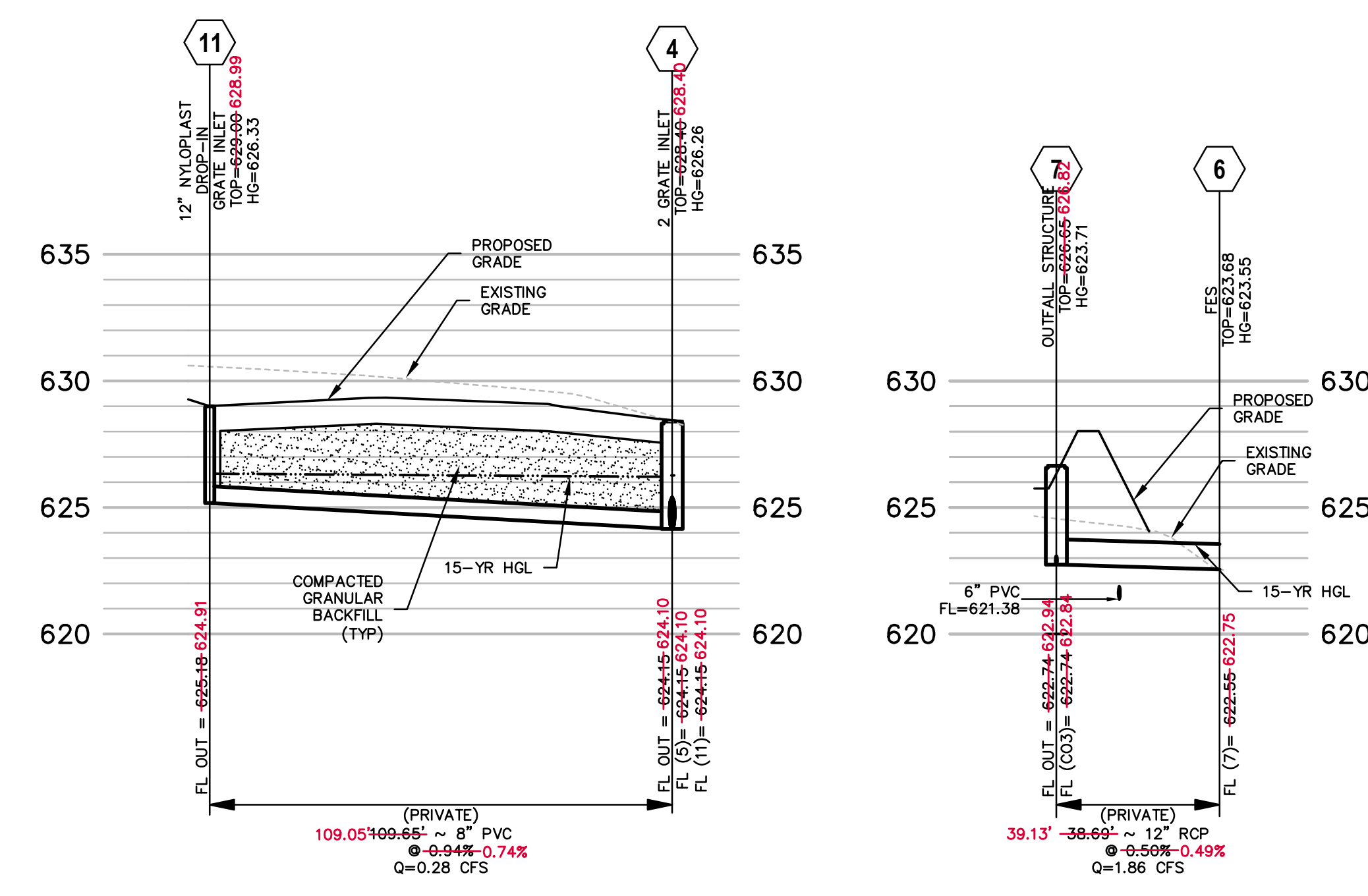
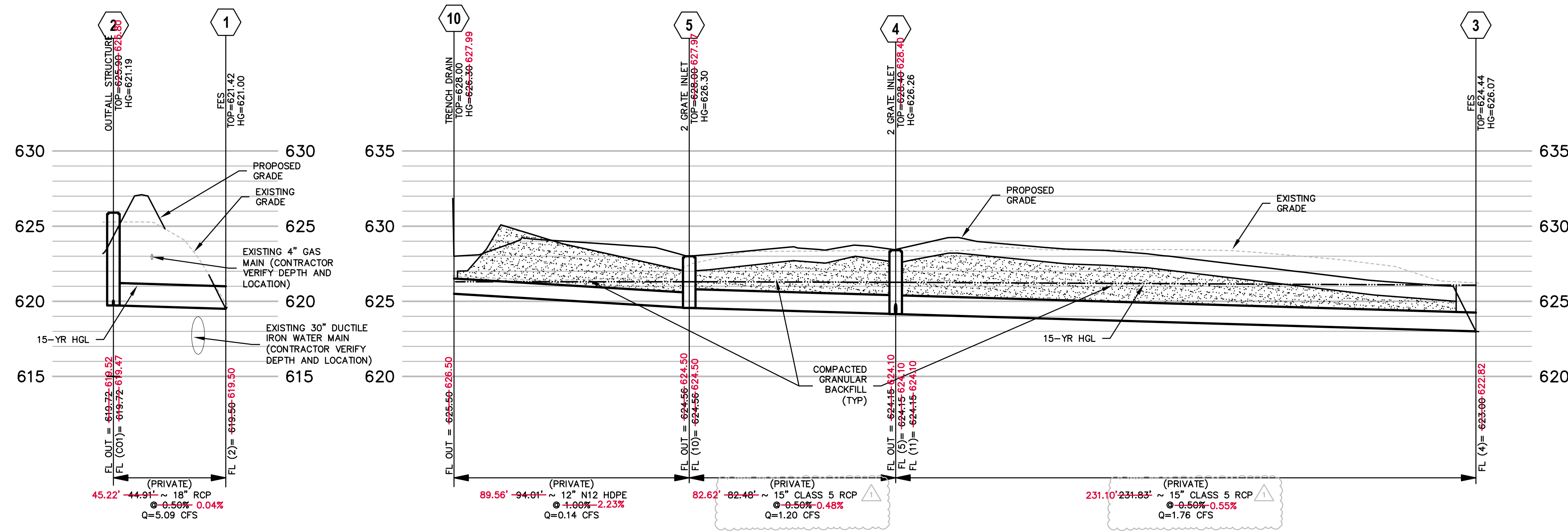
GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services
GRIMES CONSULTING, INC.
PROFESSIONAL ENGINEER CORPORATION, E-147P-D
PROFESSIONAL LAND SURVEYING CORPORATION, LS-34-D
12300 OLD TESSON ROAD
ST. LOUIS, MO 63128
PH: (314) 849-6100
FAX: (314) 849-6010
www.grimesconsulting.com



Developer / Owner Information
UHAUL
CONTACT: MICHAEL WHITE
314-952-6203
Email: michael_white@uhaul.com

P+Z No.
Approval Date:
City No.
Page No.
C8.7

BMP DETAILS



5 VERT.
30 HORIZ.
SCALE:

NOTE: ALL STRUCTURES AND FLARED END SECTIONS SHALL BE CONCRETE. HDPE PIPE WILL NOT BE ALLOWED FOR DETENTION BASIN OUTFLOWS OR FINAL PIPE RUN TO CREEK DISCHARGE.

NOTE: COMPACTED GRANULAR FILL IS REQUIRED BETWEEN SEWER/WATER MAIN PIPES AT EVERY LOCATION THAT PIPES CROSS OVER/UNDER OTHER PIPES.

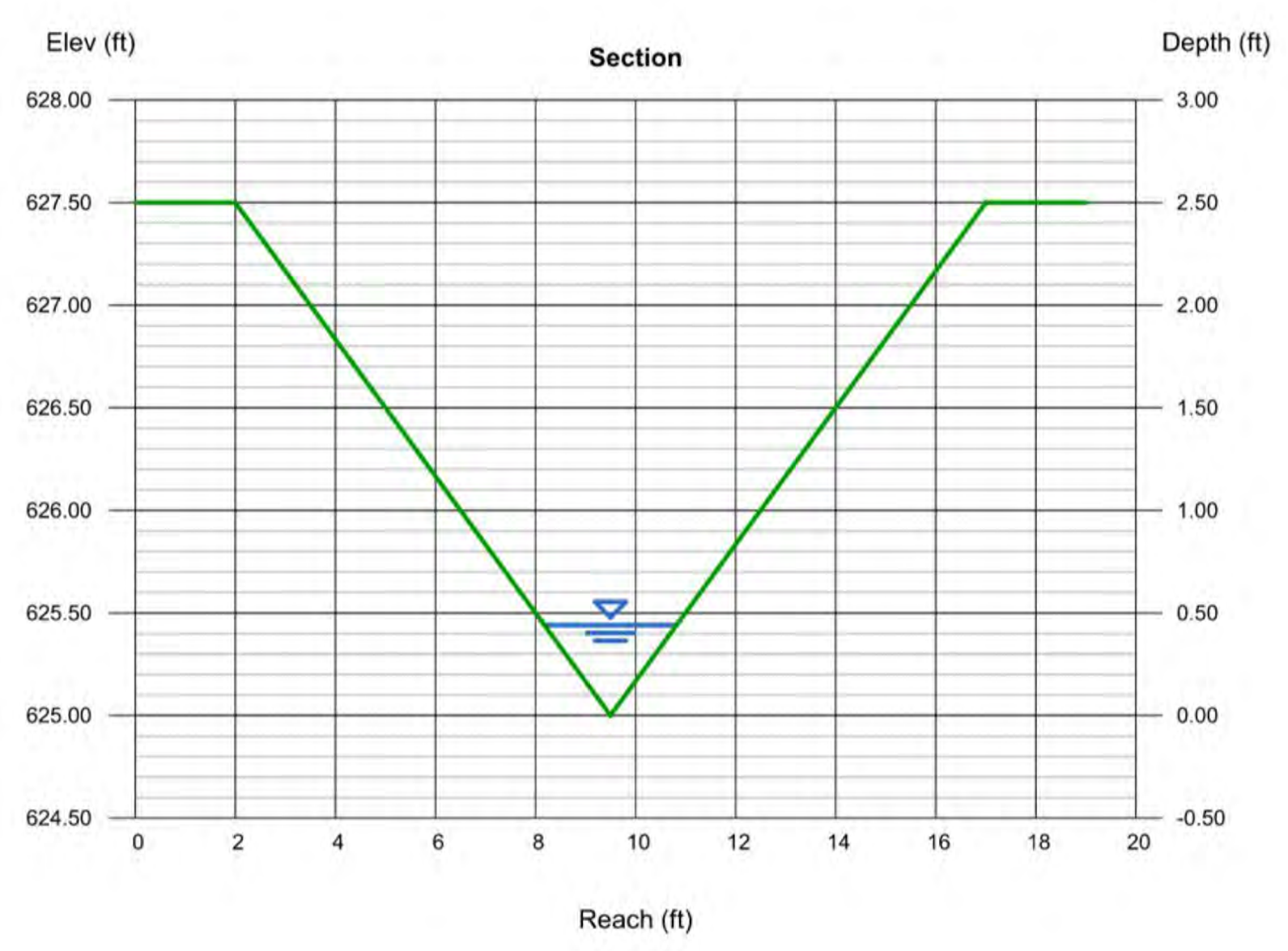
"AS-BUILT"

Channel Report

Hydroflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Feb 24 2022

Vegetated Swale into Basin A

Triangular		Highlighted	
Side Slopes (z:1)	= 3.00, 3.00	Depth (ft)	= 0.44
Total Depth (ft)	= 2.50	Q (cfs)	= 1.220
Invert Elev (ft)	= 625.00	Area (sqft)	= 0.58
Slope (%)	= 1.00	Velocity (ft/s)	= 2.10
N-Value	= 0.024	Wetted Perim (ft)	= 2.78
Calculations		Crit Depth, Yc (ft)	= 0.41
Compute by:	Known Q	Top Width (ft)	= 2.64
Known Q (cfs)	= 1.22	EGL (ft)	= 0.51



NOTE: SWALE TO HAVE A MINIMUM OF 1% LONGITUDINAL SLOPE AND BE LINED WITH A PERMANENT EROSION CONTROL BLANKET THAT WILL ALLOW INFILTRATION OF THE STORM WATER.

GRIMES CONSULTING, INC.

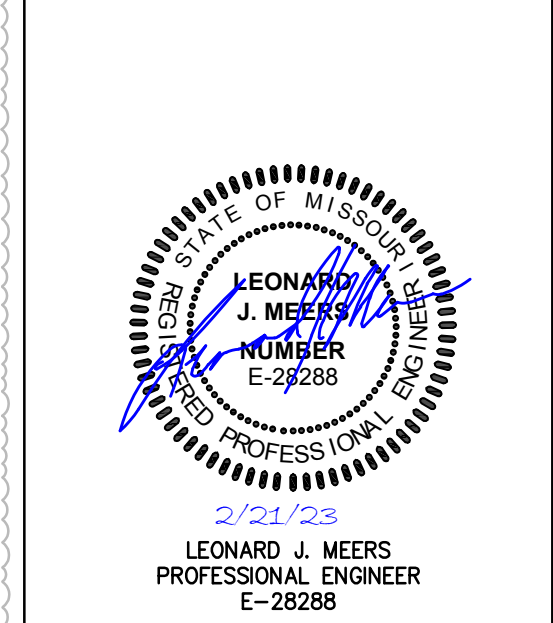
STRUCTURE		HYDRAULIC DATA 15 YEAR STORM										NOTES: ** Critical Depth; j-Line contain hyd jump							
LOWER	UPPER	PIPE ID	FLOWLINE UPPER	FLOWLINE LOWER	LENGTH FT.	PIPE GRADE %	PIPE SIZE IN.	PIPE SHAPE	"n"	TOTAL Q cfs	V f.p.s.	MINOR LOSSES	ENERGY LOSSES	HYD GRADE UP	HYD GRADE DOWN	LOWEST OPENING***	FREEBOARD	PIPE CAPACITY	DEPTH IN PIPE
1	2	P-2	619.72	619.50	44.91	0.50	18	Cir	0.013	5.09	2.95	0.10	0.10	621.19	621.00	625.90	4.71	7.35	1.37
6	7	P-7	622.74	622.55	38.69	0.50	12	Cir	0.013	1.86	2.43	0.07	0.10	623.71	623.55	626.65	2.94	2.50	0.90
4	11	P-11	625.18	624.15	109.65	0.94	8	Cir	0.013	0.28	0.80	0.01	0.06	626.33	626.26	629.00	2.67	1.17	0.67
5	10	P-10	625.02	624.56	92.68	0.50	12	Cir	0.013	0.14	0.17	0.00	0.00	626.30	626.30	628.00	1.70	2.59	1.01
4	5	P-5	624.56	624.15	82.48	0.50	15	Cir	0.013	1.20	0.98	0.01	0.03	626.30	626.26	628.00	1.70	4.54	1.25
3	4	P-4	624.15	623.00	231.83	0.50	15	Cir	0.013	1.76	1.43	0.02	0.17	626.26	626.07	628.40	2.14	4.55	1.25

PREPARED FOR:
BRINKMANN CONSTRUCTORS
CONTACT: JACOB ENGLERT
16650 CHESTERFIELD GROVE RD, SUITE 100
CHESTERFIELD, MO 63005
PH: (636) 537-9700
E: JEnglert@brinkmannconstructors.com

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	02-24-2022
2	CITY/UTIL COMMENTS	03-14-2022
3	MINI UNITS F.F.	08-01-2022
4	DOCK GRADING	08-10-2022
5	WATER REVISIONS	08-15-2022
6	GRADING REVISIONS	10-05-2022

PROJECT TITLE
O'FALLON U-HAUL
1200 S. OUTER ROAD O'FALLON, MO 63366

GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services
12300 OLD TESSON ROAD
ST. LOUIS, MO 63128
PH: (314) 849-6100
FAX: (314) 849-6010
www.grimesconsulting.com



Developer / Owner Information
UHAUL
CONTACT: MICHAEL WHITE
314-952-6203
Email: michael_white@uhaul.com

P+Z No.
Approval Date:
City No.
Page No.
C9.0