

A SITE PLAN FOR
3107 BOUQUET ROAD
A TRACT OF LAND IN PART OF
SECTION 7, TOWNSHIP 44 NORTH, RANGE 3 EAST,
GLENCOE & WILDWOOD, ST. LOUIS COUNTY, MISSOURI

DEVELOPMENT NOTES:

- Site Address:
3107 Bouquet Rd,
Glencoe MO, 63038
Loc.# 24Y110033
 - Owner Information (from public records):
Griffith John M & Margaret A H/W
4 Berry Bluff Ct
Ballwin MO, 63011
 - Area of Tract: 132,119 Square Feet or 3.03 Acres, more or less
 - Present Zoning: "NU" Non-Urban District (Wildwood)
- "NU" Non-Urban District Dimensional Requirements
- | | |
|---------------------|--|
| Front Yard Setback: | 50 Feet |
| Side Yard Setback: | 30 Feet of any property line other than a R/W line |
| Rear Yard Setback: | 30 Feet of any property line other than a R/W line |
| Minimum Site Area: | 10,000 SqFt. |
- Utility Provider Districts:

Water:	Missouri American Water	Site Served
Sewer:	MSD	No
Telephone:	AT&T Distribution	Yes
Gas:	Spire Missouri East	No
Electric:	Ameren Missouri Electric	Yes
Fire District:	Metro West	
School District:	Rockwood	
 - According to the FIRM Flood Insurance Rate Map 29189C025K Dated February 4, 2015, this development is located in Zone X unshaded, Areas determined to be outside the 0.2% chance annual floodplain.
 - Existing water tap information: None
 - This is not a boundary survey, boundary information shown hereon is per a survey performed by THD Design Group on June 08, 2022.
 - The existing utilities shown hereon are per observed evidence and available utility maps. All utilities shall be field verified prior to any excavation or construction.
 - Contours and elevations shown hereon were produced from airborne laser scanning (LIDAR) data and are compliant with The American Society of Photogrammetry and Remote Sensing (ASPRS) Standards.
 - Area of Disturbance: 20,850 square feet or 0.48 acres, more or less.
 - Inspections shall be made by the Department of Public Works during each stage of fill operations and final approval shall be required upon completion of operations. Applicant shall notify the City upon commencement of the following when and as completed: rough grading, finish grading before seeding and all re-establishment and construction work.
 - At least five (5) working days prior to the use of any street, in the City by trucks or hauling or grading equipment engaged in grading operations in the City that require the use of the streets of the City, applicant shall provide written notice to the Director of Public Works specifying the kind and description of trucks or hauling or grading equipment, and the loaded and unloaded weight of the trucks and hauling equipment, and the number of each and the length of time they will be required to use the streets of the City. The contractor shall furnish the Director of Public Works with all other information required to estimate or determine the amount of wear and tear or damage, if any, that may be caused to streets by such usage. Before construction actually commences or while the work on the streets is in progress, the Director of Public Works may require any contractor or subcontractor to post surety bonds or insurance with the City to guarantee the City for compensation for any damage to streets, curbs, sidewalks, trees, landscaping or other public facilities.
 - All other requirements in Chapter 425 Grading Code, including but not limited to Section 425.050 Standards: safety precaution, and section 425.100 Construction dirt, debris and noise shall be adhered to at all times during the work covered by this permit application.
 - All violations shall be corrected within the time limit specified in the issuance of a written notice to correct. Action to correct violations that require immediate action shall be taken upon verbal notification of the Applicant by the City. All persons failing to comply with such notice shall be deemed in violation of Chapter 425. Responsibility for the work to be completed under this application is nontransferable without prior written approval by the City of Wildwood. Areas must be completely restored and finished to City standards and satisfaction prior to refund of deposit.
 - Violation of any provisions in Chapter 425 shall be misdemeanor, punishable by fine of not less than five dollars (\$5.00) and not more than five hundred dollars (\$500.00) or by imprisonment for a period not to exceed three (3) months or by both fine and imprisonment. Each day of violation shall constitute a separate offense.
 - Please be advised that all requests for escrow deposit release MUST be made within one (1) year from the date of issue of the original permit in order to receive any/all funds. All requests for escrow release must be made in written form and give to the attention of the "Public Works Department – Escrow Release".
 - Surface drainage behind the proposed retaining walls shall be directed to the proposed retaining wall drainage system (by others). In no case shall surface drainage be allowed to drain over the top of the proposed retaining walls.
 - The proposed development does not disturb more than 1 acre of ground, therefore water quality volume reduction has not been provided.
 - The proposed development does not generate a stormwater runoff differential of greater than 2.0cfs, therefore detention has not been provided.
 - The proposed development generates a negative stormwater runoff differential



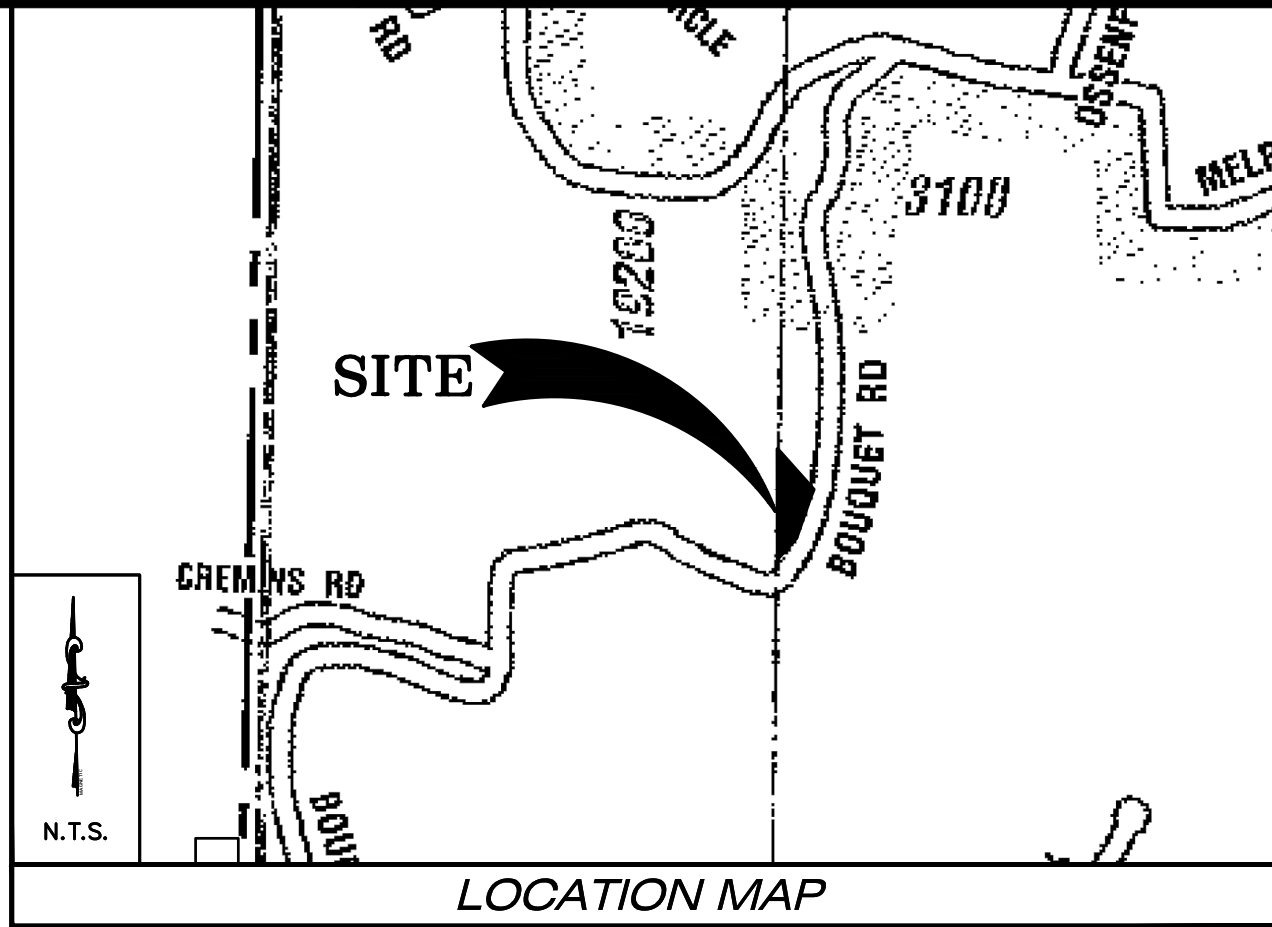
UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING AND/OR CONSTRUCTION OF IMPROVEMENTS.

ABBREVIATIONS

AC	ACRE	XSEC	CROSS SECTION	DAI	DOUBLE AREA INLET	GI	GRATE INLET	PVMT	PAVEMENT	TBP	TO BE PROTECTED
AI	AREA INLET	XING	CROSSING	DS	DOWNSPOUT	HDPEHIGH	DENSITY POLYETHYLENE	PDE	PERMANENT DRAINAGE	TBR	TO BE REMOVED
ATG	ADJUST TO GRADE	CFS	CUBIC FEET PER SECOND	ESMT	EASEMENT	HW	HIGH WATER	PVC	POLYVINYL CHLORIDE	TBR&REL	TO BE REMOVED & RELOCATED
APPROX	APPROXIMATELY	CI	CURB INLET	ELEV	ELEVATION	HGL	HYDRAULIC GRADE LINE	PCC	PORTLAND CEMENT CONCRETE	TW	TOP OF WALL ELEVATION
ASPH	ASPHALT	CO	CLEANOUT	EP	END OF PIPE	HYD	HYDRANT	PC	PRECAST CONCRETE	TYP	TYPICAL
BW	BASE OF WALL ELEVATION	C&G	CURB & GUTTER	EX	EXISTING	IMP	IMPROVEMENT	PROP	PROPOSED	UIP	USE IN PLACE
BM	BENCHMARK	CO	CLEANOUT	FPS	FEET PER SECOND	IP	IRON PIPE OR PIN	RR	RAILROAD	VCP	VITRIFIED CLAY PIPE
BMP	BEST MANAGEMENT PRACTICE	CMP	CORRUGATED METAL PIPE	FF	FINISH FLOOR	LS	LAND SURVEYOR	RCP	REINFORCED CONCRETE PIPE	WV	WATER VALVE
BLDG	BUILDING	CONC	CONCRETE	FH	FIRE HYDRANT	MH	MANHOLE	ROW	RIGHT-OF-WAY	YD	YARD DRAIN
BLDV	BUILDING	DCI	DOUBLE CURB INLET	FE	FLARED END	MSD	METROPOLITAN ST. LOUIS SEWER DISTRICT	SCH	SCHEDULE		
CATV	CABLE TELEVISION	DIP	DUCTILE IRON PIPE	FBD	FLAT BOTTOM DITCH	NTS	NOT TO SCALE	SWPPP	STORMWATER POLLUTION PREVENTION PLAN		
CALC	CALCULATED	DIA	DIAMETER	FD	FLOOR DRAIN	OC	ON CENTER	TBA	TO BE ABANDONED		
CIP	CAST IRON PIPE	Q	DISCHARGE	FL	FLOOR LINE	OH	OVERHEAD				
CL	CENTERLINE			FTG	FOOTING						
CP	CLAY PIPE										

SHEET INDEX

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- SITE DEVELOPMENT PLAN
- SITE DEVELOPMENT PLAN
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- STORM SEWER PROFILES
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- PROPOSED DRAINAGE AREA MAP
- OFFSITE DRAINAGE AREA MAPS
- STORMWATER POLLUTION PREVENTION PLAN
- SWPPP DETAILS
- SWPPP DETAILS
- SWPPP DETAILS
- TREE PRESERVATION PLAN



Differential Runoff Calculations - Parcel 1					
Existing		Area (s.f.)	Area (Ac)	PI	Q
	Building	0	0.000	3.54	0.00 cfs
	Pavement	0	0.000	3.54	0.00 cfs
	Green Space	132,119	3.033	1.7	5.16 cfs
	Total	132,119	3.033		5.16 cfs
Proposed					
	Building	2,692	0.062	3.54	0.22 cfs
	Pavement	1,469	0.034	3.54	0.12 cfs
	Green Space	127,958	2.938	1.7	4.99 cfs
	Total	132,119	3.033		5.33 cfs
Differential Runoff =			0.18 cfs		

*Runoff volumes shown hereon are per the component rational method
*Time of concentration is assumed at 20min for the 15yr-20min rainfall
*Runoff differential shown above is for the area of the property only and does not include offsite drainage areas.

Coverage Calculations					
Existing					
	Building	0		0.0%	
	Pavement	0		0.0%	
	Green Space	132,119		100.0%	
	Total	132,119			
	Existing Impervious Coverage			0.0%	
Proposed					
	Building	2,692		2.0%	
	Pavement	1,469		1.1%	
	Green Space	127,958		96.9%	
	Total	132,119			
	Proposed Impervious Coverage			3.1%	

UTILITY SERVICE PROVIDERS	
SCHOOL	ROCKWOOD
FIRE	METRO WEST
SEWER	PRIVATE SEPTIC
WATER	PRIVATE WELL
GAS	SPIRE
PHONE	AT&T
ELECTRIC	AMEREN U.E.
CABLE	CHARTER COMMUNICATIONS
WATERSHED	AUGUST TAVERN CREEK
ZIP CODE	63068 GLENCOE
POLICE	ST LOUIS COUNTY - WILDWOOD PRECINCT #6
CITY COUNCIL	WARD 6

PROJECT BENCHMARK:

This project was performed with the use of Global Positioning System (GPS) equipment and the use of a Continuous Operating Reference Station (CORS) as part of the Missouri Department of Transportation (MoDOT) Virtual Reference Network (VRN). Data was obtained with the use of a Trimble R12 receiver and a TSC7 data collector.

Horizontal Datum is Grid North, Missouri State Plane Coordinate System NAD'83, East Zone.
Vertical Datum is NAVD'88.
Horizontal and Vertical data observation tolerance is 0.10 feet.
Horizontal and vertical Control point (CORS).

SITE BENCHMARK:

Description: PK Nail in asphalt.

Collected Elev. = 589.68 Feet

Location: Center of water valve lid located approximately 15 feet East of the Eastern edge of pavement of Manchester Rd and 3 feet West of the water meter serving #18000 Manchester Rd.

SYMBOL LEGEND

EXISTING	PROPOSED	EXISTING	PROPOSED
×	FOUND CROSS	TV	CABLE TV BOX
○	FOUND IRON PIPE	×	LIGHT STANDARD
●	SET IRON ROD	⊗	CLEAN OUT
⊕	BENCHMARK	⊙	SANITARY MANHOLE
×500	SPOT GRADE	⊙	SAMPLING TEE
TS	TRAFFIC SIGNAL BOX	⊙	SEPTIC TANK ACCESS
□	PHONE BOX	⊙	STORM SEWER MANHOLE
⊙	UTILITY MANHOLE	⊙	GRATE INLET
○	BOLLARD	⊙	AREA INLET
✉	MAILBOX	⊙	DOWNSPOUT
+	SIGN	~	DRAINAGE SWALE
○	POST	~516~	SURFACE CONTOUR
⊙	SHRUB	~	TREE LINE
⊙	DECIDUOUS TREE	8" PVC	SAN. SEWER
⊙	EVERGREEN TREE	12" CMP	STORM SEWER
EB	ELECTRIC BOX	OH	OVERHEAD ELECTRIC LINE
EM	ELECTRIC METER	UE	UNDERGROUND ELECTRIC
UP	UTILITY POLE	G	GAS LINE
GW	GUY WIRE	W	WATER LINE
GM	GAS METER	T	TELEPHONE LINE
GV	GAS VALVE	FO	FIBER OPTIC LINE
WM	WATER METER	UTV	CABLE TV
WV	WATER VALVE	GR	GUARDRAIL
HY	HYDRANT	X	WIRE FENCE
WS	WATER SHUT OFF	WO	WROUGHT IRON FENCE
SH	SPRINKLER HEAD	CO	CHAIN LINK FENCE
IB	IRRIGATION VALVE BOX	SD	SANITARY DESIGNATOR
W	WELL	CI 204	STORM DESIGNATOR
TH	TEST HOLE		

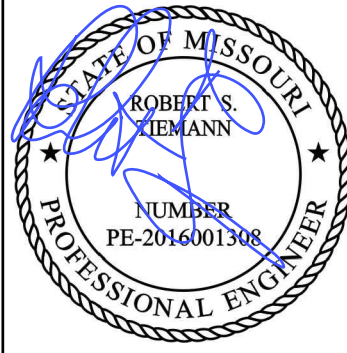
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3107 BOUQUET ROAD

SITE PLAN

TITLE SHEET



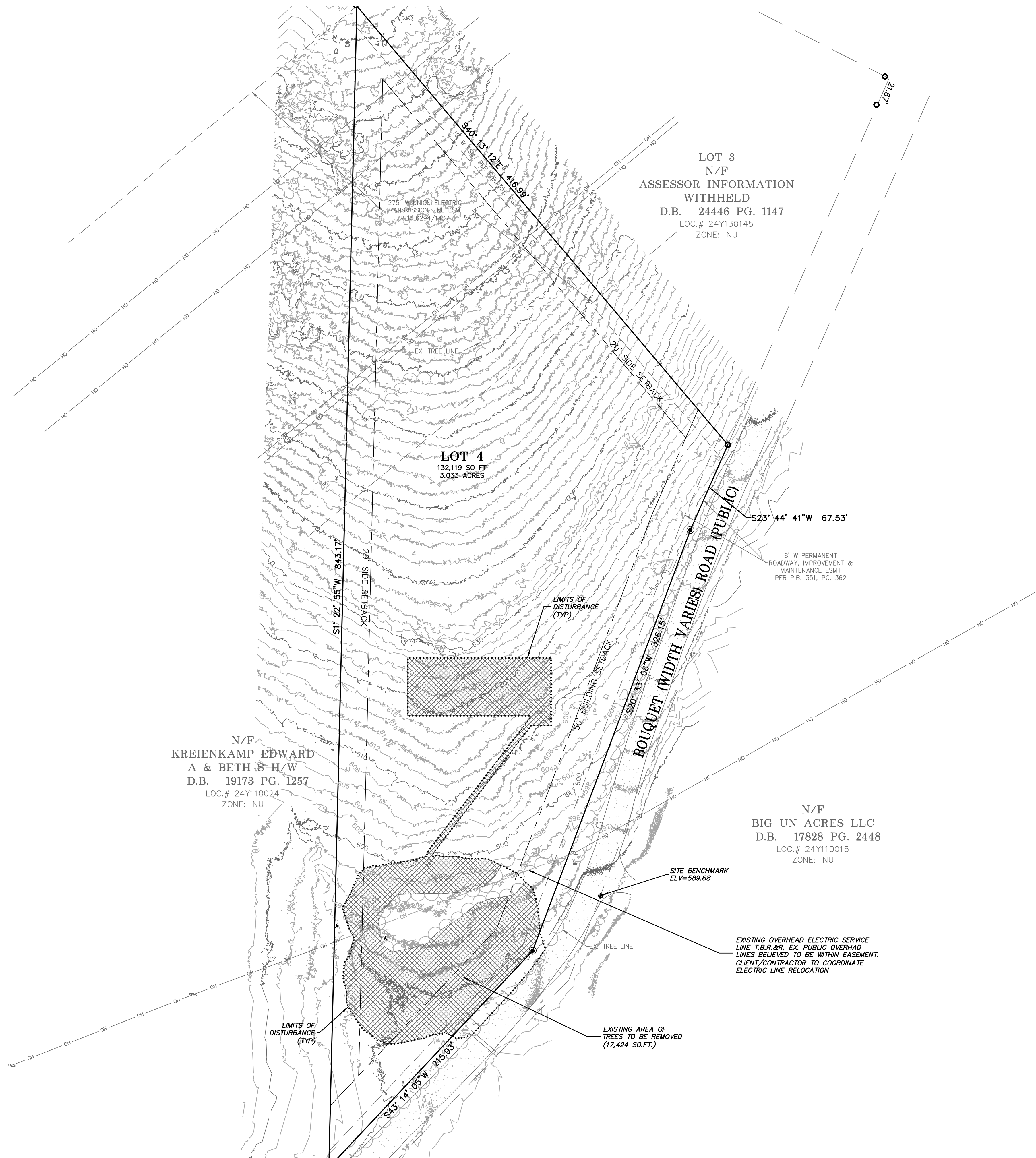
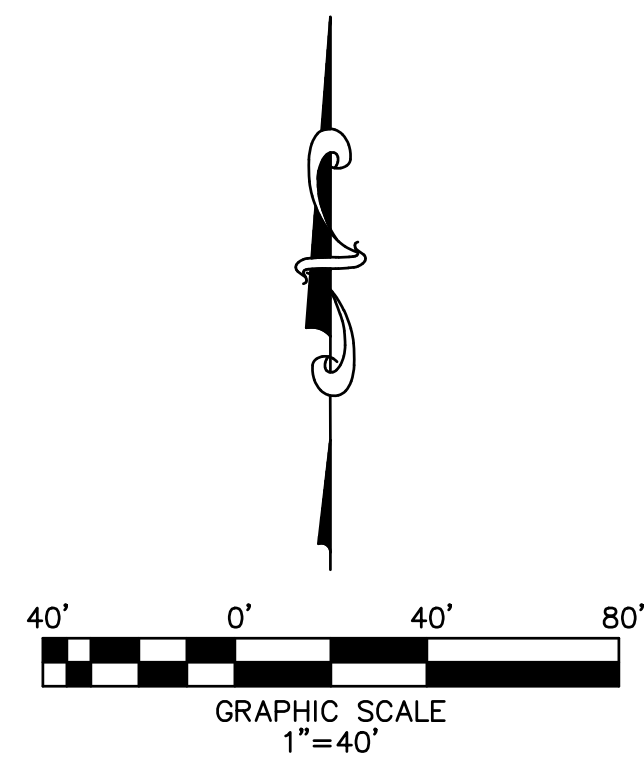
Date: Jul 30, 2024
Robert Tiemann
License No. PE-2016001308
Civil Engineer

PROJECT NUMBER: 22-5007

DATE: 07/30/2024

DRAWN BY: MLP

1 OF 13






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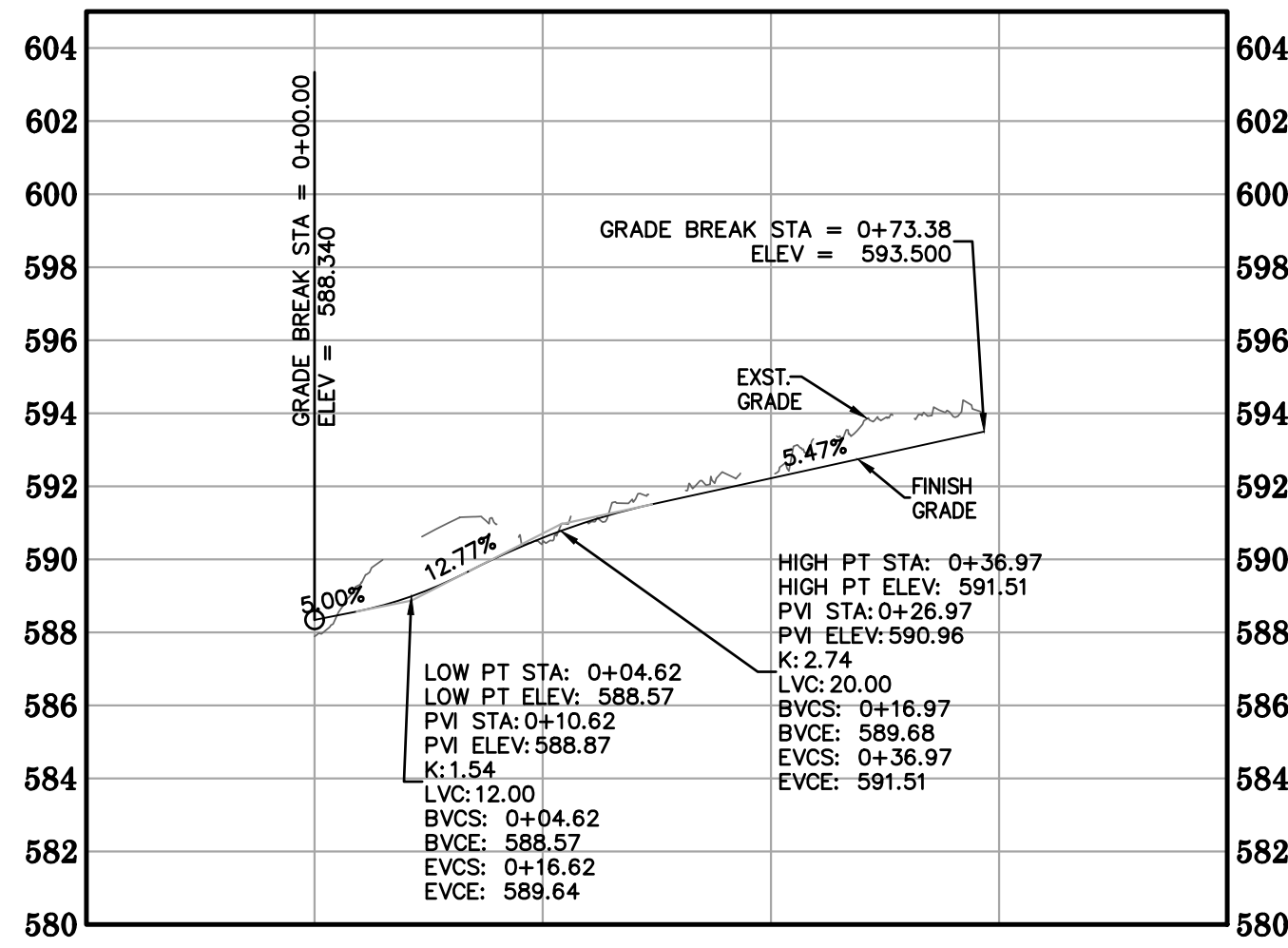
3107 BOUQUET ROAD
SITE PLAN
EXISTING CONDITIONS & DEMO PLAN



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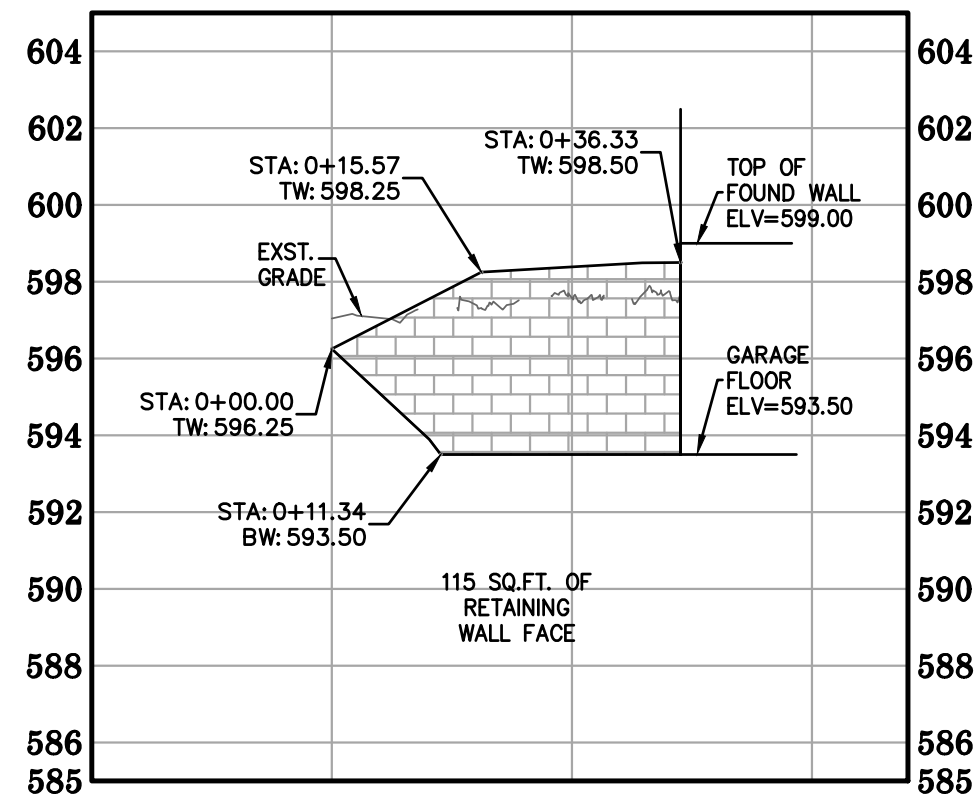


DRIVEWAY PROFILE

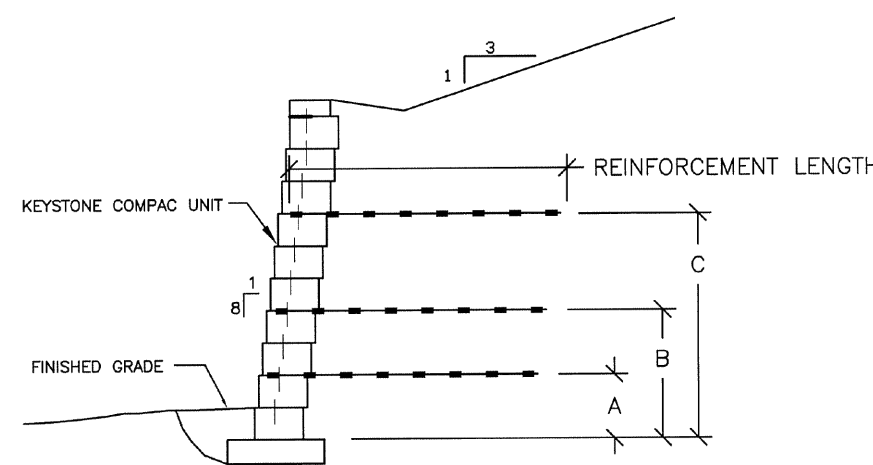
VERT.
1"=5'

HORIZ.
1"=20'

SCALE:



RETAINING WALL PROFILE



GEOGRID LAYOUT - SLOPING SURCHARGE
COMPACT UNITS
SCALE: NONE

Wall Height	Keystone Mini Units					Keystone Compact Units					Keystone Standard Units
	# Geogrid Layers	A	B	C	D	# Geogrid Layers	A	B	C	D	
2'		No geogrid required					No geogrid required				No geogrid required
3'	1	3'	2'	-	-	1	3'	2'	-	-	No geogrid required
4'	2	4'	2'	3.33'	-	2	4'	2'	3.33'	-	No geogrid required
5'	3	5'	1.33'	2.67'	4'	2	5'	2'	3.33'	-	Same as compact units
6'	4	5.5'	1.33'	2.67'	4.5'	3	5.5'	2'	3.33'	4.67'	Same as compact units

All geogrids are to be Mirafi 2XT, or 3XT or Stratagrid SG150 or SG200

KEYSTONE MASTERPLAN
ST. LOUIS COUNTY, MO

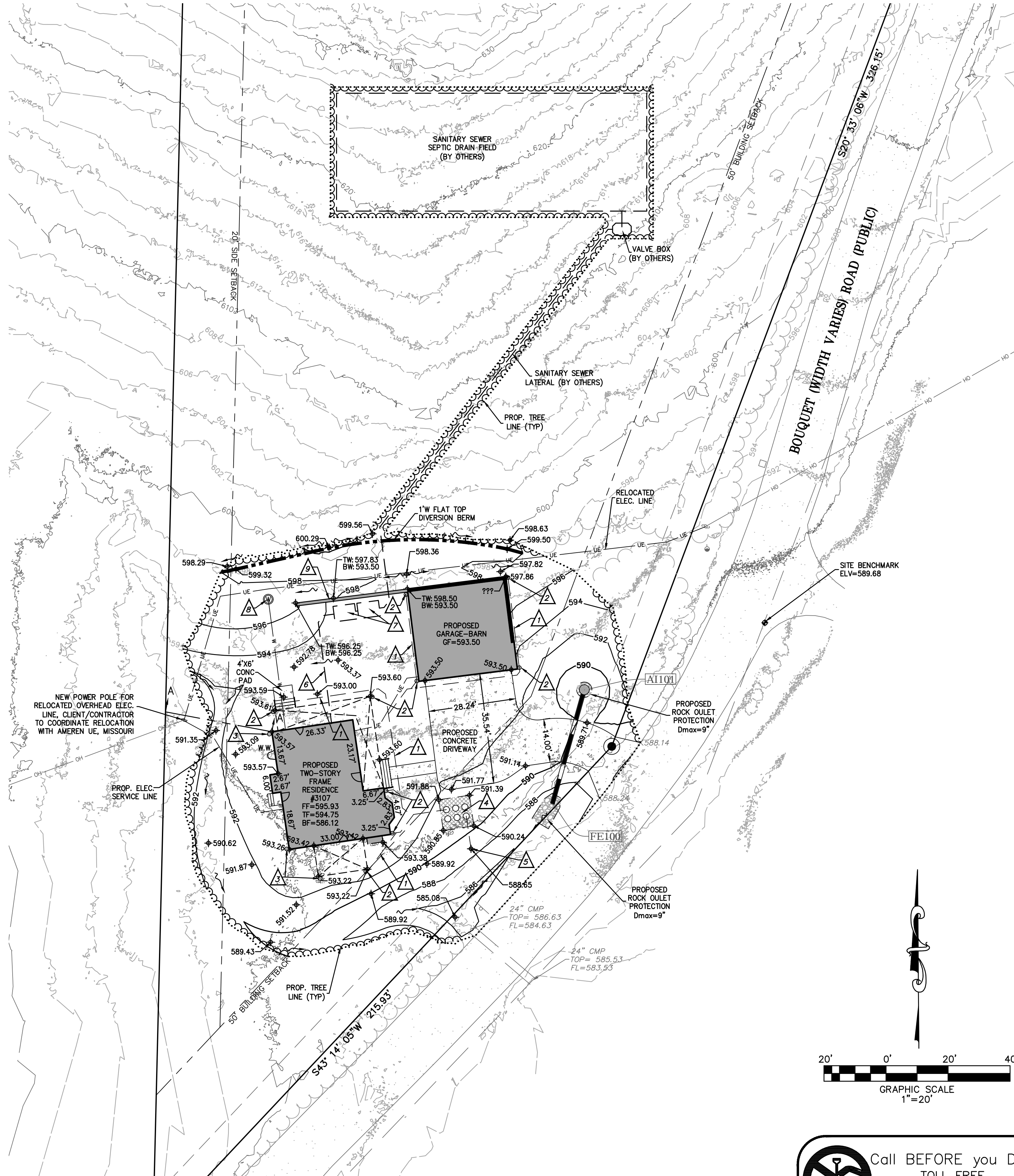
KIRCHNER BLOCK AND BRICK
Keystone Mini System
12901 S. Chester Road, No.
St. Louis, MO 63044
314/291-3200

GEOGRID LAYOUT - SLOPING FILL

Designed by: ECA Date: 07/30/2024 Sheet 9 of 10

KEYED NOTES

- 4" PVC ROOF DRAIN PIPE @ 1.0% MIN SLOPE DOWNSPOUT CONNECTED TO 4" PVC ROOF DRAIN SYSTEM. SYSTEM TO DISCHARGE INTO THE PROPOSED FLO-WELL STORMWATER MITIGATION SYSTEM
- CONCRETE SPLASH BLOCK AT DOWNSPOUT DISCHARGE, SPLASH BLOCK SET ON FINISH GRADE
- FLO-WELL STORMWATER MITIGATION SYSTEM 10' X 10' W X 4.67' D, TOP OF ROCK STORAGE BED ELV=XXX.XX, BOTTOM OF ROCK STORAGE BED ELV=XXX.XX
- 4" PVC POP-UP EMITTER, FLO-WELL SYSTEM DISCHARGE, FL=
- 4" PVC SANITARY SEWER LATERAL, MIN. 2% PIPE SLOPE. FUTURE SEWER SERVICE FROM THE BASEMENT FLOOR ELEVATION WILL REQUIRE A PUMP SYSTEM. PER MODR REQUIREMENTS A MINIMUM OF 10' LINEAR FEET OF SEPARATION IS REQUIRED BETWEEN SANITARY SEWER AND WATER LINES. MIN. 10' DISTANCE SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
- PROPOSED SEPTIC TANK & PUMP TANK (BY OTHERS)
- PROPOSED PRIVATE WELL (BY OTHERS), LOCATION SHOWN IS CONSIDERED APPROXIMATE ONLY.
- PROPOSED MODULAR BLOCK RETAINING WALL (BY OTHERS), KEYSTONE COMPACT BLOCK, SEE ST. LOUIS COUNTY, MISSOURI MASTER RETAINING WALL PLANS



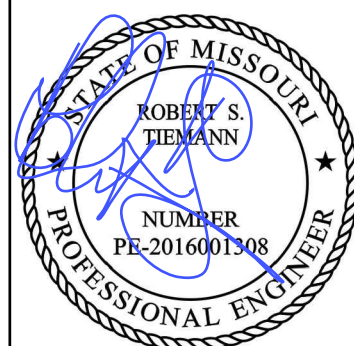
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3107 BOUQUET ROAD

SITE PLAN

SITE DEVELOPMENT PLAN



Date: Jul. 30, 2024
Robert S. Tiemann
License No. PE-2016001308
Civil Engineer

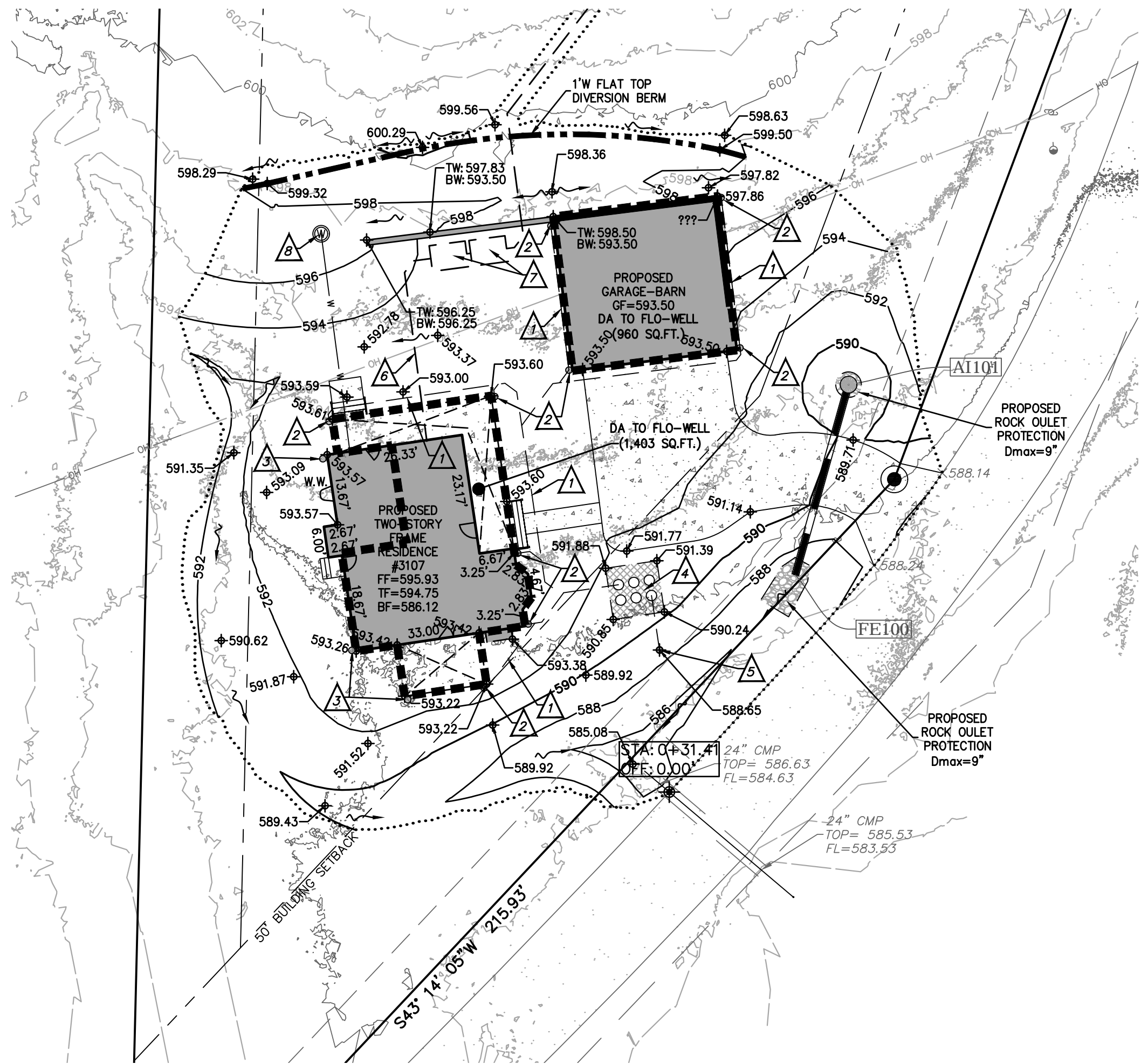
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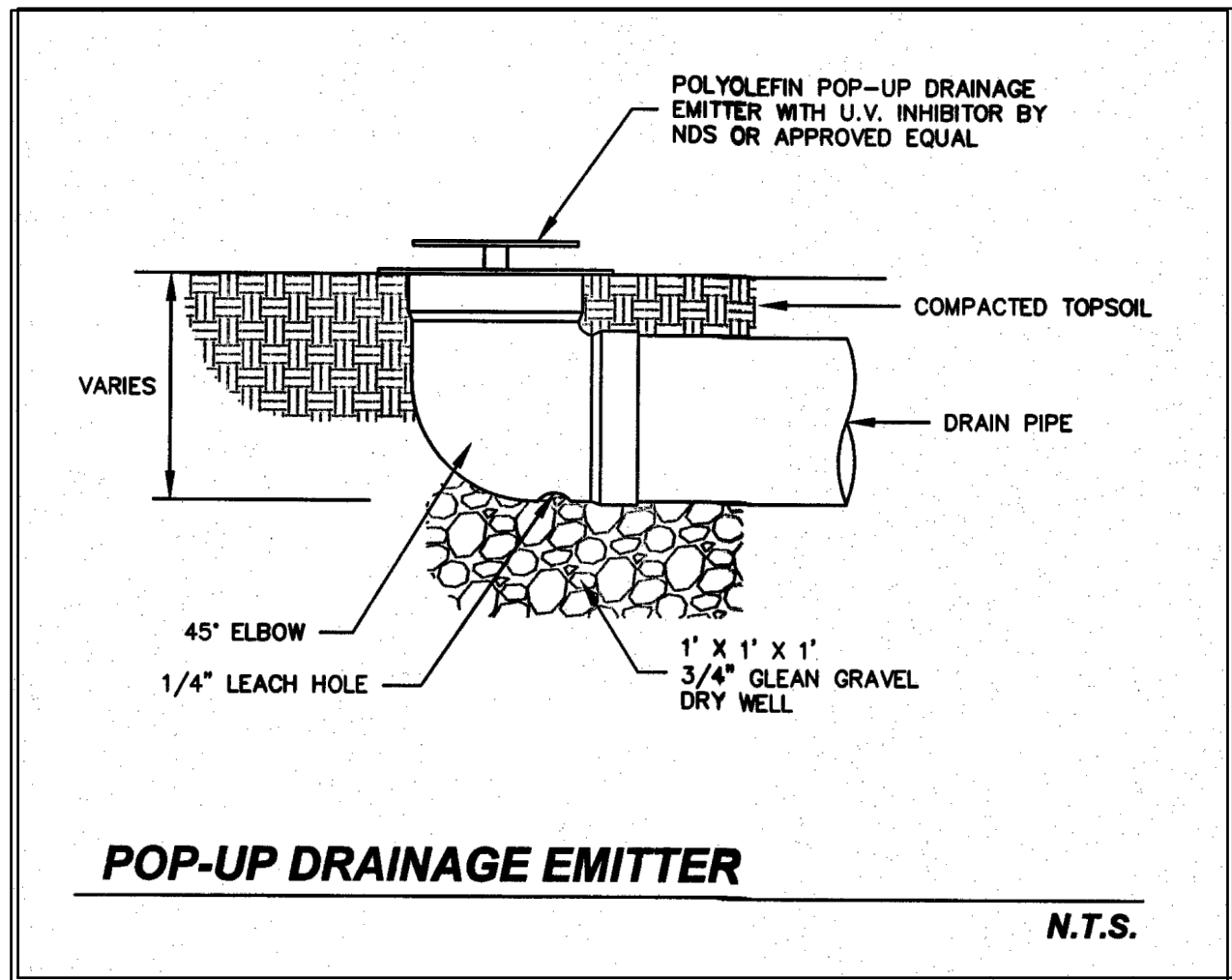
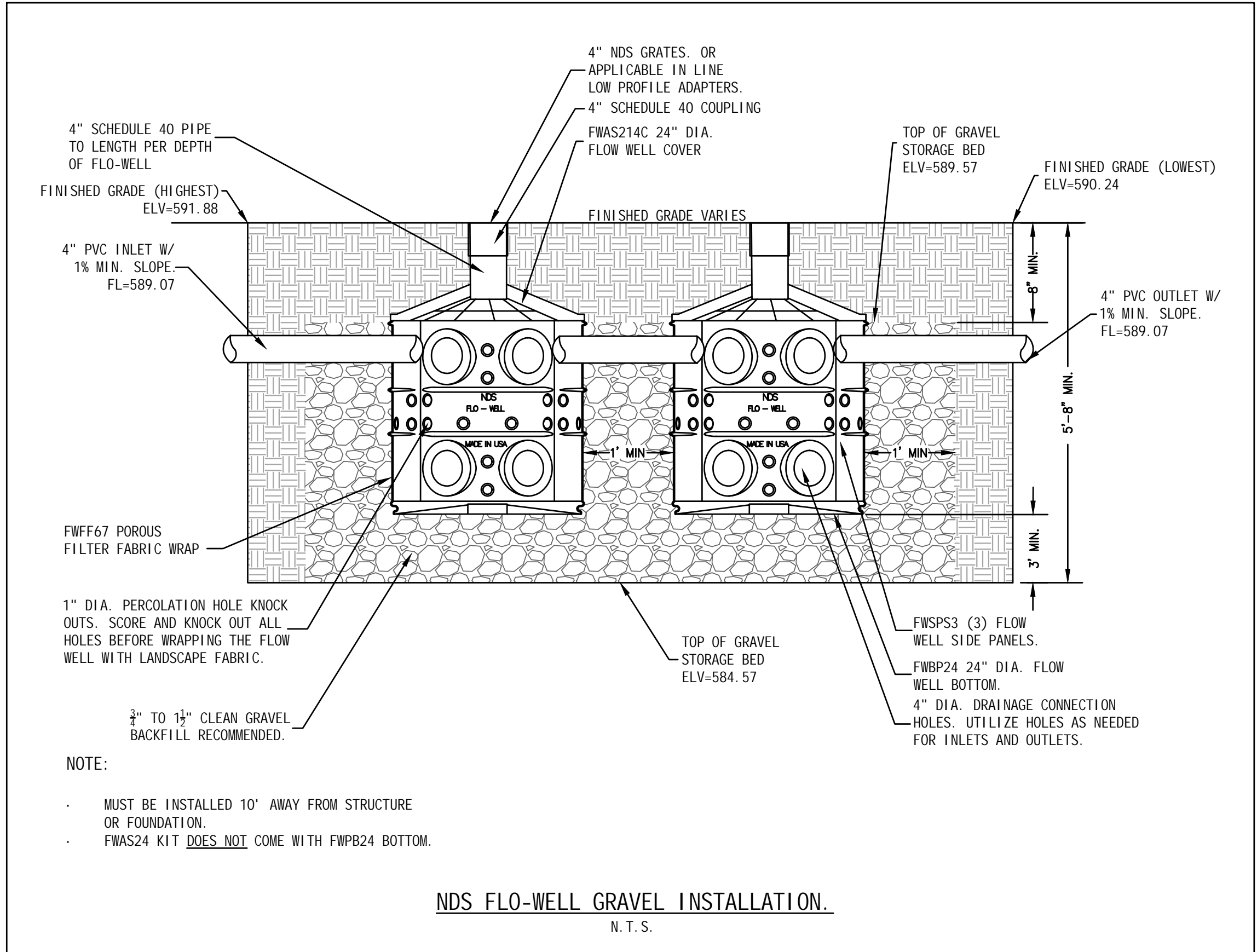
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- KEYED NOTES**
- 4" PVC ROOF DRAIN PIPE @ 1.0% MIN. SLOPE
 - DOWNSPOUT CONNECTED TO 4" PVC ROOF DRAIN SYSTEM. SYSTEM TO DISCHARGE INTO THE PROPOSED FLO-WELL STORMWATER MITIGATION SYSTEM
 - CONCRETE SPLASH BLOCK AT DOWNSPOUT DISCHARGE. SPLASH BLOCK SET ON FINISH GRADE
 - FLO-WELL STORMWATER MITIGATION SYSTEM 10L X 10W X 5D. TOP OF ROCK STORAGE BED ELV=589.57. BOTTOM OF ROCK STORAGE BED ELV=584.57
 - 4" PVC POP-UP EMITTER, FLO-WELL SYSTEM DISCHARGE, FL=588.15
 - 4" PVC SANITARY SEWER LATERAL, MIN. 2% PIPE SLOPE. FUTURE SEWER SERVICE FROM THE BASEMENT FLOOR ELEVATION WILL REQUIRE A PUMP SYSTEM. PER MOHR REQUIREMENTS A MINIMUM OF 10 LINEAR FEET OF SEPARATION IS REQUIRED BETWEEN SANITARY SEWER AND WATER LINES. MIN. 10' DISTANCE SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
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 - PROPOSED MODULAR BLOCK RETAINING WALL (BY OTHERS). KEYSTONE COMPACT BLOCK. SEE ST. LOUIS COUNTY, MISSOURI MASTER RETAINING WALL PLANS



Existing Impervious Cover	
Total Lot Area	132,119 SF
House/ Outbuildings	0 SF
Drive/ Walk/ Patio	0 SF
Total Impervious Area	0 SF
Impervious Coverage	0.0%

Proposed Impervious Cover	
Total Lot Area	132,119 SF
House/ Outbuildings	2,692 SF
Drive/ Walk/ Patio	1,469 SF
Total Impervious Area	4,161 SF
Impervious Coverage	3.1%

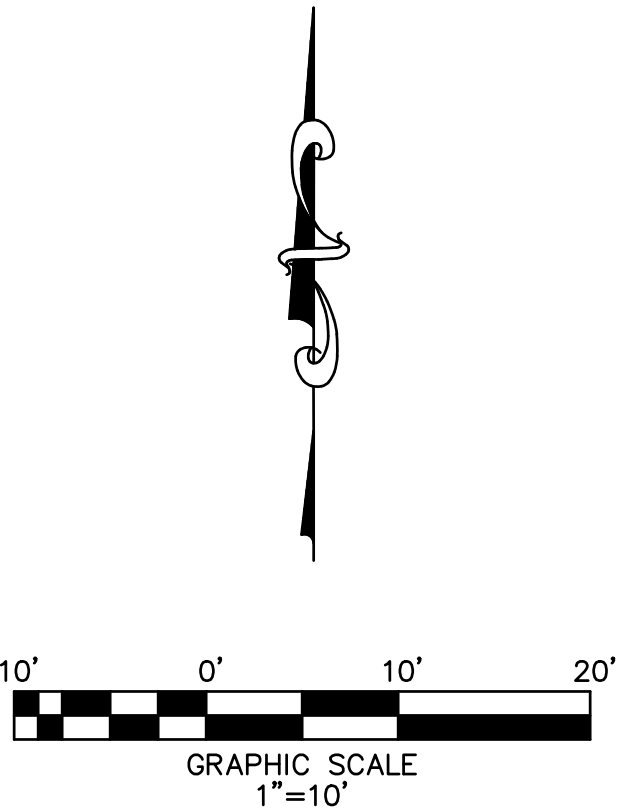
Stormwater Runoff Differential Calculations	
Total Site Area = 132,119 SF	
Existing	
Pervious Area =	132,119 SF
Pervious Percentage =	100.0%
15YR-20MIN PI Factor =	1.70
Pervious Flowrate (Q) =	5.1562 CFS
Proposed	
Impervious Area =	0 SF
Impervious Percentage =	0.0%
15YR-20MIN PI Factor =	3.54
Impervious Flowrate (Q) =	0.00 CFS
Total Existing Flowrate (Q) =	5.16 CFS
Proposed	
Pervious Area =	127,958 SF
Pervious Percentage =	96.9%
15YR-20MIN PI Factor =	1.70
Pervious Flowrate (Q) =	4.9938 CFS
Impervious Area =	4,161 SF
Impervious Percentage =	3.1%
15YR-20MIN PI Factor =	3.54
Impervious Flowrate (Q) =	0.34 CFS
Total Proposed Flowrate (Q) =	5.33 CFS
Differential Flowrate	
Prop Q - Exist Q	= 0.18 CFS

Proposed Roof Tributary to Dry Well	
Area of Roof =	2,363 SF
Area of Roof =	0.05 AC
15Yr-20 Min Pi Factor	3.54
Tributary Volume =	0.19 CFS

Volume Check	
Differential Runoff =	0.18 CFS
Tributary Runoff =	0.19 CFS
Tributary Area Adequate	

Mitigation Well Volume Calculations	
Dry Well Structure Volume	
Dry Well Diameter =	2 FT
Dry Well Depth =	2 FT
Dry Well Volume =	6.28 CF
# of Dry Wells =	6.00 CF
Total Dry Well Storage Vol =	37.70
Granular Base Storage Volume	
Base Width =	10 FT
Base Length =	10
Base Depth =	5 FT
Base Volume =	500
Dry Well Area (subtracted)	37.70
Granular Voids =	40%
Storage Volume =	184.92 CF
Total System Volume	
Dry Well Storage Volume =	37.70 FT
Granular Base Storage Vol. =	184.92 SF
Total System Volume	222.62 CF
Total Mitigation Volume = 222.62 CF	

Differential Runoff Mitigation Calculations	
15YR-20 MIN Differential Runoff =	0.1758 CFS
20 Min Differential Volume =	210.92 CF
Dry Well Tributary Runoff =	0.192 CFS
20 Min Tributary Volume =	230.44 CF
Total Volume Required =	210.92 CF
Total Design Volume =	222.62 CF
Adequate Design Volume	



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3107 BOUQUET ROAD
SITE PLAN
STORMWATER MITIGATION PLAN



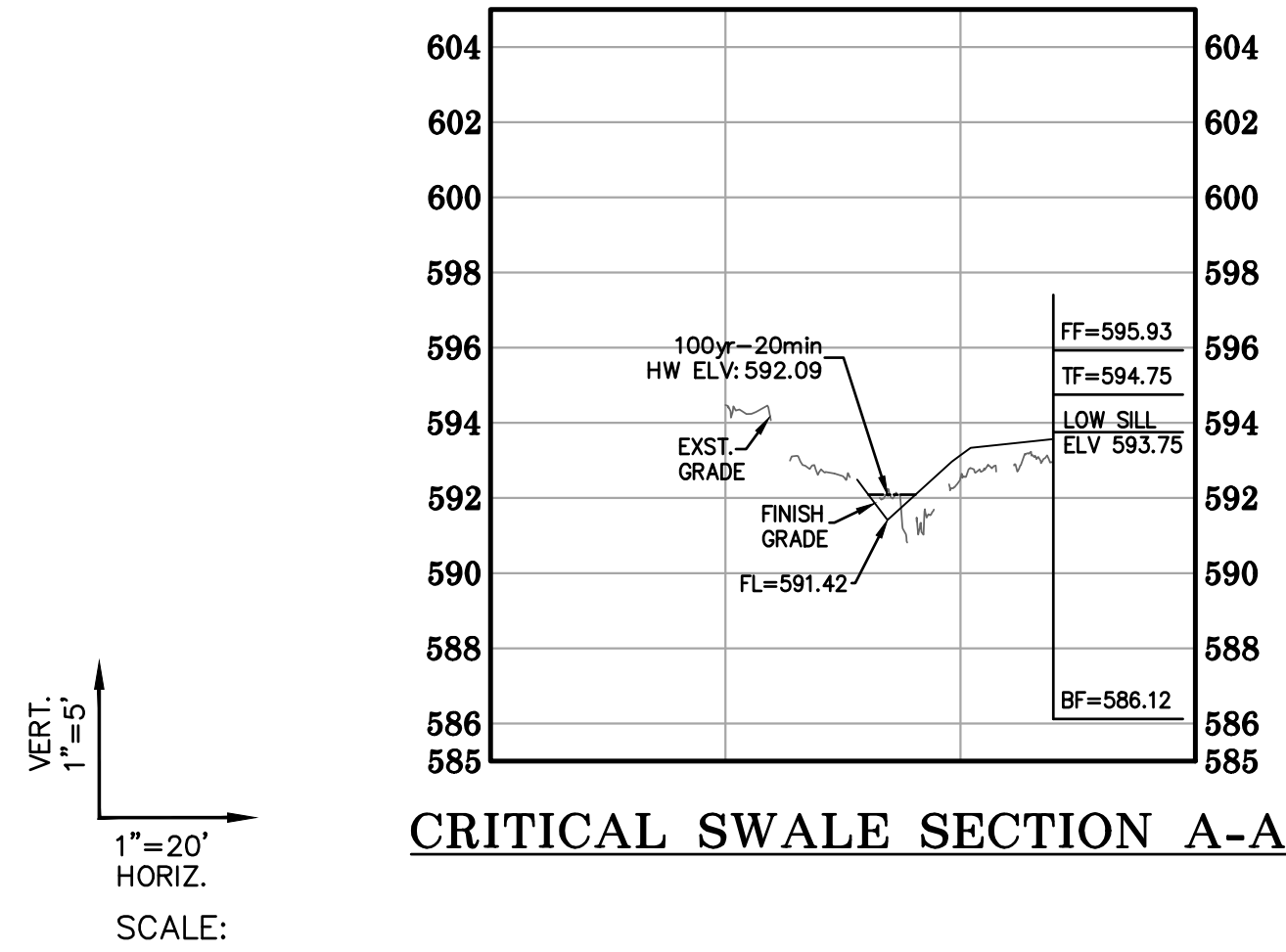
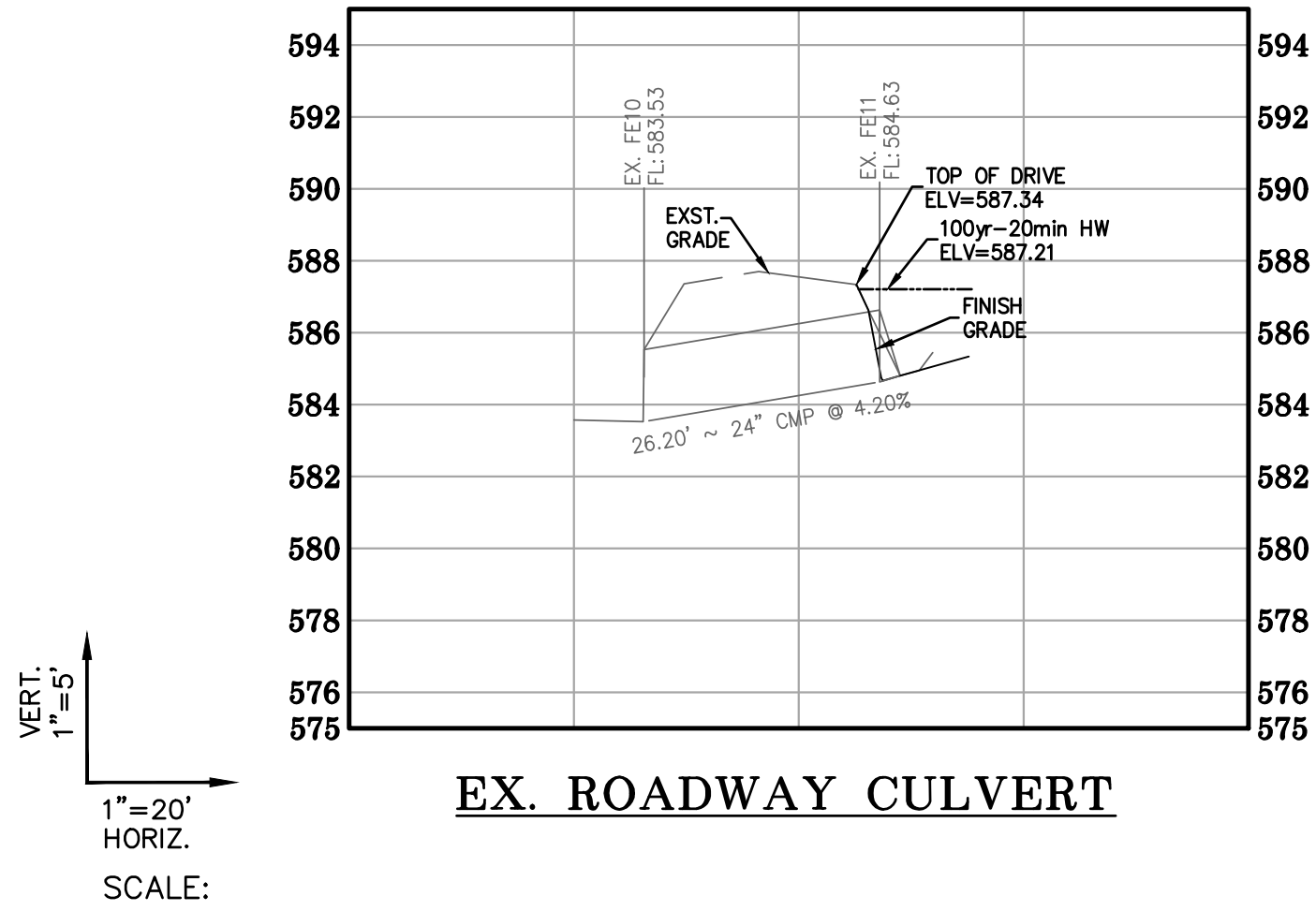
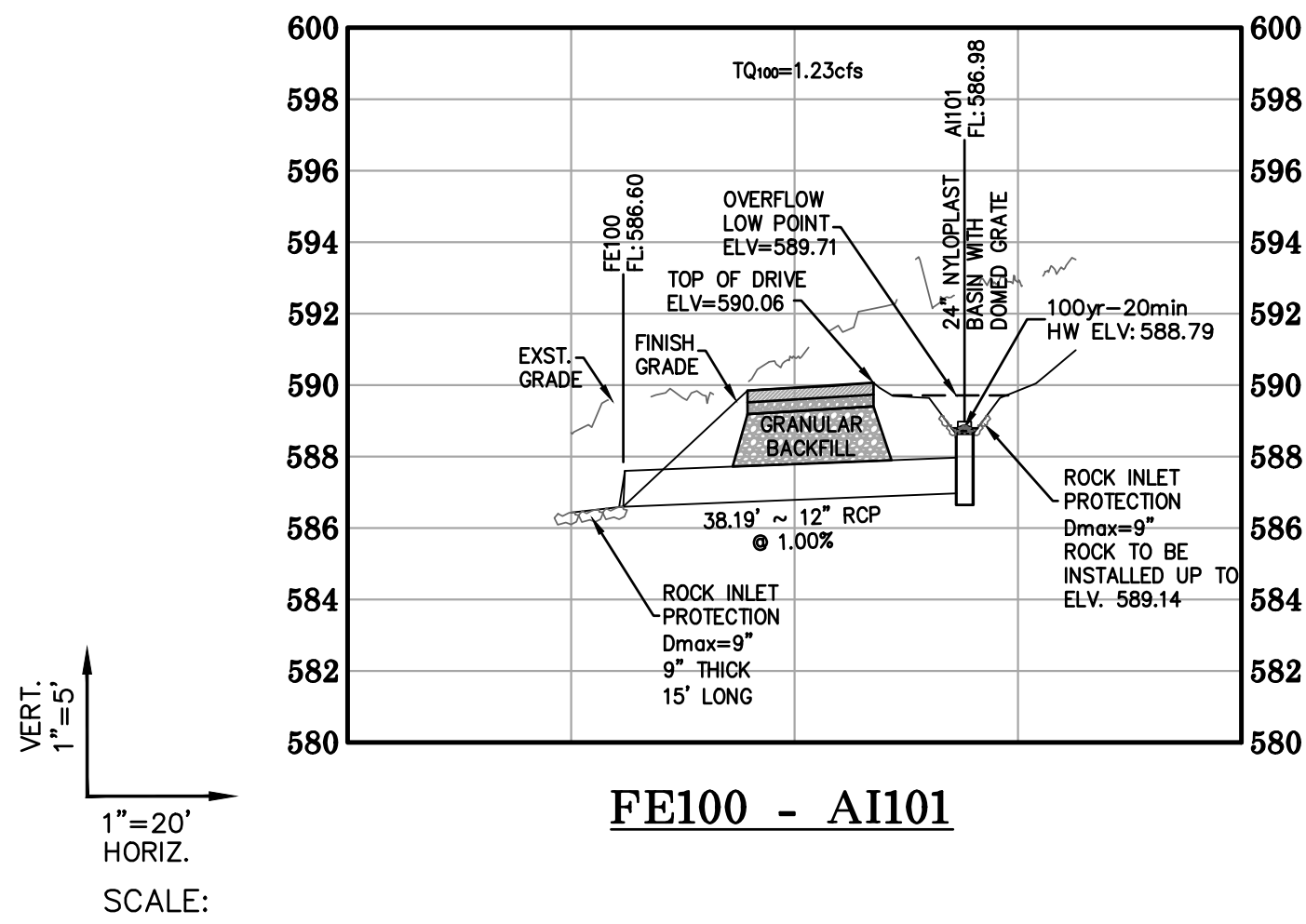
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Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	1,231	1	1	74	-----	-----	-----	Inflow Hydrograph
2	Reservoir	1,205	1	1	75	1	588.79	0.793	Outflow Hydrograph

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Tuesday, 07 / 30 / 2024

Hyd. No. 1

Inflow Hydrograph

Hydrograph type	= Rational	Peak discharge	= 1,231 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.02 hrs
Time interval	= 1 min	Hyd. volume	= 74 cuft
Drainage area	= 0.510 ac	Runoff coeff.	= 0.39
Intensity	= 6.190 in/hr	Tc by User	= 1.00 min
IDF Curve	= MSD.IDF	Asc/Rec limb fact	= 1/1

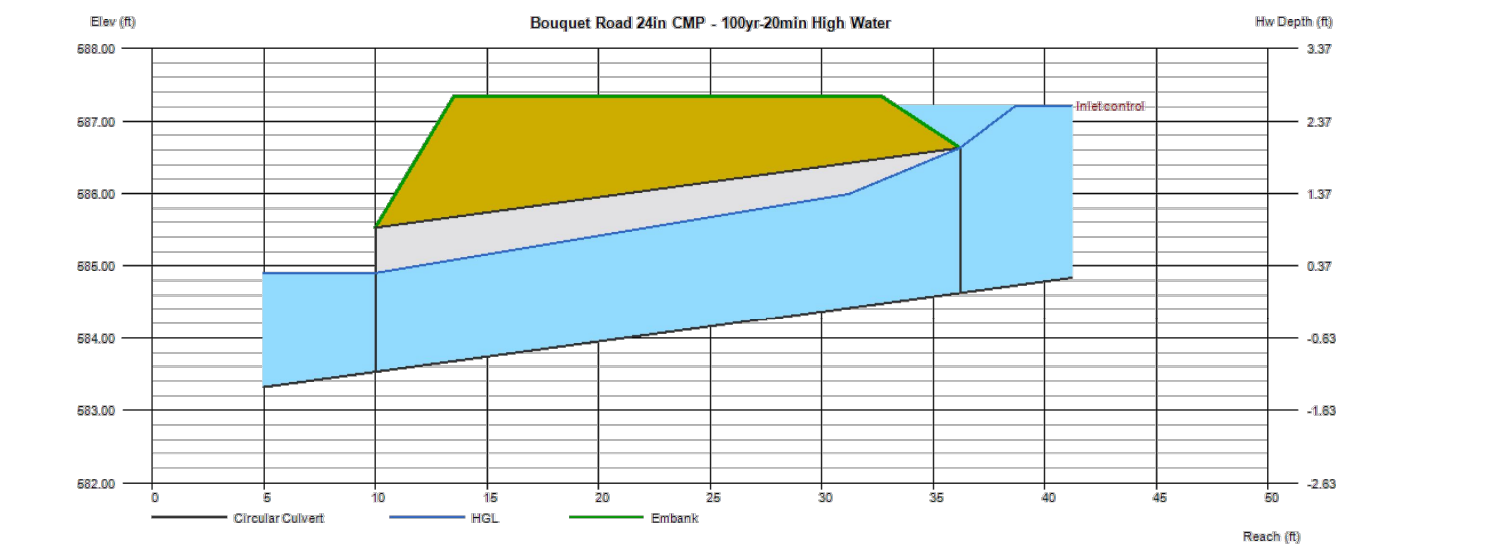


Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 30 2024

Bouquet Road 24in CMP - 100yr-20min High Water

Invert Elev Dn (ft)	= 583.53	Calculations	
Pipe Length (ft)	= 26.20	Qmin (cfs)	= 20.37
Slope (%)	= 4.20	Qmax (cfs)	= 27.43
Invert Elev Up (ft)	= 584.63	Tailwater Elev (ft)	= Normal
Rise (in)	= 24.0		
Shape	= Circular	Highlighted	
Span (in)	= 24.0	Qtotat (cfs)	= 20.37
No. Barrels	= 1	Qpipe (cfs)	= 20.37
n-Value	= 0.024	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Culvert	Veloc Dn (ft/s)	= 8.85
Culvert Entrance	= Smooth tapered inlet throat	Veloc Up (ft/s)	= 7.48
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2	HGL Dn (ft)	= 584.90
		HGL Up (ft)	= 586.25
Embankment		Hw Elev (ft)	= 587.21
Top Elevation (ft)	= 587.34	Hw/D (ft)	= 1.29
Top Width (ft)	= 19.16	Flow Regime	= Inlet Control
Crest Width (ft)	= 8.50		



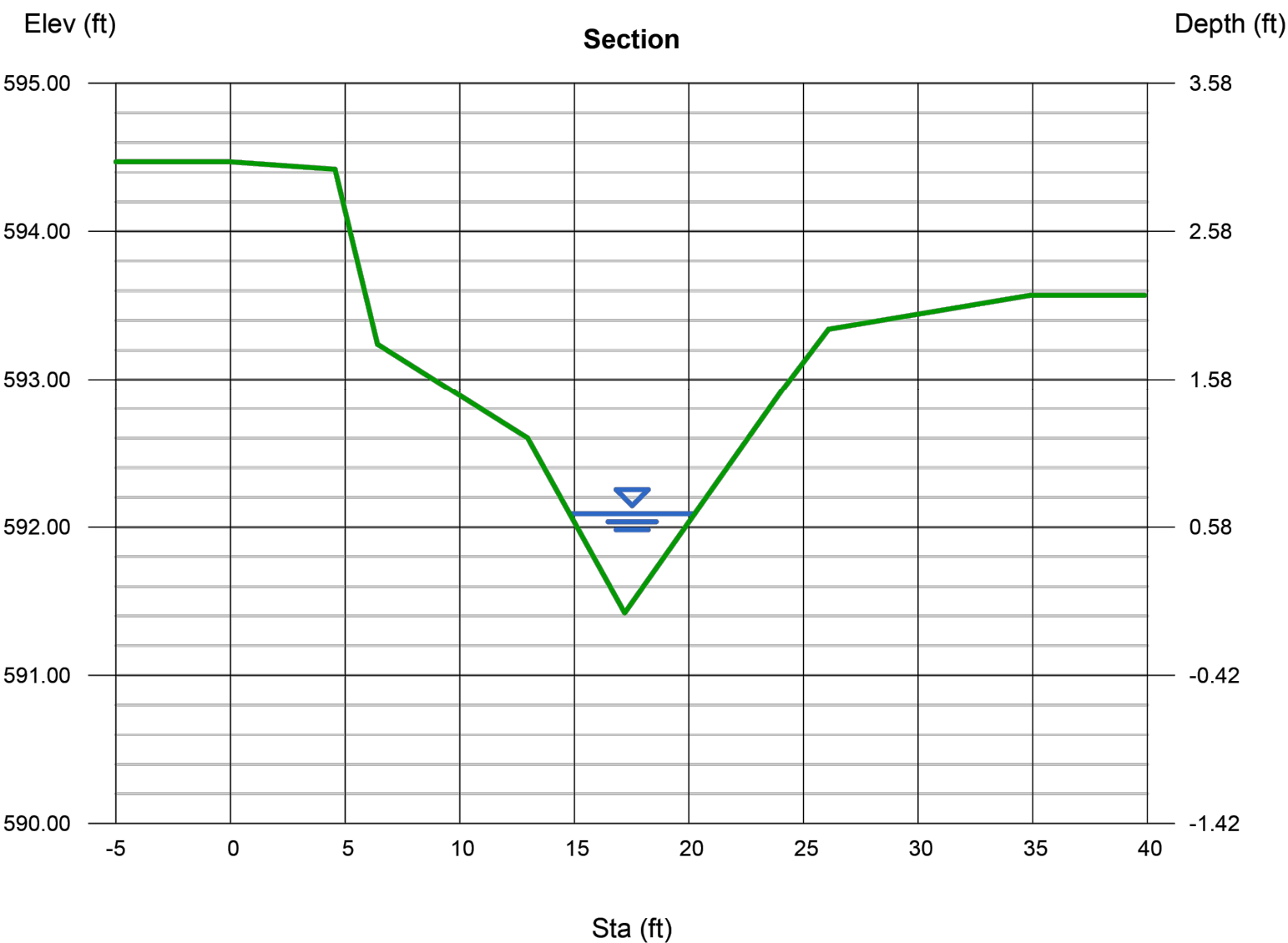
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 30 2024

<Name>

User-defined		Highlighted	
Invert Elev (ft)	= 591.42	Depth (ft)	= 0.67
Slope (%)	= 4.50	Q (cfs)	= 20.94
N-Value	= 0.013	Area (sqft)	= 1.83
		Velocity (ft/s)	= 11.45
Calculations		Wetted Perim (ft)	= 5.62
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.11
Known Q (cfs)	= 20.94	Top Width (ft)	= 5.46
		EGL (ft)	= 2.71

(Sta, El, n)-(Sta, El, n)...
(0.00, 594.47)-(4.56, 594.42, 0.013)-(6.41, 593.24, 0.013)-(12.97, 592.60, 0.013)-(17.20, 591.42, 0.013)-(24.09, 592.93, 0.013)-(26.09, 593.34, 0.013)
-(34.89, 593.57, 0.013)



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3107 BOUQUET ROAD
SITE PLAN
STORM SEWER PROFILES

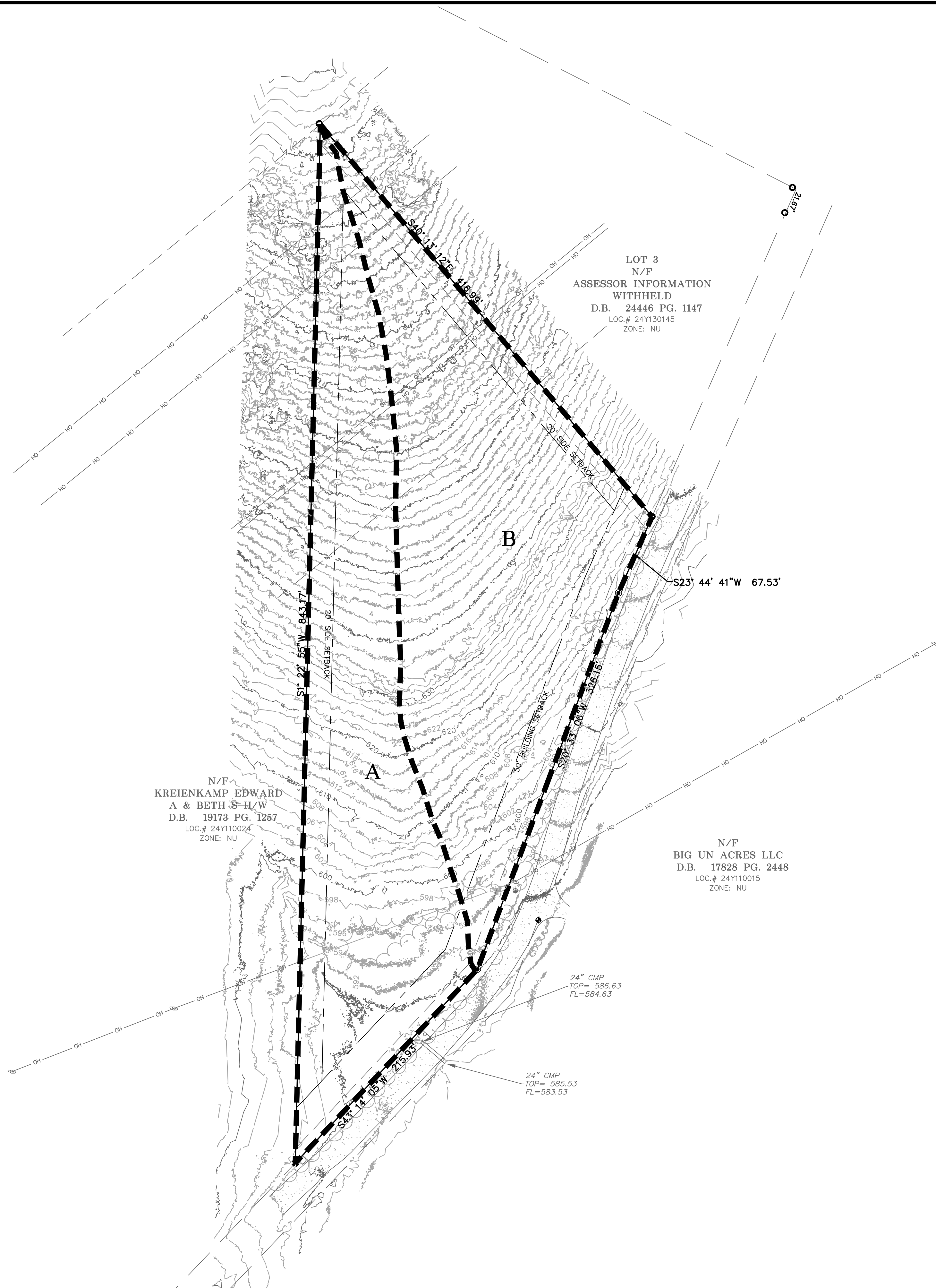


Date: Jul 30, 2024
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Civil Engineer

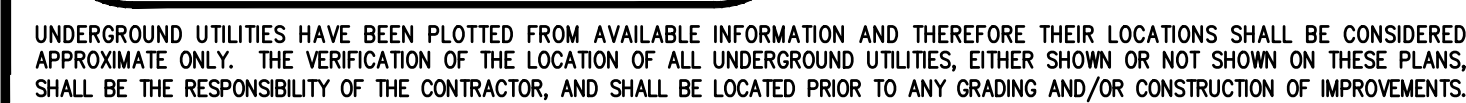
PROJECT NUMBER: 22-5007

DATE: 07/30/2024

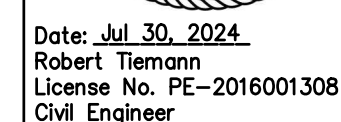
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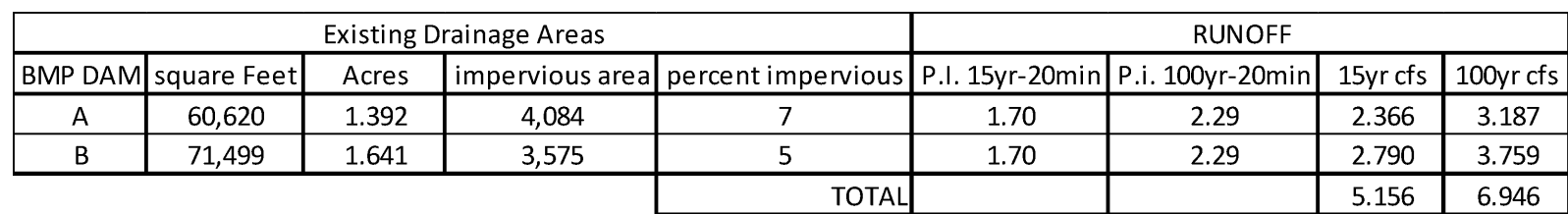
* Time of concentration is assumed at 20min for the 15yr-20min rainfall



3107 BOUQUET ROAD
SITE PLAN
EXISTING DRAINAGE AREA MAP



6 OF 13



Proposed Drainage Areas					RUNOFF			
BMP DAM	square Feet	Acres	impervious area	percent impervious	P.I. 15yr-20min	P.I. 100yr-20min	15yr cfs	100yr cfs
A	53,807	1.235	3,463	6%	1.79	2.42	2,211	2,989
B	56,290	1.292	2,815	5%	1.70	2.29	2,197	2,959
C	22,022	0.506	480	2%	1.70	2.29	0.859	1,158
				TOTAL			5,267	7,106

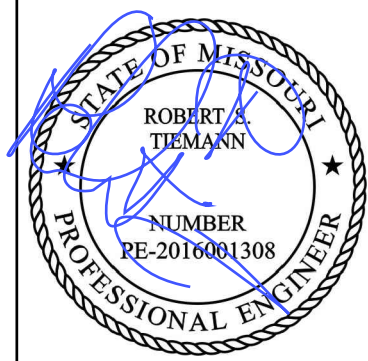
DRAINAGE AREA DISCHARGE POINT SUMMARY - EXISTING				
DRAINAGE AREA (ACRES)	ACRES	P.I.	RUNOFF	
A	1.392	1.70	2.366	c.f.s.
B	1.641	1.70	2.790	c.f.s.
TOTAL	3.03		5.156	c.f.s.

DRAINAGE AREA DISCHARGE POINT SUMMARY - PROPOSED				
DRAINAGE AREA (ACRES)	ACRES	P.I.	RUNOFF	
A	1.235	1.79	2.211	c.f.s.
B	1.292	1.70	2.197	c.f.s.
C	0.506	1.70	0.859	c.f.s.
TOTAL	3.03		5.267	c.f.s.

RUNOFF MITIGATION TABLE		
EXISTING RUNOFF	5.156	c.f.s.
PROPOSED RUNOFF	5.267	c.f.s.
RUNOFF DIFFERENTIAL	0.111	c.f.s.



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 AND/OR CONSTRUCTION OF IMPROVEMENTS.

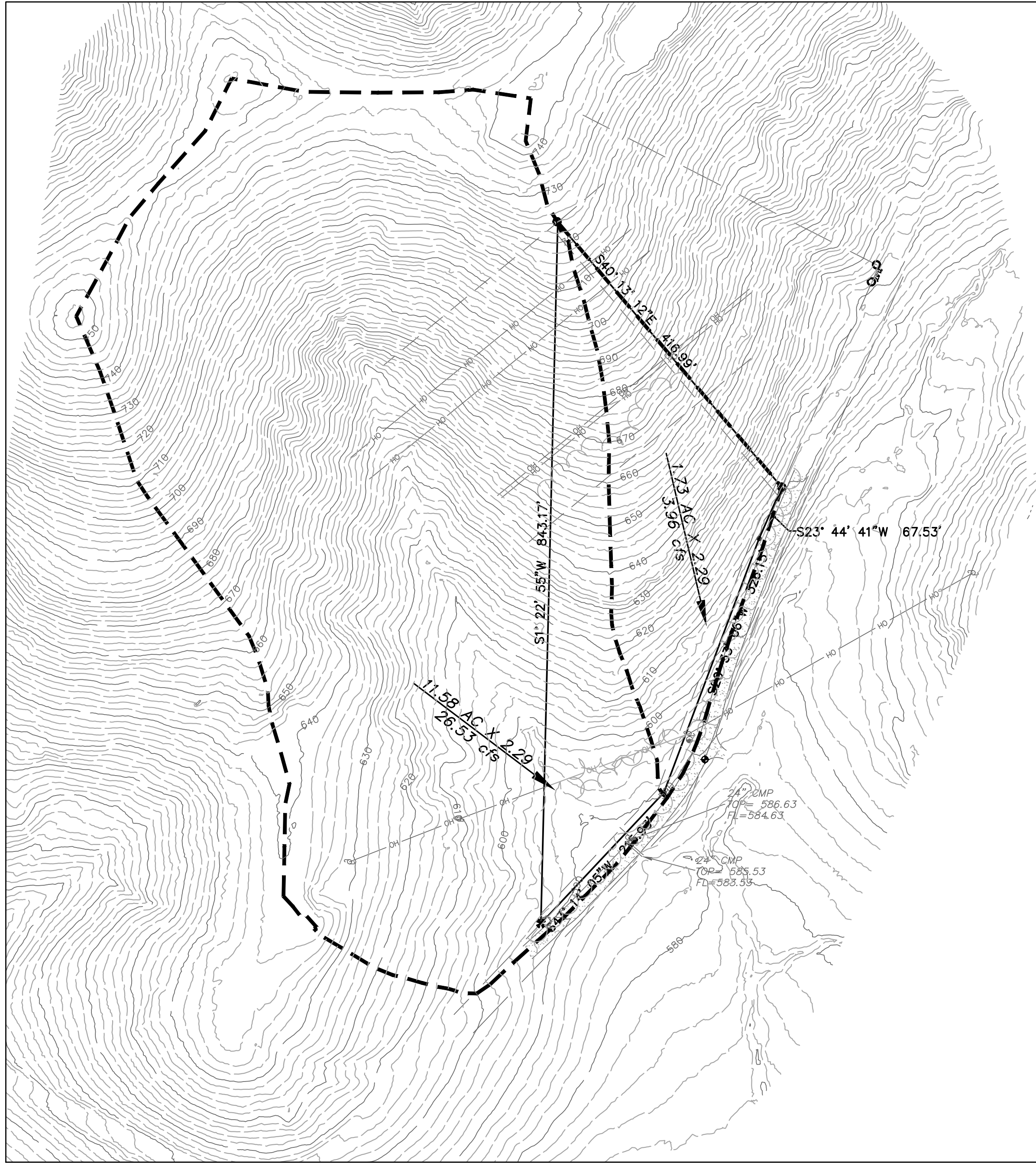


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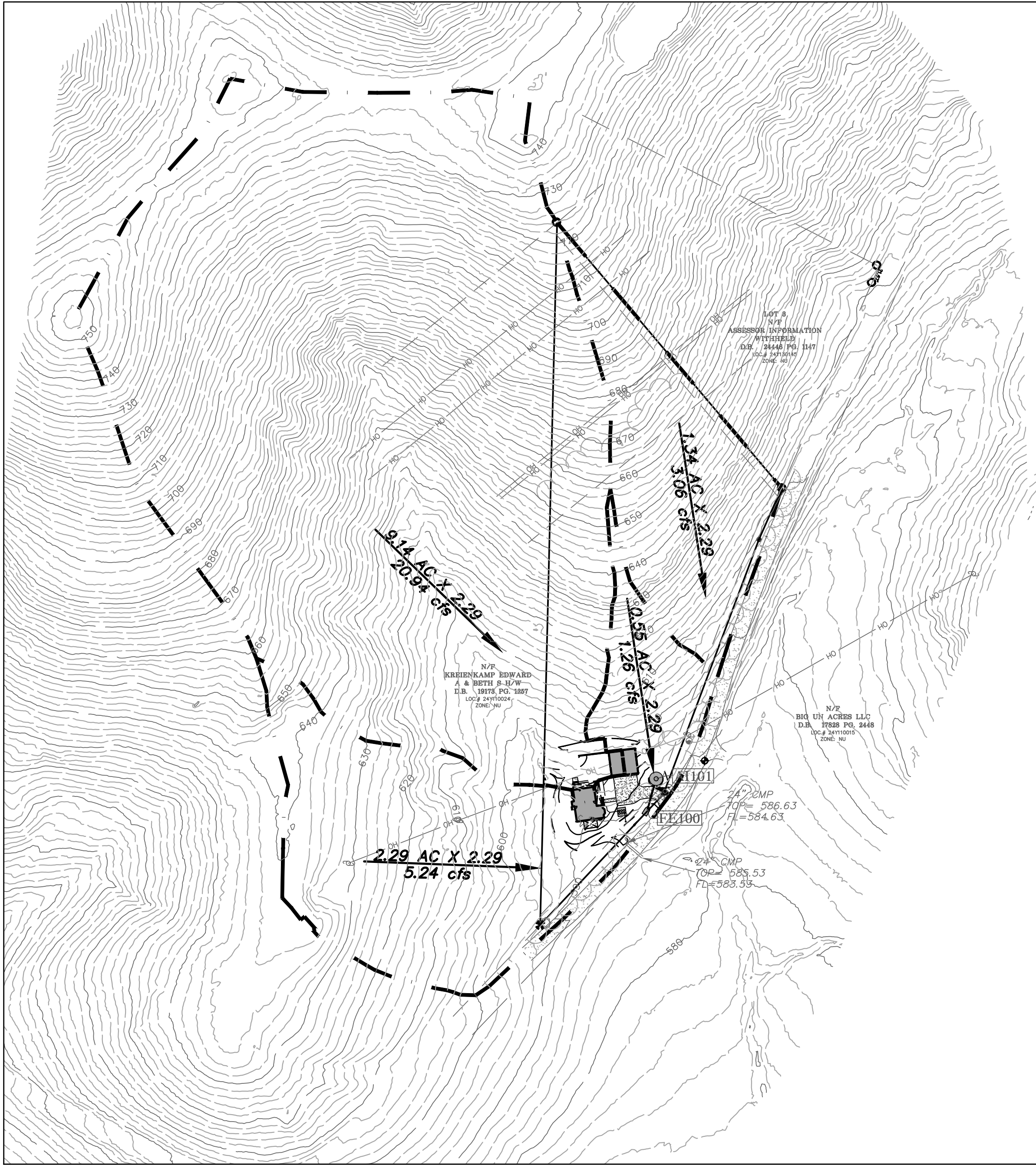
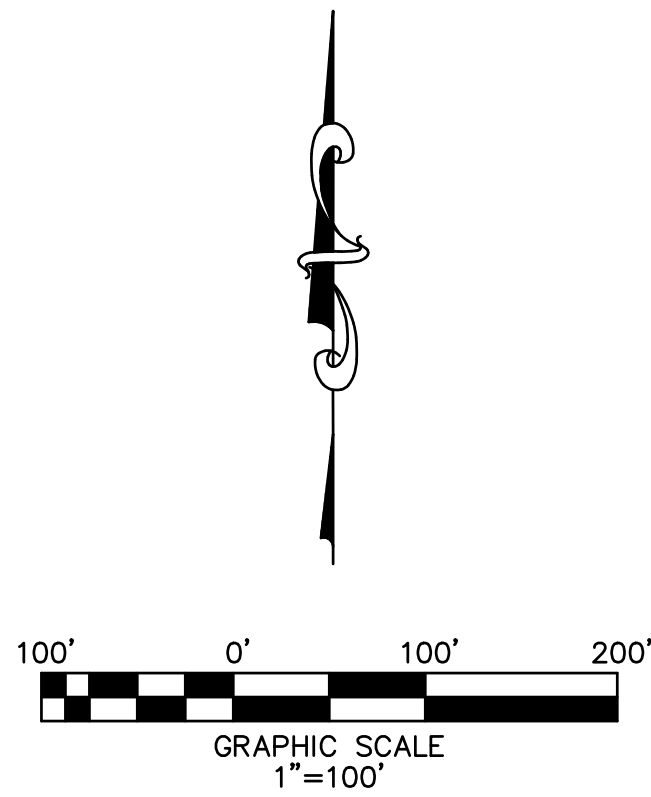
PROJECT NUMBER: 22-5007

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EXISTING OFFSITE DRAINAGE AREA MAP



PROPOSED OFFSITE DRAINAGE AREA MAP



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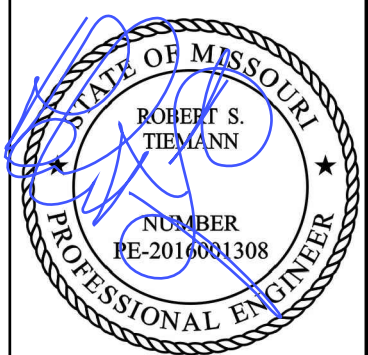
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3107 BOUQUET ROAD

SITE PLAN

OFFSITE DRAINAGE AREA MAPS



Date: Jul 30, 2024
Robert Tiemann
License No. PE-2016001308
Civil Engineer

PROJECT NUMBER: 22-5007

DATE: 07/30/2024

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SILTATION CONTROL NOTES:

1. Siltation control shall be installed prior to any grading or construction operation and shall be inspected and maintained as necessary to insure their proper function until sufficient vegetation has been established to prevent erosion control.
2. The maintenance of all siltation controls shall be the responsibility of the developer.
3. Additional siltation control may be required as directed by the local governing authority.
4. All grading areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by the local governing authority.
5. Additional siltation control devices may be required as directed by the local governing authority.

CONSTRUCTION SCHEDULE OF BMP'S:

1. Install construction entrance, parking and washdown area. Construction parking area to be utilized as designated equipment, maintenance and fuel area. Remove when vehicles no longer access unpaved areas.
2. Prior to clearing, siltation fences are to be installed at the perimeter of the land as shown. Remove when permanent vegetation of slope is established and approved by the local governing authority.
3. Install inlet protection around existing area inlet prior to land disturbance. Remove after contributing drainage areas have been adequately stabilized and approved by the local governing authority.
4. Construct rock check dams once drainage swale is constructed. Remove when upstream areas are stabilized with vegetation and approved by the local governing authority.
5. Seed and mulch all disturbed areas when grading operations are completed.

EROSION CONTROL REQUIREMENTS:

1. Soil stabilization shall be completed with five days of clearing or inactivity in construction.
2. If seeding or another vegetative erosion control method is used it shall become established within two weeks or the local governing authority may require the site to be reseeded or a non-vegetative option employed.
3. Techniques shall be employed to ensure stabilization on steep slopes and in drainageways.
4. Soil stockpiles must be stabilized or covered at the end of each workday, or perimeter controls must be in place to prevent silt from the stockpile from leaving the site.
5. The entire site must be stabilized, using a heavy mulch layer or another method that does not require germination to control erosion, at the close of the construction season.
6. Techniques shall be employed to prevent the blowing of dust of sediment from the site.
7. Techniques shall be employed to divert upland runoff past disturbed slopes.

SEEDING SCHEDULE:

Vegetation shall be established on exposed soil after a phase of rough or finished grading has been completed or areas where no activity will occur for 30 days. See seeding rates on sheet 16 of this plan.

ROUTINE INSPECTIONS & MAINTENANCE:

BMP's & Site are to be inspected on a regular schedule (once per week minimum) and within 48 hours of a rain event that causes storm water runoff to occur onsite. Written inspection reports shall be submitted to the St. Louis County Public Works.

CONTAINMENT FAILURE PLAN:

In the event of any loss of contained sediment:

1. Repair any damaged siltation fences.
2. Clean up any necessary silted areas.
3. Restore any necessary silted areas..
4. Provide documentation of actions & mandatory reporting to St. Louis County Public Works.

ESTIMATED BMP QUANTITIES:

Item	Quantity	Unit
Silt Fence:	450	L.F.
Parking & Washdown area:	1	Ea.
Construction Parking area:	1	Ea.
Seeding, mulch and fertilizer areas:	0.48	Ac.
Rock Check Dam:	22	Ea.
Gradient Terrace:	0	Ea.
Fiber Roll:	0	L.F.

CONTROL REQUIREMENTS FOR CONSTRUCTION MATERIALS:

1. Spill prevention and control facilities for materials such as paint, solvents, petroleum products, chemicals, toxic or hazardous substances, substances regulated under the Resource Conservation and Recover Act (RCRA) or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and any waters generated from the sue of such materials and substances, including their containers. Any containment systems employed to meet this requirement shall be constructed of materials compatible with the substances contained and shall be adequate to protect both surface and ground water.
2. Collection and disposal of discarded building materials and other construction site wastes.
3. Litter control.
4. Control of concrete truck washouts.
5. Assurance that on-site fueling facilities will adhere to applicable federal and state regulations concerning storage and dispensers.
6. Provision of sufficient temporary toilet facilities to serve number of workers.

PERMITTEE(OWNER/DEVELOPER) SHALL AMEND THE SWPPP WHENEVER:

1. Design, operation or maintenance of BMP's is changed.
2. Design of the construction project is changed that could significantly affect the quality of the storm water discharges.
3. Site operator's inspections indicate deficiencies in the SWPPP or any BMP.
4. Inspections by the local governing authority or by the Missouri Department of Natural Resources indicate deficiencies in the SWPPP or any BMP.
5. The SWPPP is determined to be ineffective in significantly minimizing or controlling erosion or excessive sediment deposits in streams or lakes.
6. The SWPPP is determined to be ineffective in preventing pollution of waterways from construction wastes, chemicals, fueling facilities, concrete truck washouts, toxic or hazardous materials, site litter or other substances or wastes likely to have an adverse impact on water quality.
7. Total settleable solids from a storm water outfall exceeds 0.5 mL/L/hr if the discharge is within the prescribed proximity of a "Valuable Resource Water" as defined by the MDNR.
8. Total settleable solids from a storm water outfall exceeds 2.5 mL/L/hr for any other outfall.
9. The local governing authority or Missouri Department of Natural Resources determines violations of water quality standards may occur or have occurred.

PERMITTEE (OWNER/DEVELOPER) SHALL:

1. Notify all contractor and other entities (including utility crews, government employees, or their agents) who will perform work at the site, of the existence of the SWPPP and what actions or precautions shall be taken while onsite to minimize the potential for erosion and the potential for damaging any BMP.
2. Determine the need for and establish training programs to ensure that all site workers have been trained, at a minimum, in erosion control, material handling & storage and housekeeping.
3. Provide copies of the SWPPP to all parties who are responsible for installation, operation or maintenance of any BMP.
4. Maintain a current copy of the SWPPP on the site at all times

ESTIMATED SCHEDULE OF OPERATIONS:

Proposed start of operations – August, 2023

Approximate durations:

Install construction parking and washdown area	1 day	(September 2024)
Install perimeter silt fence	2 days	(September 2024)
Clearing	2 days	(September 2024)
Rough Grading	3 weeks	(September 2024)
Install rock check dams	1 day	(September 2024)
Final grading & vegetation	36 weeks	(Sep 2024–July 2025)
Removal of BMP's	When conditions are met	

Note: Schedule durations are subject to change due to weather conditions. Some operations will have overlapping time frames.

GENERAL NOTES:

1. All existing improvements are to remain unless otherwise noted.
2. See sheet 1 and 2 for additional notes, legend and abbreviations.
3. Maximum slope permitted on the project is 3:1.
4. Existing elevations shown are approximate and shall be confirmed by the contractor prior to construction.

EARTHWORK QUANTITIES:

CUT	FILL
750 CU. YDS.	200 CU. YDS.
NET:	550 CU. YDS. CUT

Note: the above yardage is an approximation only, NOT FOR BIDDING PURPOSES. Contractor shall verify quantities prior to construction.

HAUL ROUTE:

Fill material for this site will be obtained on-site.

Remaining material will be exported off site.

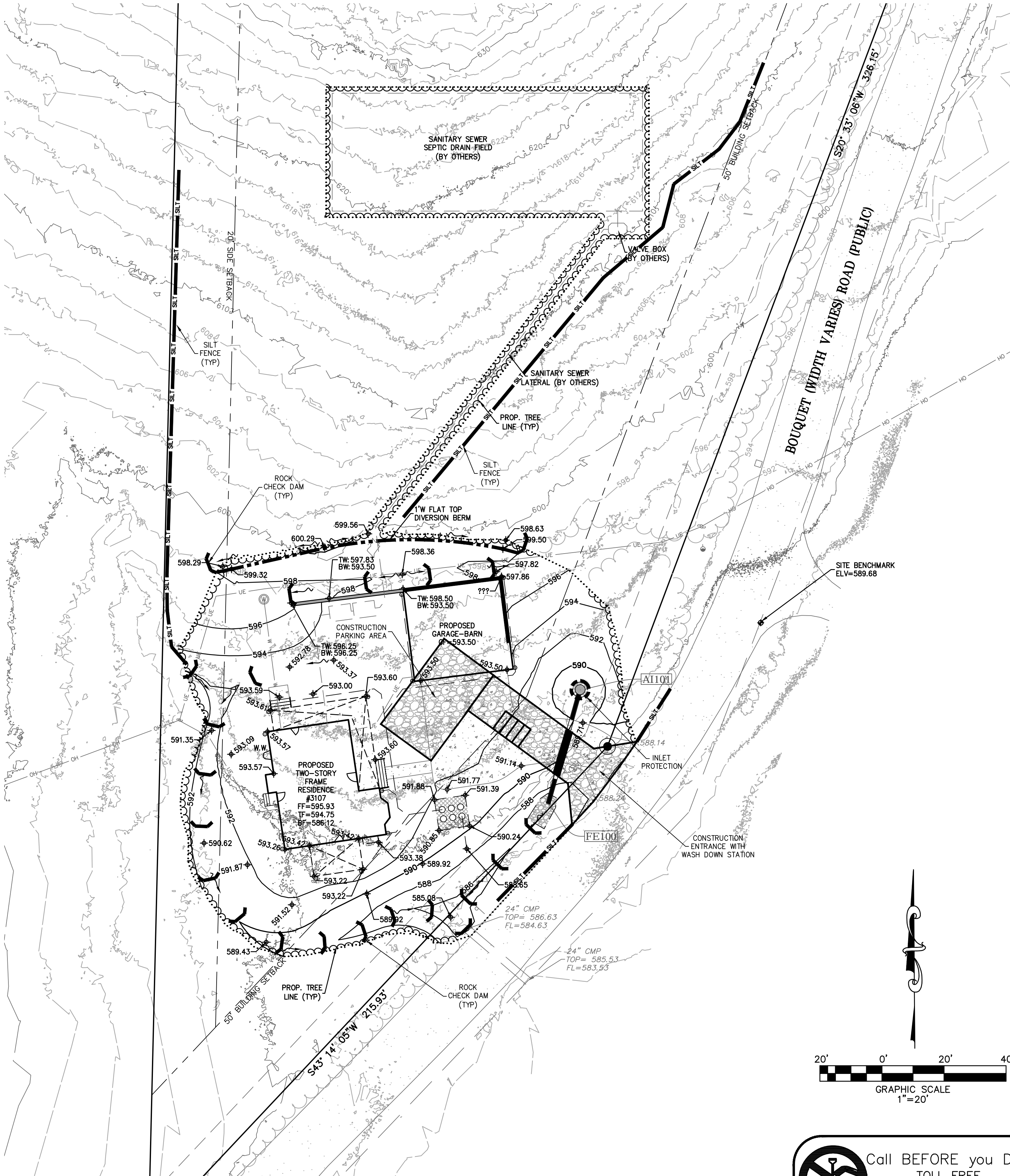
Haul route will not be necessary.

The hauling operations will take approximately 8 days, subject to change due to weather conditions.

Haul-On Required:	0 CU. YDS.
Truck Capacity:	9 CU. YDS.
Number of Trucks:	2
Number of Trips/Day:	20

SWPPP NOTES:

1. Any land clearing, construction, or development involving the movement of earth shall be in accordance with the Storm Water Pollution Prevention Plan, and the person issued a Land Disturbance Permit assumes and acknowledges responsibility for compliance with the St. Louis County Land Disturbance Code and the approved Storm Water Pollution Prevention Plan at the site of the permitted activity.
2. Prior to any Major Land Disturbance Activity, a land disturbance permit form the State of Missouri Department of Natural Resources is required.
3. There are no known sink holes, springs, seeps, or karst features on the subject property.
4. No onsite industrial activities such as concrete or asphalt batch plans are proposed for stock pile operations.
5. Upon the event that stormwater run-off occurs on-site the client or contractor shall immediately notify by email and phone call to the Special Inspector to inform him of the stormwater runoff and to inspect the repaired/replaced BMP.
6. There are no proposed dewatering operations proposed with the stock pile operations.



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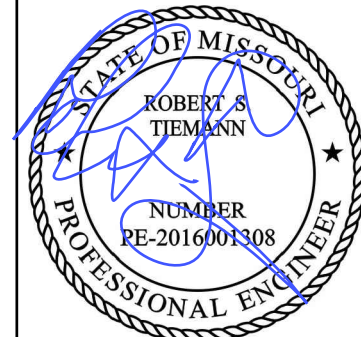
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3107 BOUQUET ROAD

SITE PLAN

STORMWATER POLLUTION PREVENTION PLAN



Date: Jul 30, 2024
Robert Tiemann
License No. PE-2016001308
Civil Engineer

PROJECT NUMBER: 22-5007

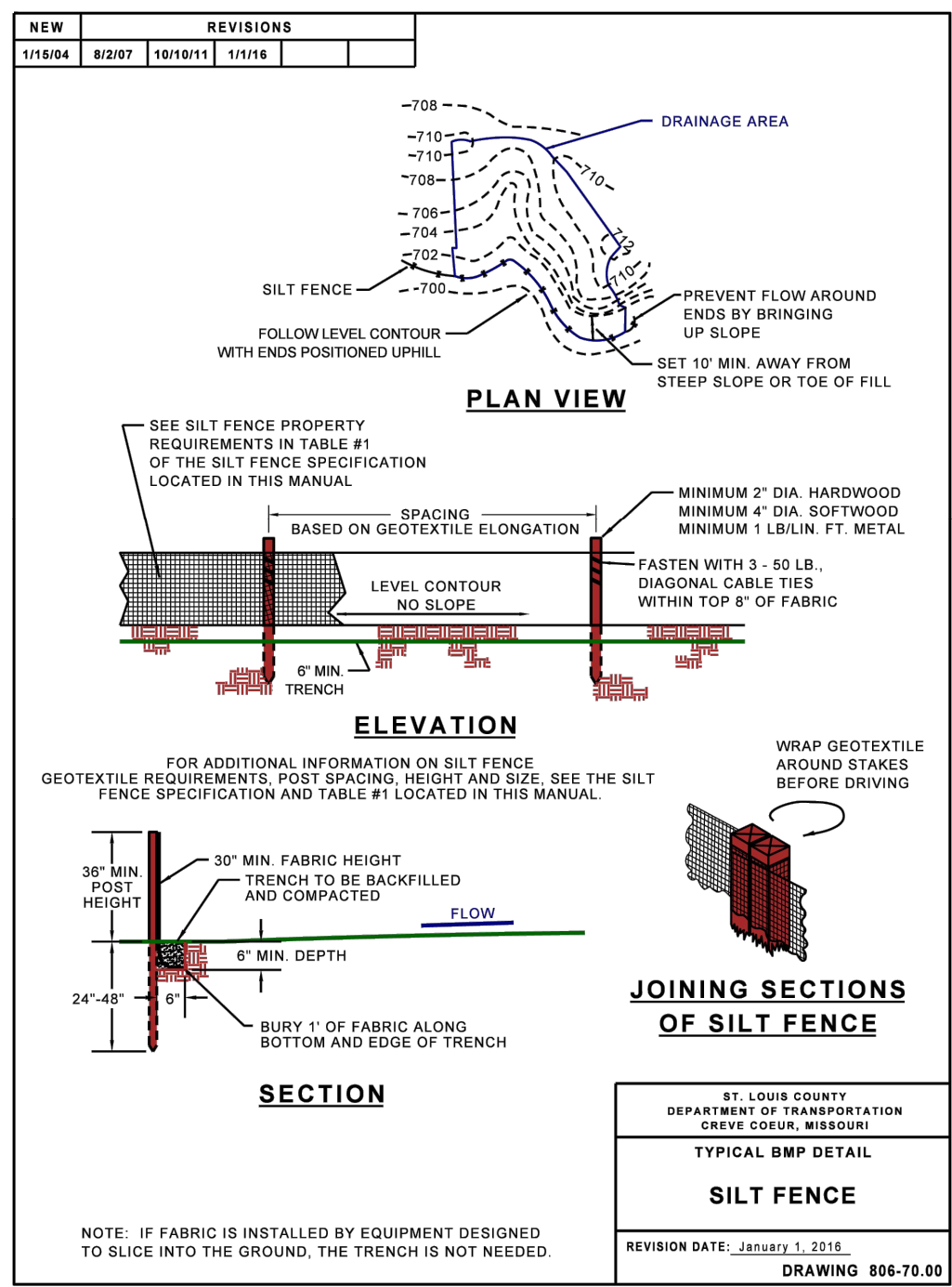
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SILT FENCE

PHYSICAL DESCRIPTION - Silt fences are used as temporary perimeter controls, appropriate to the BMP, at sites where construction activities will disturb the soil. They can also be used on the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low and down slope areas. The filter fabric should be entrenched in the ground. When installed correctly and inspected frequently, silt fence can be an effective barrier to silt leaving the site in storm water runoff.

WHERE BMP IS TO BE INSTALLED - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 c.f.s. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length (100 square feet per foot of fence). The slope length above the fence should not exceed 100 feet (NAHB, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event.

CONDITIONS FOR EFFECTIVE USE OF BMPs - Spacing of parallel lengths of silt fence along slopes is relative to slope steepness as follows:

Type of Flow:	Sheet flow only.
Contributing Slope Length:	30-foot maximum for 3:1 slopes. 50 foot maximum for slopes between 3:1 and 10:1. 100 foot maximum for slopes under 10%.

For additional information see Section 806.70 of St. Louis County's Standard Specification for Road and Bridge Construction.

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Install on the perimeter of the site (where storm water exits the site) prior to disturbance of natural vegetation, around material stockpiles and interior to the site along slopes, at the base of slopes and at intervals during construction of slopes.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Drive post for fence line.
- ✓ Dig trench to required dimensions in front of posts for fabric burial.
- ✓ Attach wire mesh to posts.
- ✓ Attach fabric to posts, allowing required length below ground level to run fabric along bottom of trench.
- ✓ Backfill and compact soil in trench to protect and anchor fabric.

If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about 6 months, depending on the amount of rainfall and runoff.

The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should have minimum dimensions of 2 by 2 inches if a hardwood like oak is used. Stakes from soft woods like No. 2 Southern Pine, should have minimum dimensions of 4 by 4 inches. When using steel (standard U, T, L or C shape sections) posts in place of wooden stakes, they should weigh no less than 1.0 bilinear foot. If metal posts are used, attachment points are needed for fastening the filter fabric with wire ties. Posts should be at least 5 feet long and driven or placed at a slight upstream angle into the ground to a

minimum depth of 18 inches. Depth shall be increased to a minimum of 22 inches if fence is placed on a slope of 3:1 or greater. When the post embedment depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

Erect silt fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches.

The Geosynthetic filter fabric and wire mesh (when applicable) shall be no less than 30 inches above ground and are stapled or wired to the upslope side of the post. Staples should be a 17-gauge wire and 1½ inch long. Excavate a trench to bury the bottom of the fabric fence in a "U" configuration at least 6 inches below the ground surface. The trench shall be backfilled with native soil and the soil compacted over the geotextile. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.

The height of the fence posts should be 38 inches (22-inch embedment) to 42 inches (18-inch embedment) above the original ground surface. If standard-strength fabric is used with 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength), space the posts no more than 4 feet apart. If extra-strength fabric is used without wire mesh reinforcement, space the posts no more than 4 feet apart with woven or 6 feet apart with non-woven geosynthetic.

Alternate Construction: Install fence by slicing it into ground with specialized equipment. Install posts at reduced spacing indicated on detail.

LIMITATIONS - Do not install silt fences along areas where rocks or other hard surfaces will prevent you from uniformly anchoring the fence posts and entrenching the filter fabric. Installing fences in such an area greatly reduces their effectiveness and can create runoff channels leading offsite. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. Fence shall not be used when slope is 1:1 or greater and water flow rates exceed 2 cubic feet per minute. Open, windy areas present a maintenance challenge, too, because high winds can make the filter fabric deteriorate faster. Do not install silt fences across streams, ditches, or waterways (Smolen et al., 1988).

When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of the fence. Setting and design of the silt fence should account for this. Take care to avoid unnecessarily diverting stormwater from these pools, causing further erosion damage.

MAINTENANCE CONSIDERATIONS - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment, dress the area disturbed to give it a pleasing appearance and vegetate all bare areas as well.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment buildup deeper than ½ the fence height or 12", whichever is less.
- ✓ Replace torn or clogged fabric; repair loose fabric.

- ✓ Repair unstable or broken posts.
- ✓ Stabilize any areas susceptible to undermining.
- ✓ Extend fence or add additional row(s) of fence if necessary to provide adequate protection.

SILTING AND DESIGN CONSIDERATIONS - The material for silt fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, and polyester or polyethylene yarn. Choose the material based on the minimum synthetic fabric requirements shown in Table 1 below.

Table 1- Temporary Silt Fence Property Requirements

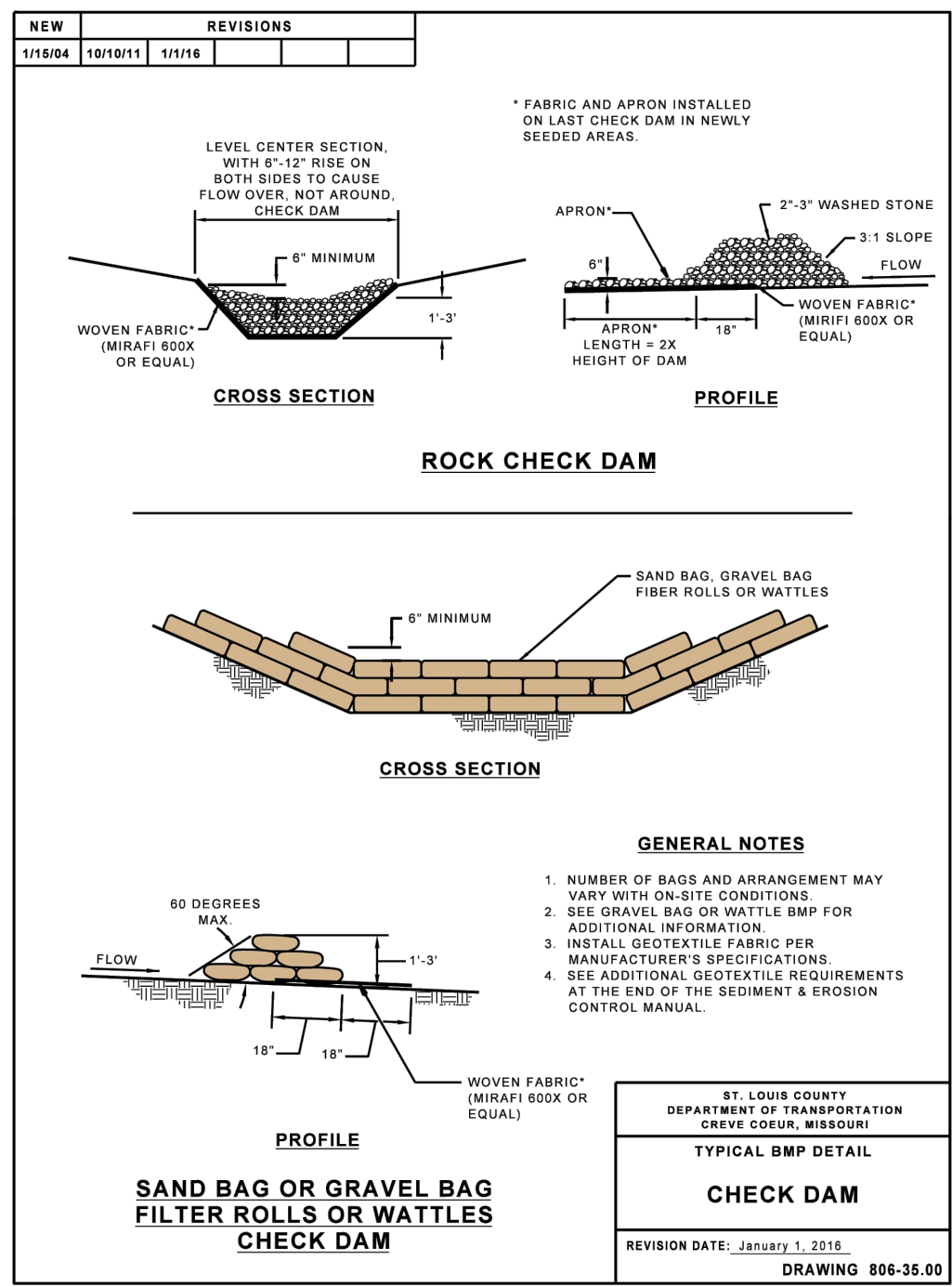
Physical Property	Test Method	Units	MARV Geotextile Requirements		
			Supported Silt Fence ²	Unsupported Silt Fence	
				Woven Elongation $\geq 50\%$ ¹	Non-Woven Elongation $\geq 50\%$
Post Spacing (Maximum)		feet	4	4	6
Height of Wire / Polymer Fence (Minimum)		inches	30	---	---
Grab Strength (Minimum):					
Machine Direction	ASTM D 4632	pounds	90	125	125
Cross Machine Direction			90	100	100
Permittivity (Minimum)	ASTM D 4491	sec ⁻¹	0.05	0.05	0.05
Apparent Opening Size (AOS)	ASTM D 4751	Sieve Number	30	30	30
Ultraviolet Stability (Minimum) (retained strength)	ASTM D 4355		70% after 500 h of exposure		

Notes:

- ¹ Elongation measured in accordance with ASTM D 4632
- ² Silt Fence Support - 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength)
- ³ Maximum Average Roll Value

SITE CONDITIONS FOR REMOVAL - After permanent vegetation of slope is established. Remove fence and post, re-grade trench area and vegetate.

TYPICAL DETAIL - 806-70.0



CHECK DAM

PHYSICAL DESCRIPTION - A small dam built within a drainage swale or temporary diversion channel designed to pond water and cause sediment to settle out. Dams can be constructed of rock, sand bags, filter rolls / watties, triangular dikes, or gravel bags. Silt fence shall not be used to construct check dams.

WHERE BMP IS TO BE INSTALLED - At intervals along drainage swales or channels. The top of the downstream check dam should be level with the base of the upstream check dam.

CONDITIONS FOR EFFECTIVE USE OF BMPs

Type of Flow:	Moderate concentrated flow
Contributing Area:	Maximum of 2 acres
Channel Slope:	Maximum of 2%

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation in contributing drainage area, immediately after construction of drainage way.

For additional information see Section 806.30 of St. Louis County's Standard Specification for Road and Bridge Construction.

INSTALLATION / CONSTRUCTION PROCEDURES

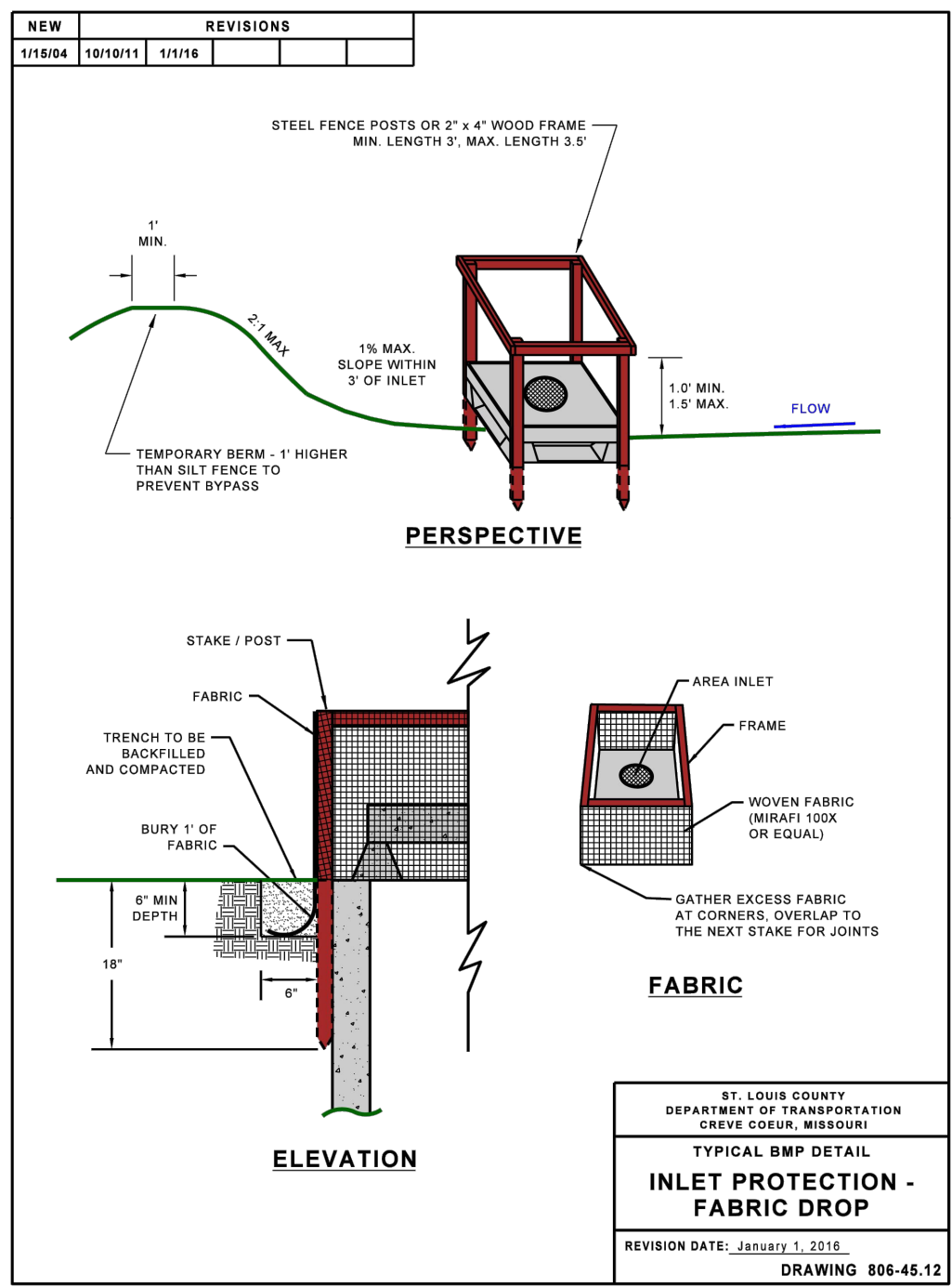
- ✓ Grade drainage way and compact area of check dam.
- ✓ Place rock, sand bags, filter rolls / watties or gravel bags to required configuration perpendicular to flow.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove trash and leaf accumulation.
- ✓ Remove sediment buildup once it reaches ½ depth of check dam or 12" depth, whichever is less.
- ✓ Restore dam structure to original configuration to protect banks.
- ✓ Replace rock on upstream face of dam if ponding does not drain in reasonable timeframe.

SITE CONDITIONS FOR REMOVAL - Remove after contributing drainage areas have been adequately stabilized and vegetation is adequately established in drainage way. Re-grade and vegetate area of check dam.

TYPICAL DETAIL - 806-35.00



INLET PROTECTION - FABRIC DROP AND DROP IN FILTER

PHYSICAL DESCRIPTION - A woven fabric barrier braced around an area inlet or drop in type filter designed to prevent sediment from entering the storm sewer. Shallow temporary ponding during and after rainfall should be expected. Use an alternate method if flooding of driving lanes, adjacent property, etc. is possible.

WHERE BMP IS TO BE INSTALLED - At inlets designed to drain a small gently sloping area with maximum grade of 5%. Overflow capacity is limited on standard area inlets.

CONDITIONS FOR EFFECTIVE USE OF BMPs

Type of Flow:	Shallow sheet flow.
Contributing Area:	Maximum of 2 c.f.s. flowing to inlet.

WHEN BMP IS TO BE INSTALLED - Immediately after placement of inlet and before construction starts on existing inlets.

INSTALLATION / CONSTRUCTION PROCEDURES

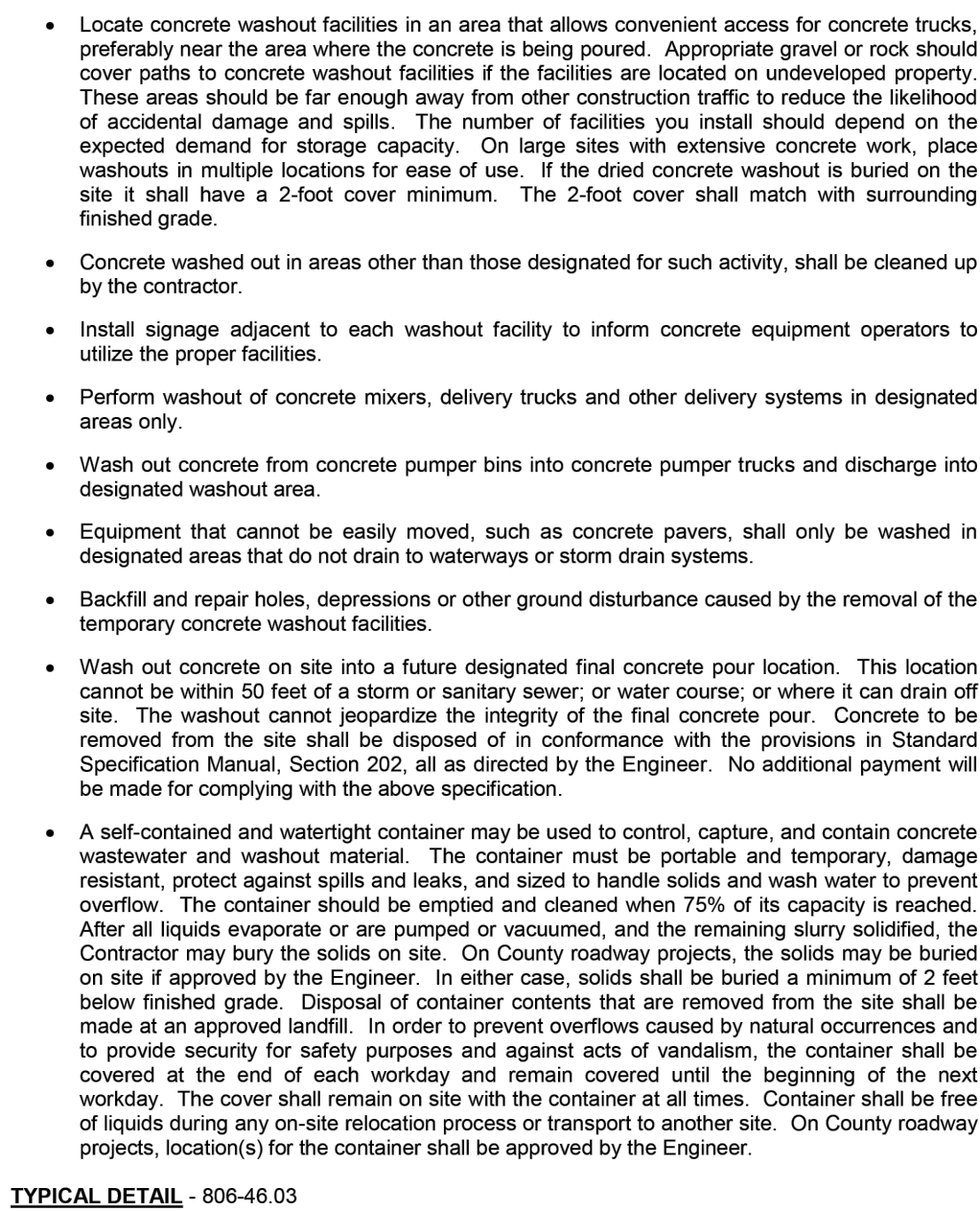
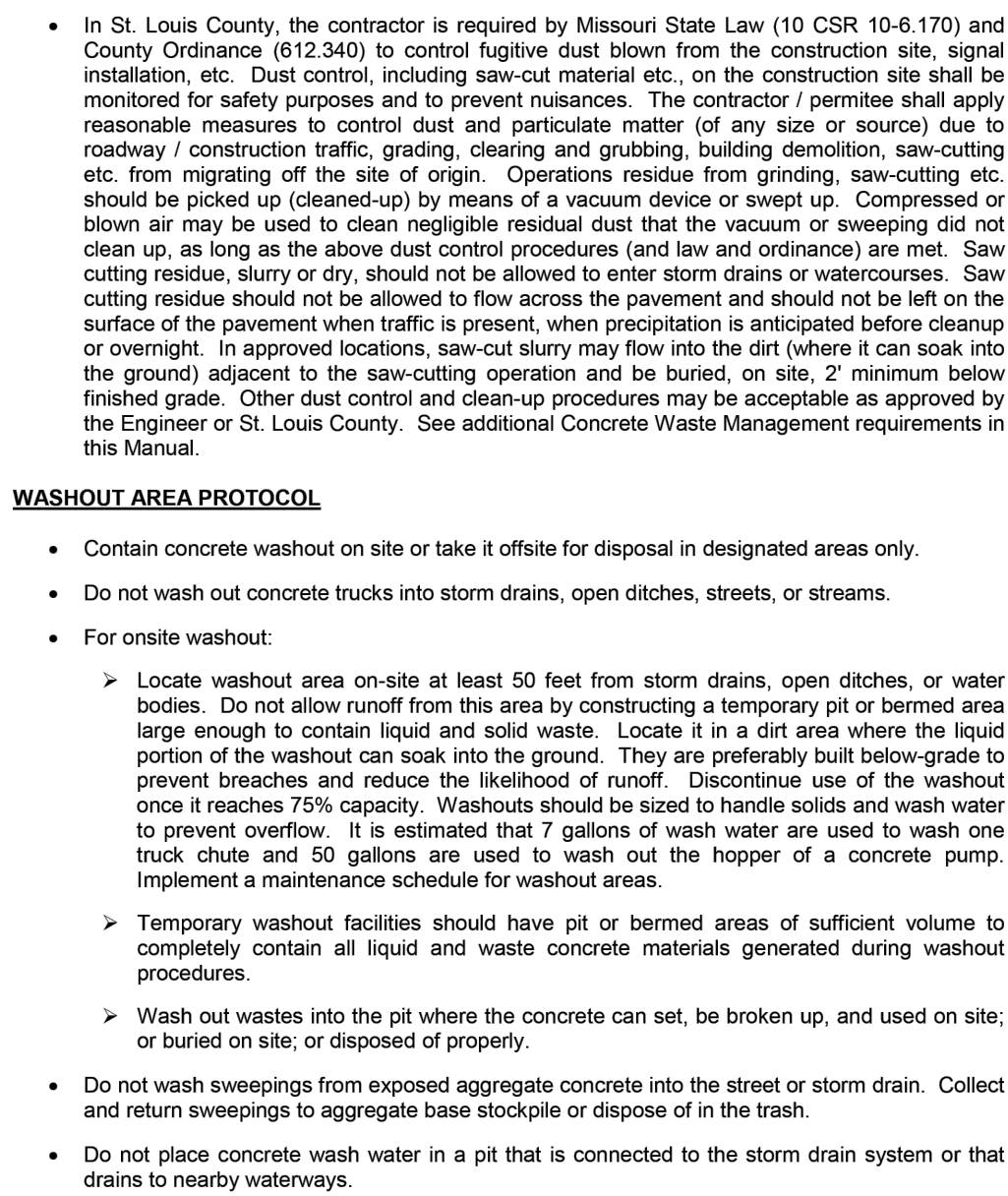
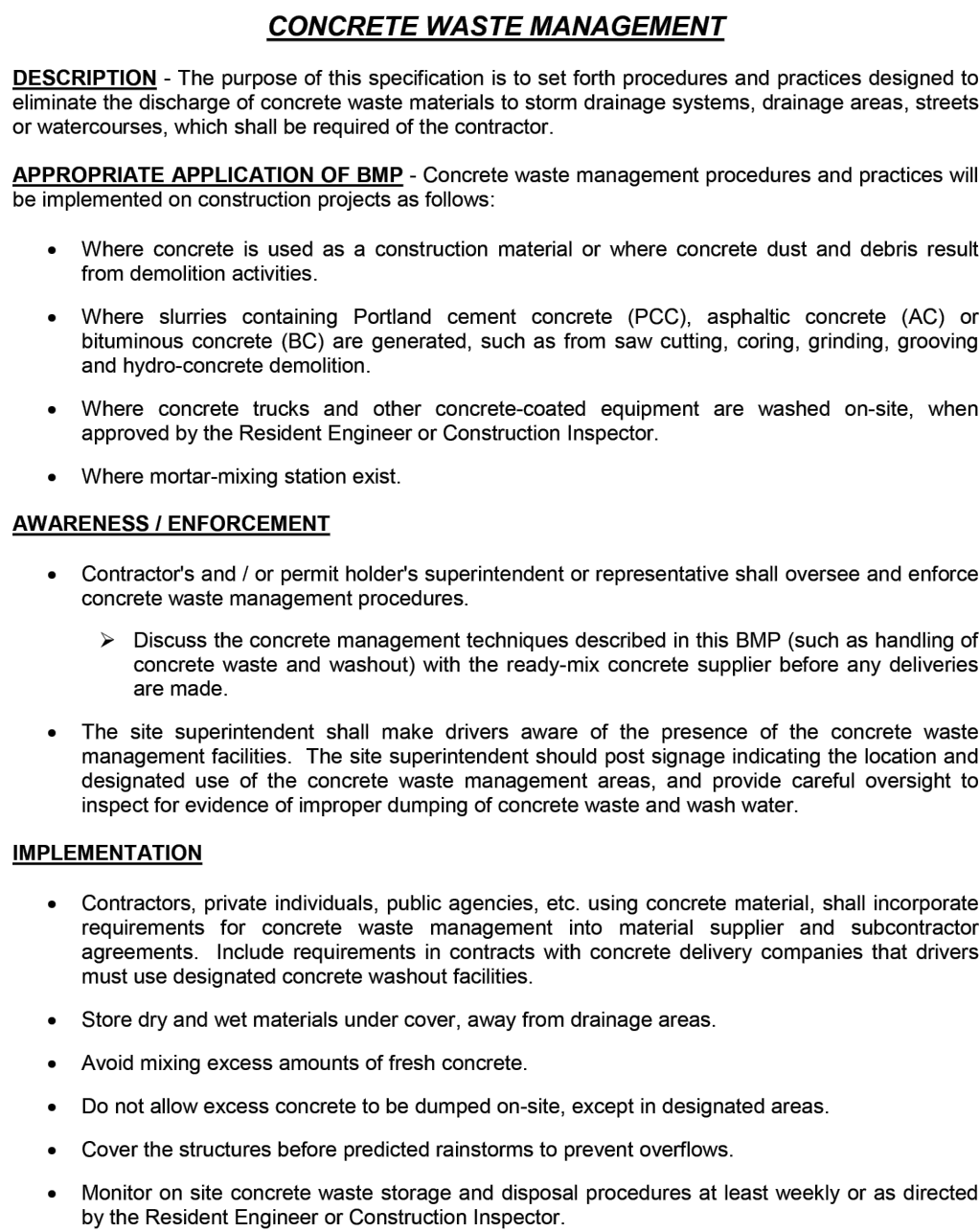
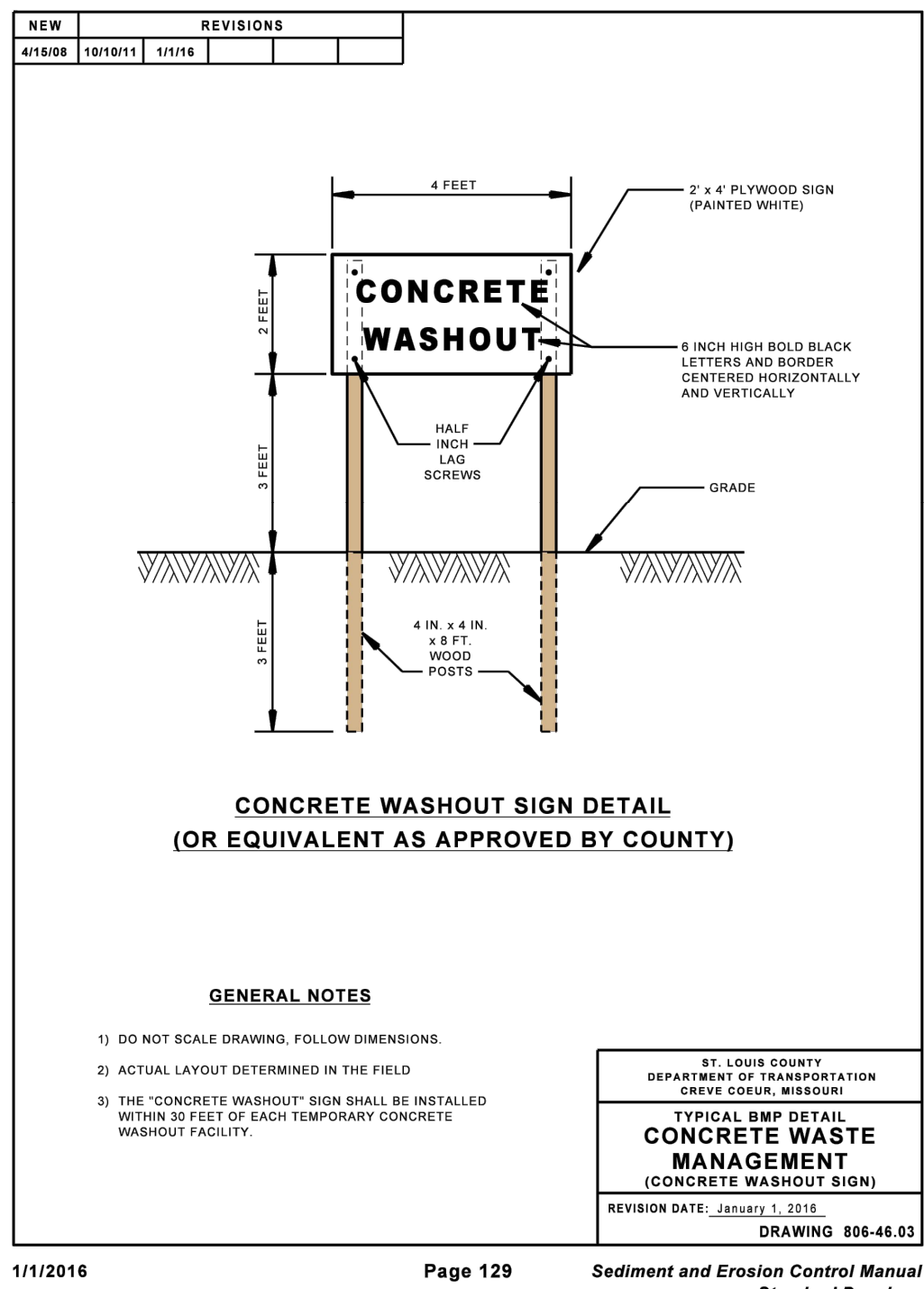
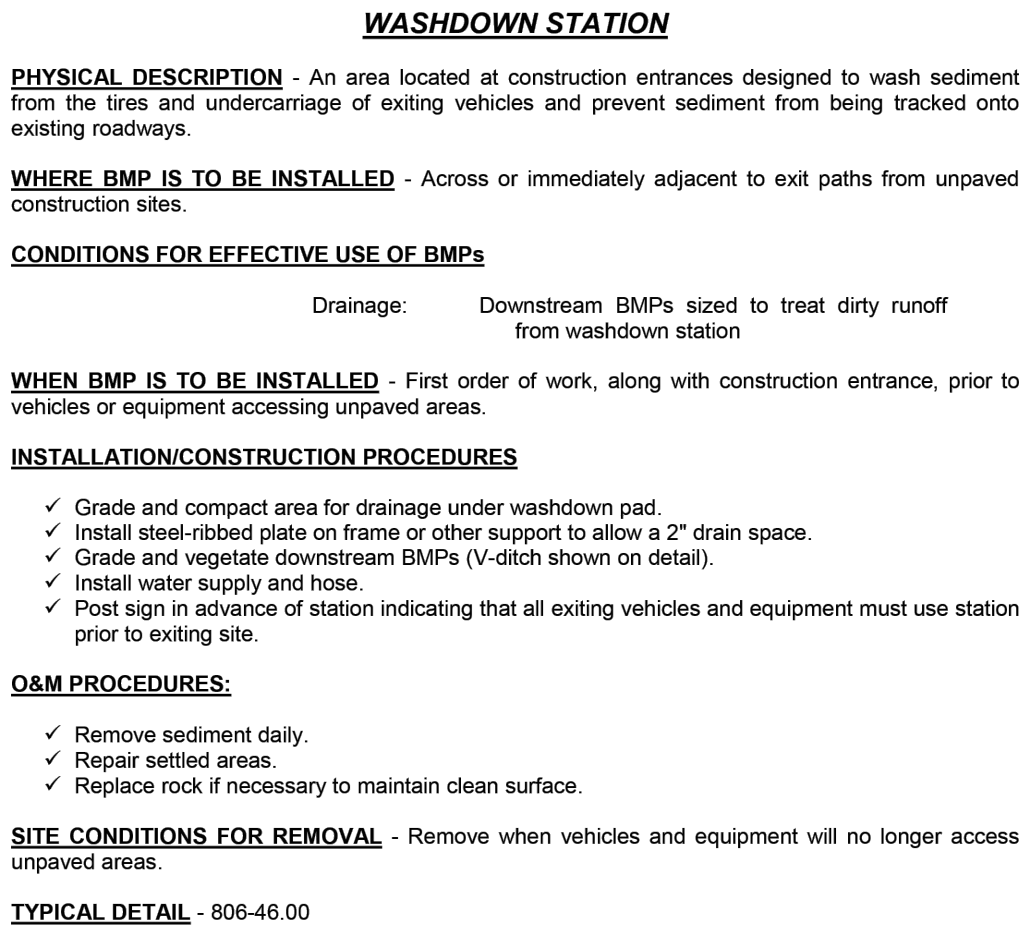
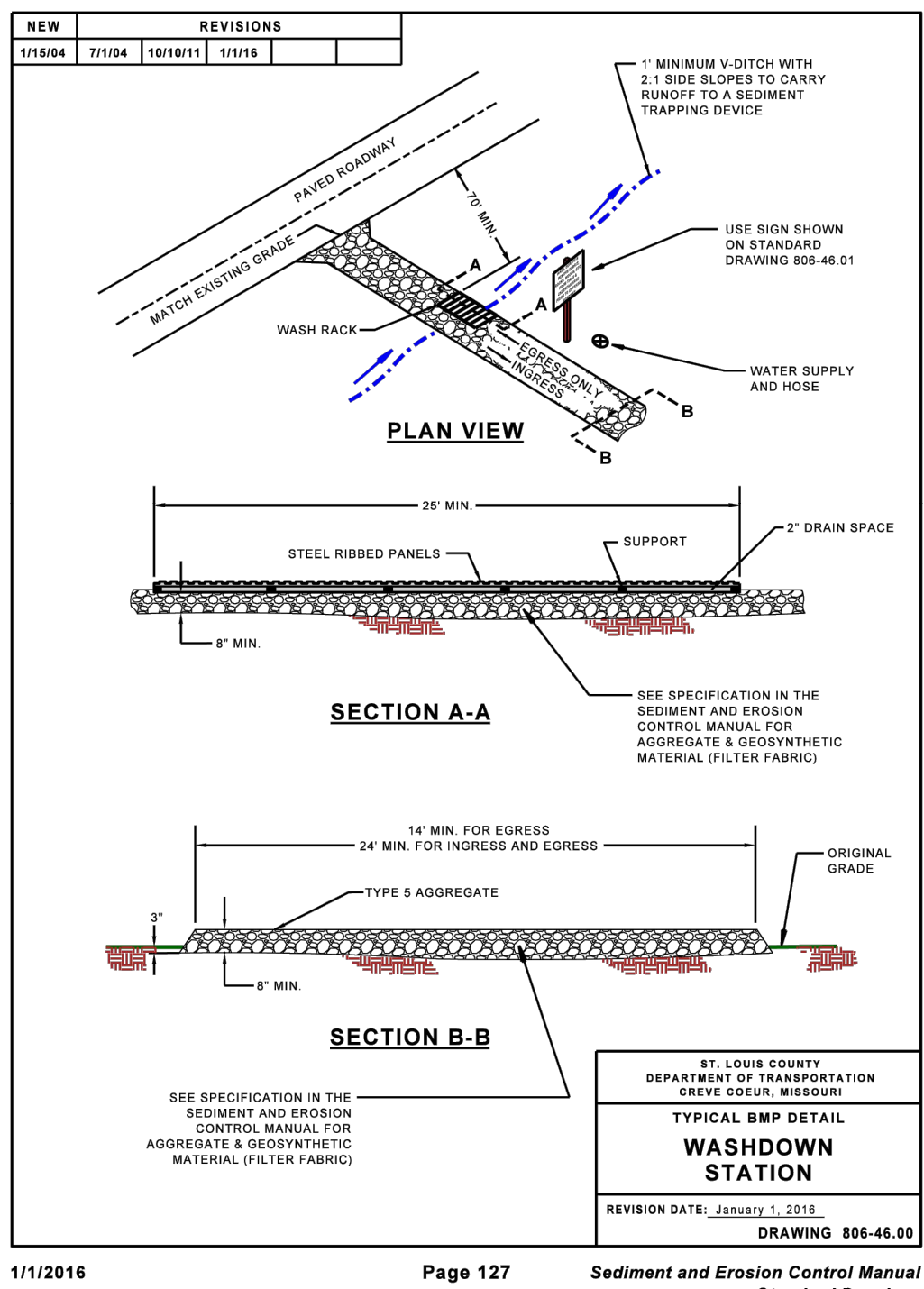
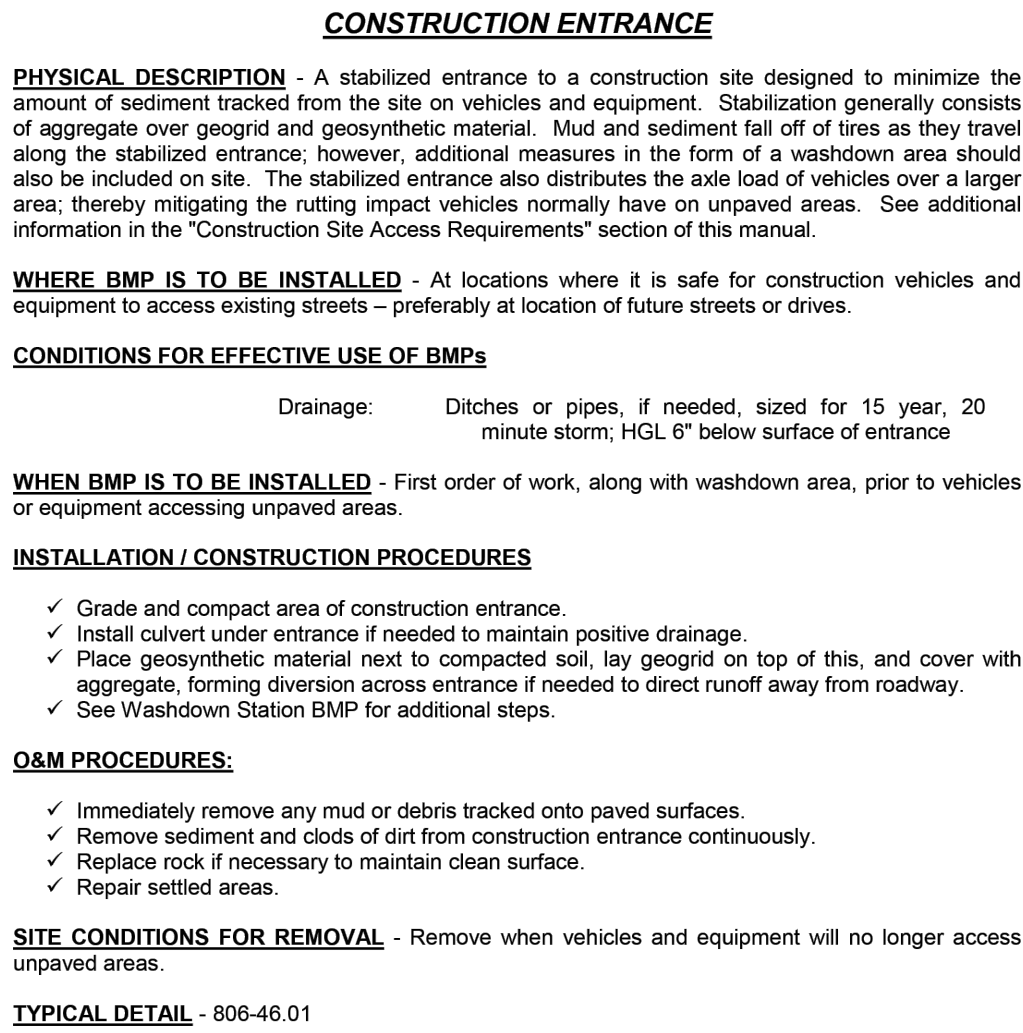
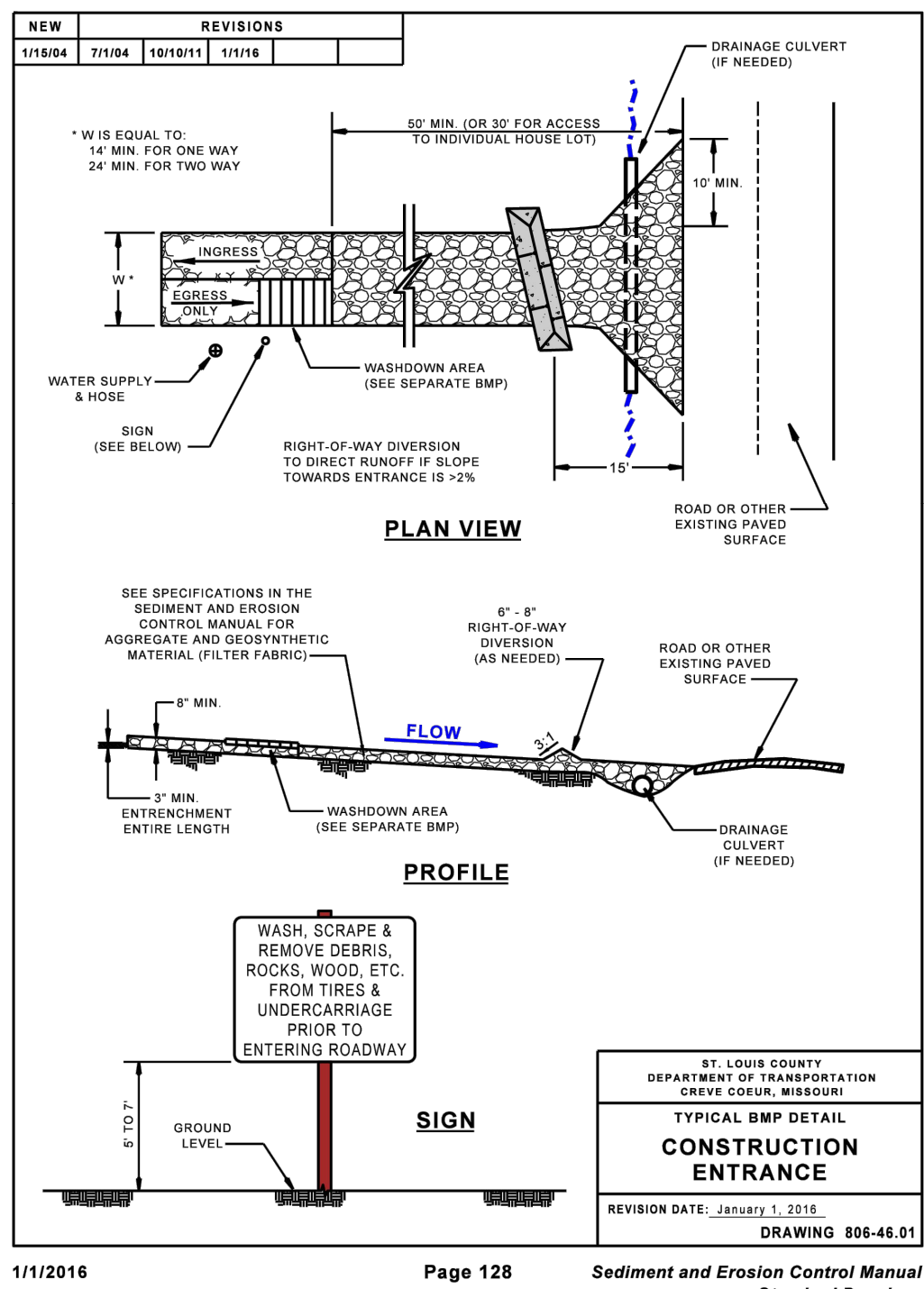
- ✓ Backfill, compact and uniformly grade area around inlet.
- ✓ Construct downstream berm, if required. Rock bags or sand bags may be used to construct berm.
- ✓ Drive posts or wood frame close to inlet sill so overflow will fall directly on the structure and not on unprotected soil.
- ✓ Dig trench around inlet for fabric to be buried.
- ✓ Cut required length of fabric from one roll to eliminate joints. Fasten fabric tightly around posts / frame to enhance stability.
- ✓ Backfill and compact trench.
- ✓ Install drop in type filter per manufacturer specifications.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove trash accumulation and sediment once it reaches depth of 6" at inlet.
- ✓ Replace loose, torn or clogged fabric.
- ✓ Repair any erosion or settlement of temporary berm downstream of inlet.
- ✓ Maintain drop in type filter per manufacturer specifications.

SITE CONDITIONS FOR REMOVAL - Remove after contributing drainage areas have been adequately stabilized. Restore area to grade and vegetate.

TYPICAL DETAIL - 806-45.12 (Single Unit)
806-45.13 (Double Unit)



POLLUTION PREVENTION PROCEDURES

DESCRIPTION - Pollution prevention includes best management practices that need to be set up at the beginning of the project. Pollution prevention practices consist of site management considerations that do not fit into the other categories of erosion or sediment controls, such as materials inventory, good housekeeping, spill prevention and clean up, solid waste management and concrete washout. Building materials and other construction site wastes must be properly managed and disposed of to reduce the risk of pollution from materials such as surplus or refuse building materials or hazardous wastes. Practices such as trash disposal, recycling, proper material handling, and spill prevention and cleanup measures can reduce the potential for storm water runoff to mobilize construction site wastes and contaminate surface or ground water.

APPROPRIATE APPLICATION OF BMPs - The proper management and disposal of wastes should be practiced at every construction site to reduce contaminated storm water runoff. Use waste management practices to properly locate refuse piles, to cover materials that might be displaced by rainfall or storm water runoff, and to prevent spills and leaks from hazardous materials that were improperly stored.

Solid Wastes

- Designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.
- Dumpsters or other collection containers should be provided as needed and ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overflowing.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas in accordance with state and local laws and regulations. Contact a local environmental agency to identify these disposal sites.
- Solid waste may not be buried or burned on the site.
- Good Housekeeping on a construction site is very important. Keep the site clean.

Pesticides and Fertilizers

- Follow all federal, state, and local regulations that apply to the use, handling, or disposal of pesticides and fertilizers.
- Do not handle the materials any more than necessary.
- Store pesticides and fertilizers in a dry, covered area.

- Construct berms or dikes to contain stored pesticides and fertilizers in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in storage and application areas to immediately contain and clean up any spills that occur.

Detergents - Phosphorous and nitrogen containing detergents are used in wash water for cleaning vehicles. Excesses of these nutrients can be a major source of water pollution. Use detergents only as recommended, and limit their use on the site. Do not dump wash water containing detergents into the storm drain system, direct it to a sanitary sewer or contain it so that it can be treated at a wastewater treatment plant.

- 1) HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS**
- DO**
- Prevent spills
 - Use products up
 - Follow label directions for disposal
 - Remove lids from empty bottles and cans when disposing in trash
 - Recycle wastes whenever possible
- DON'T**
- Don't pour waste into sewers or waterways or on the ground
 - Don't pour waste down the sink, floor drain or septic tanks
 - Don't bury chemicals or containers, or dispose of them with construction debris
 - Don't burn chemicals or containers
 - Don't mix chemicals together
 - Don't remove the original product label from the container
- 2) Containers shall be provided for collection of all waste material including construction debris, trash, petroleum products and any hazardous materials to be used onsite. All waste material shall be disposed of at facilities approved for that material.
- 3) No waste materials shall be buried on-site.
- 4) Mixing, pumping, transferring or otherwise handling construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any water course, ditch or storm drain.
- 5) Equipment fueling and maintenance, oil changing, etc., shall be performed only in an area designated for that purpose. The designated area is equipped for recycling oil and catching spills.

- 6) Concrete wash water shall not be allowed to flow directly to storm sewers, streams, ditches, lakes, etc., without being treated. A sump or pit shall be constructed to contain concrete wash water. See additional requirements in the "Concrete Waste Management" section of this manual.
- 7) If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto soil, the soil shall immediately be dug up and disposed of at a licensed sanitary landfill (not a construction / demolition debris landfill). Spills on pavement shall be immediately absorbed with sawdust, kitty litter or product designed for that purpose and disposed of at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. These materials will be removed from the site and recycled or disposed of in accordance with MoDNR requirements.
- 8) State law requires the party responsible for a petroleum product spill in excess of 50 gallons to report the spill to Missouri Department of Natural Resources (MoDNR) at (537) 634-2436, as soon as practical after discovery. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area, like a road ditch, that drains into one of the above.
- 9) The contractor / permittee should ensure adequate training is provided to the site superintendent and all field personnel, etc. on the proper protocol for reporting and cleaning up spills.
- 10) Manufacturer's recommended method for spill cleanup should be clearly posted and the site personnel should be made aware of the procedures and the location of the information and clean up supplies.
- 11) Material and equipment necessary for spill cleanup should be kept in the material storage area on site.
- 12) Minimize the material inventory stored on-site (e.g., only a few days' supply).
- 13) Do not store hazardous chemicals, drums, or bagged / boxed materials directly on the ground. Place these items on a pallet and under cover in secondary containment.
- 14) Storage areas shall be kept clean and well organized.

O&M PROCEDURES - The only way to be sure that waste management practices are being followed is to be aware of worker habits and to inspect storage areas regularly. Extra management time may be required to ensure that all workers are following the proper procedures. Inspect storage and use areas and identify containers or equipment that could malfunction and cause leaks or spills. Check equipment and containers for leaks, corrosion, support or foundation failure, or other signs of deterioration, and test them for soundness. Immediately repair or replace any that are found to be defective.

TYPICAL DETAILS - Not applicable.

NON-SEDIMENT POLLUTION CONTROL

PHYSICAL DESCRIPTION - Control measures designed to prohibit chemicals, hazardous materials, solid waste and construction debris from polluting stormwater. Pollutants carried in solution or as surface films on runoff will be carried through most erosion control and sediment capture BMPs. Keeping substances like fuel, oil, asphalt, paint, solvents, fertilizer, soil additives, concrete wash water, solid waste and construction debris from polluting runoff can be accomplished to a large extent through good housekeeping on the site and following the manufacturer's recommendations for disposal.

WHERE BMP IS TO BE INSTALLED - Collection, storage and fueling areas should be located onsite in an area that does not receive a substantial amount of runoff from upland areas and does not drain directly to lakes, creeks, streams, rivers, sewers, groundwater, wetlands, or road ditches.

CONDITIONS FOR EFFECTIVE USE OF BMPs

- Reduction in pollutants depends heavily on how construction personnel perform their duties. An effective management system requires training and signage to promote proper storage, handling and disposal of materials. Follow up observations of actions and inspection of storage areas by management personnel is also required.
- Plans should contain notes clearly stating requirements for addressing potential pollutants.
- Fueling areas and storage areas for hazardous materials should be protected by berms or other means of catching leaks or spills. Do not store hazardous chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and under cover in secondary containment.

WHEN BMP IS TO BE INSTALLED - Immediately following installation of construction entrance and wash station.

INSTALLATION / CONSTRUCTION PROCEDURES

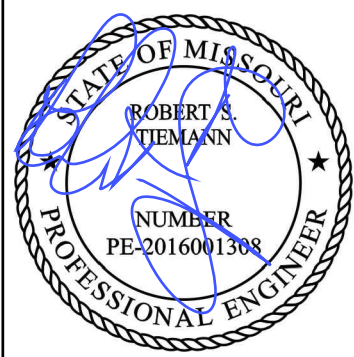
- Place waste receptacles near area of work.
- Construct protective berm or other devices around fueling and hazardous materials storage areas.
- Install appropriate signage.
- Post guidelines for proper handling, storage and disposal of materials, and emergency spill cleanup on site.

O&M PROCEDURES:

- Inspect activities on regular basis.
- Inspect storage areas and control devices at least every two weeks and after every storm.
- Make necessary corrections and repairs.

SITE CONDITIONS FOR REMOVAL - Maintain practices until all construction on the site has been completed.

TYPICAL DETAILS - General pollution prevention notes attached.



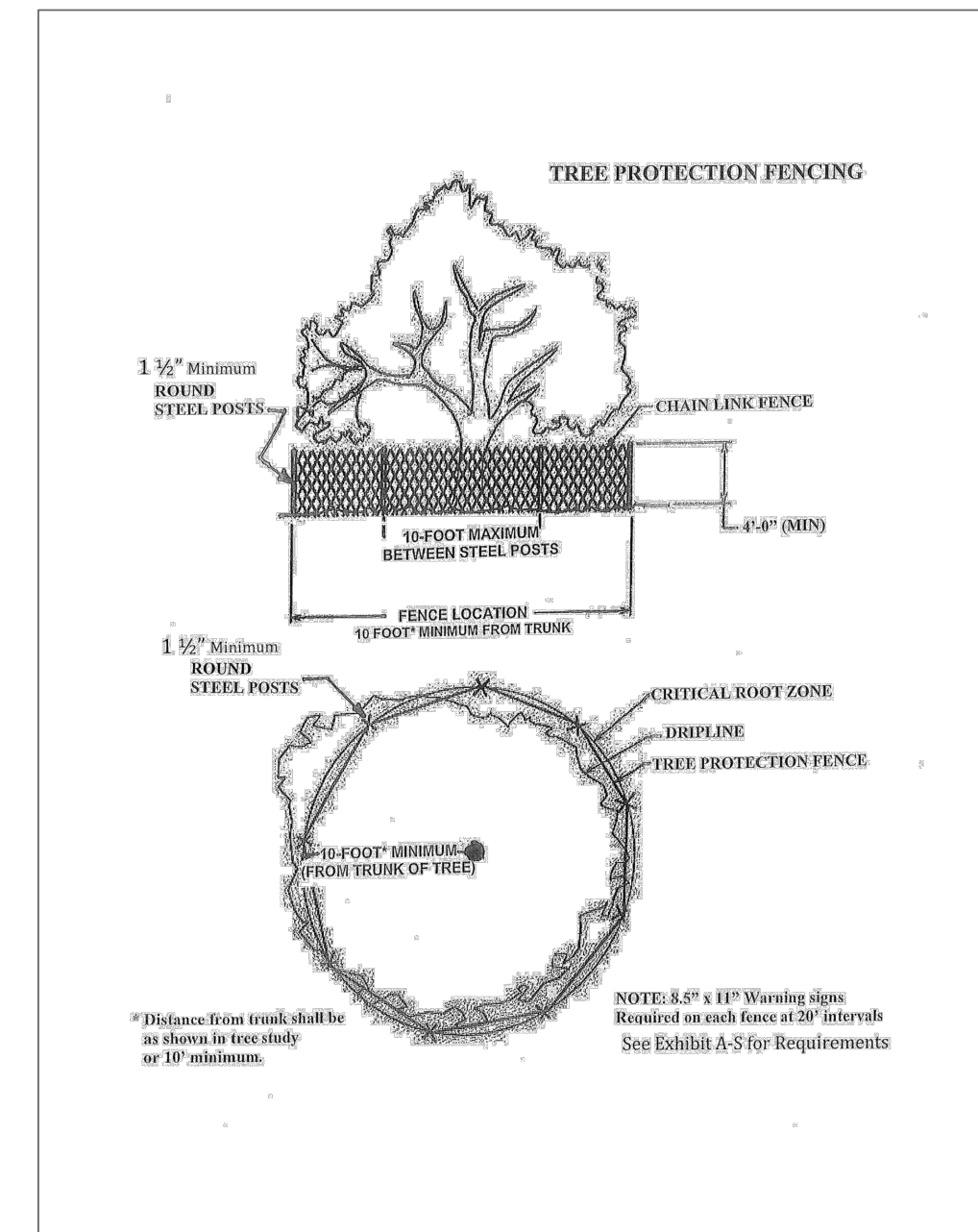
Date: Jul 30, 2024
Robert Tiemann
License No. PE-2016001308
Civil Engineer

PROJECT NUMBER: 22-5007

DATE: 07/30/2024

DRAWN BY: MLP

1. NO WORK, STORAGE OR OPERATIONS SHALL BE PERFORMED IN A TREE PROTECTION ZONE.
2. TREE PROTECTION FENCING SHALL BE A 4 FOOT HIGH CHAIN LINK FENCE MOUNTED ON TOP OF A 2" X 4" POST DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST TWO FEET AND NO MORE THAN A 10 FOOT SPACING.
3. WARNING SIGNS SHALL BE WEATHERPROOF (NO HOLES IN THE PAPER SIGNAGE) AND PROMINENTLY DISPLAYED ON EACH FENCE AT 20 FEET INTERVALS ALONG THE TREE PROTECTION FENCING. THE SIGN SHALL BE A MINIMUM 8.5 INCHES BY 11 INCHES AND CLEARLY STATE:
"WARNING - TREE PROTECTION ZONE".
4. THE TREE PROTECTION FENCING SHALL BE ERECTED BEFORE CONSTRUCTION BEGINS AND REMAIN IN PLACE UNTIL FINAL INSPECTION OF THE PROJECT.
5. ALL NEIGHBORS TREES THAT OVERHANG THE PROJECT SITE SHALL BE PROTECTED FROM IMPACT AND PROTECTION FENCING MAY BE REQUIRED.
6. THE GROUND UNDER AND AROUND THE TREE CANOPY SHALL NOT BE ALTERED.
7. TREES TO BE RETAINED SHALL BE IRRIGATED, AERATED AND MAINTAINED AS NECESSARY TO ENSURE SURVIVAL.



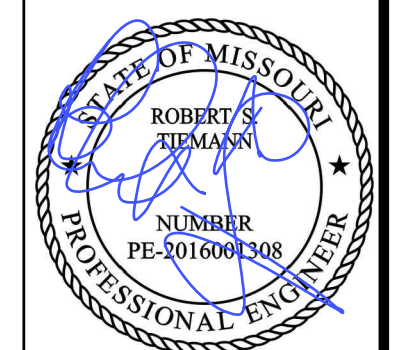
1. Zoning District: "NU" Non-Urban Residence District
2. Site Area: 3.03± Acres or 132,119 Sq. Ft
3. Limits Of Disturbance: 0.48± Acres or 20,850 Sq. Ft.
4. Wooded Area: 2.38± Acres or 103,509 Sq. Ft. (78% of Total Site).
5. Tree Canopy Required: 30% of Wooded Area (0.71 Acres or 31,503 Sq. Ft. Minimum).
6. Tree Clearing Limits: 0.41± Acres or 17,755 Sq. Ft. (17.2% of Wooded Area).
7. Tree Canopy Saved: 1.97± Acres or 85,754 Sq. Ft. (82.8% of Wooded Area).
8. Tree Canopy Planted: 0.00 Acres or 0 Sq. Ft.
9. Tree Canopy Provided: 1.97± Acres or 85,754 Sq. Ft. (82.8% of Wooded Area).
10. Proposed Units: One (1) Single Family Residence.
11. All areas disturbed will be sodded.

[illegible]

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 AND/OR CONSTRUCTION OF IMPROVEMENTS.

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 146 CHESTERFIELD INDUSTRIAL BLVD, STE E, CHESTERFIELD, MO 63005
 TEL. 636-294-2922

3107 BOUQUET ROAD
SITE PLAN
TREE PRESERVATION PLAN



Date: Jul 30, 2024
Robert Tiemann
License No. PE-2016001308
Civil Engineer

PROJECT NUMBER: 22-5007

DATE: 07/30/2024

DRAWN BY: MLP

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