

NW 1/4 OF THE SW 1/4 OF SEC. 34, TWP 20N, RNG 4E, W.M.
1617 S. MERIDIAN

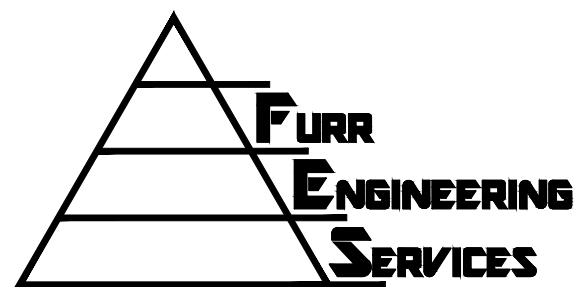


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PUYALLUP, WA 98371

XXXX-XXXXXXX

XXX
Key Plan

Registration



4715 142nd Pl. SW #B, Edmonds,
WA 98026
ph 206.890.8291

Sheet Title

STORMWATER PLAN

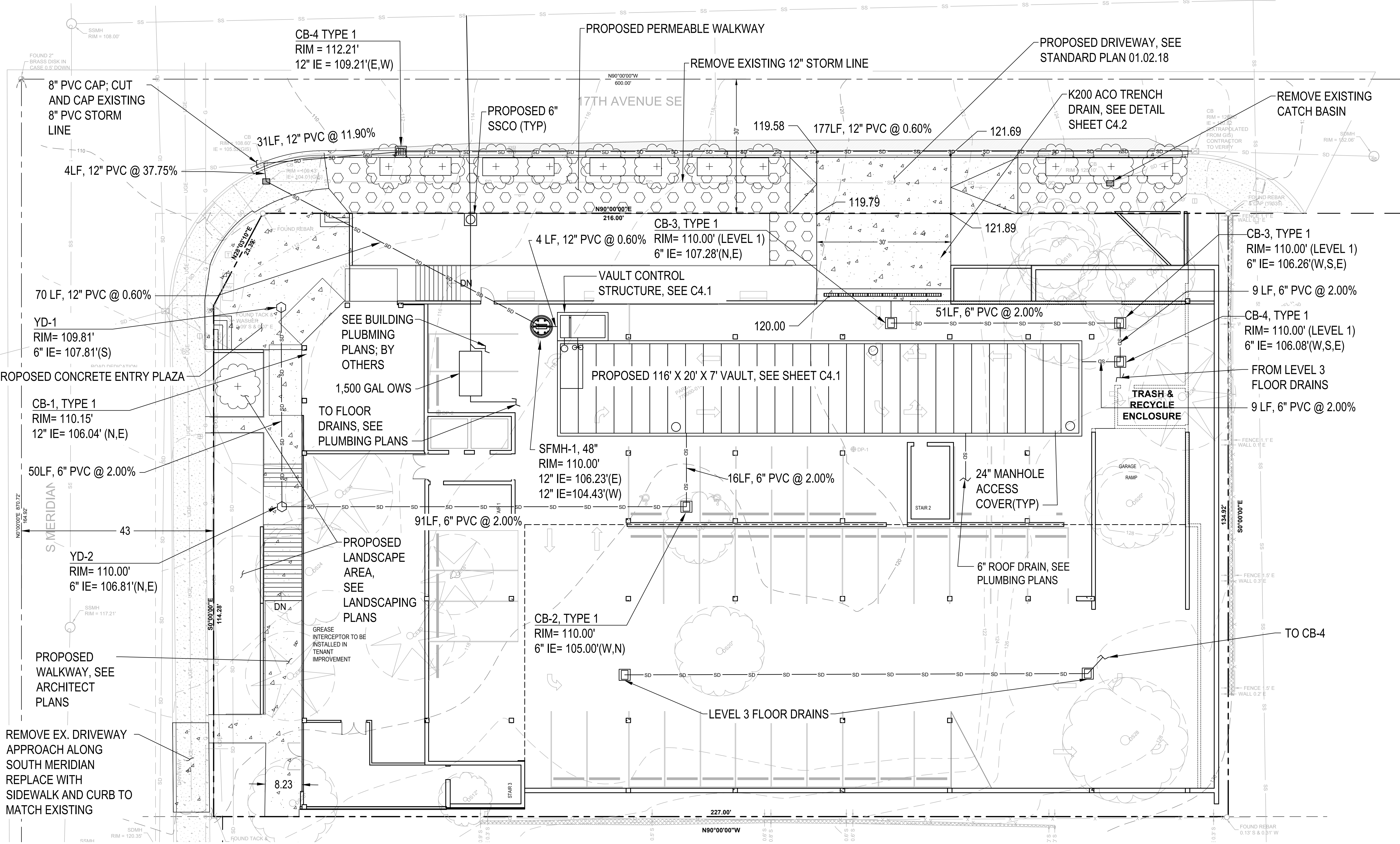
Revisions

1	6/11/24	PER CITY COMMENTS
2	11/15/24	PER CITY COMMENTS
3	2/10/25	PER CITY COMMENTS

Scale:		
FES Project No:	23062	
Date:	OCTOBER 20, 2023	
Designed:	JV	
Drawn:	TJW	
Checked:	DAF	

Sheet Number

C4.0



PROPOSED LEGEND

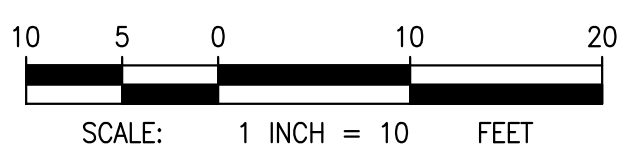
	ASPHALT PAVEMENT		PROPERTY BOUNDARY		CATCH BASIN
	CONCRETE PAVEMENT		FORCE MAIN		PROPOSED TREE
	PERMEABLE CONCRETE		STORM DRAIN LINE		

DRAWING INDEX	
C4.0	STORMWATER PLAN
C4.1	STORMWATER DETENTION AND CONTROL VAULT DETAILS
C4.2	STORMWATER DETAILS
SD1.0	ENTERING SIGHT DISTANCES PLAN

TOPOGRAPHY, BOUNDARY, AND UTILITIES STATEMENT:
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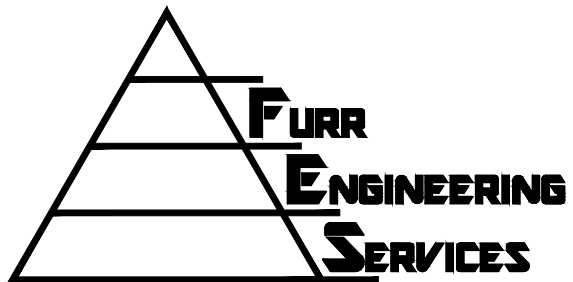
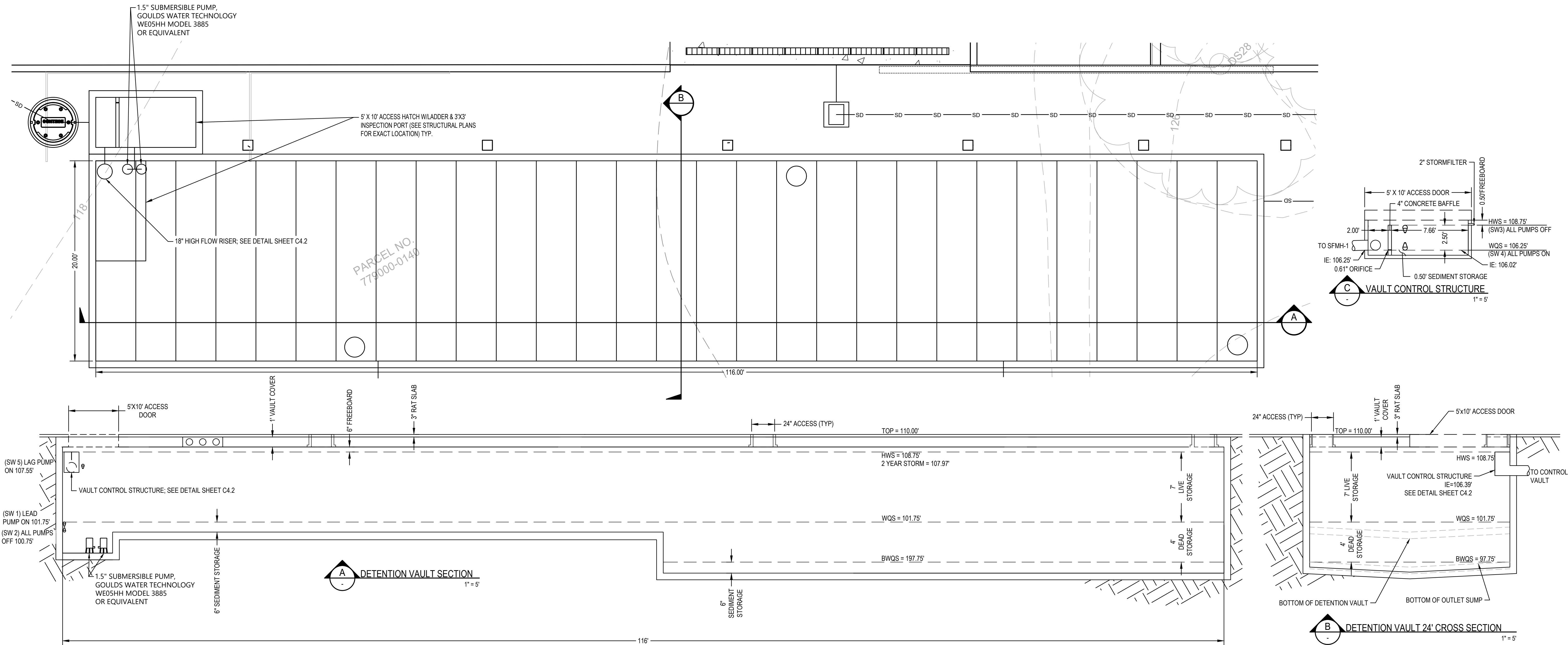


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STORMWATER
DETENTION AND
CONTROL VAULTS

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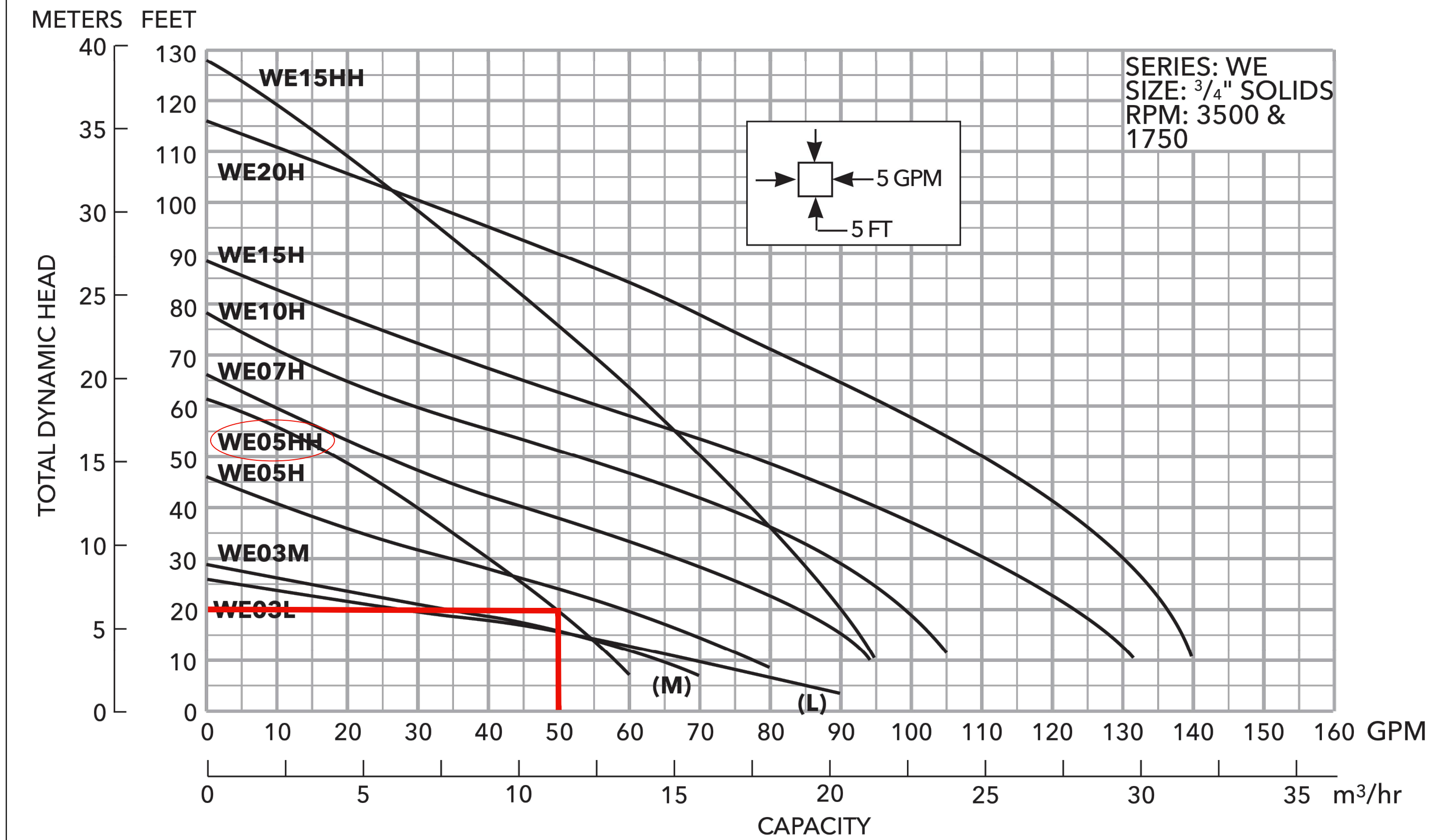
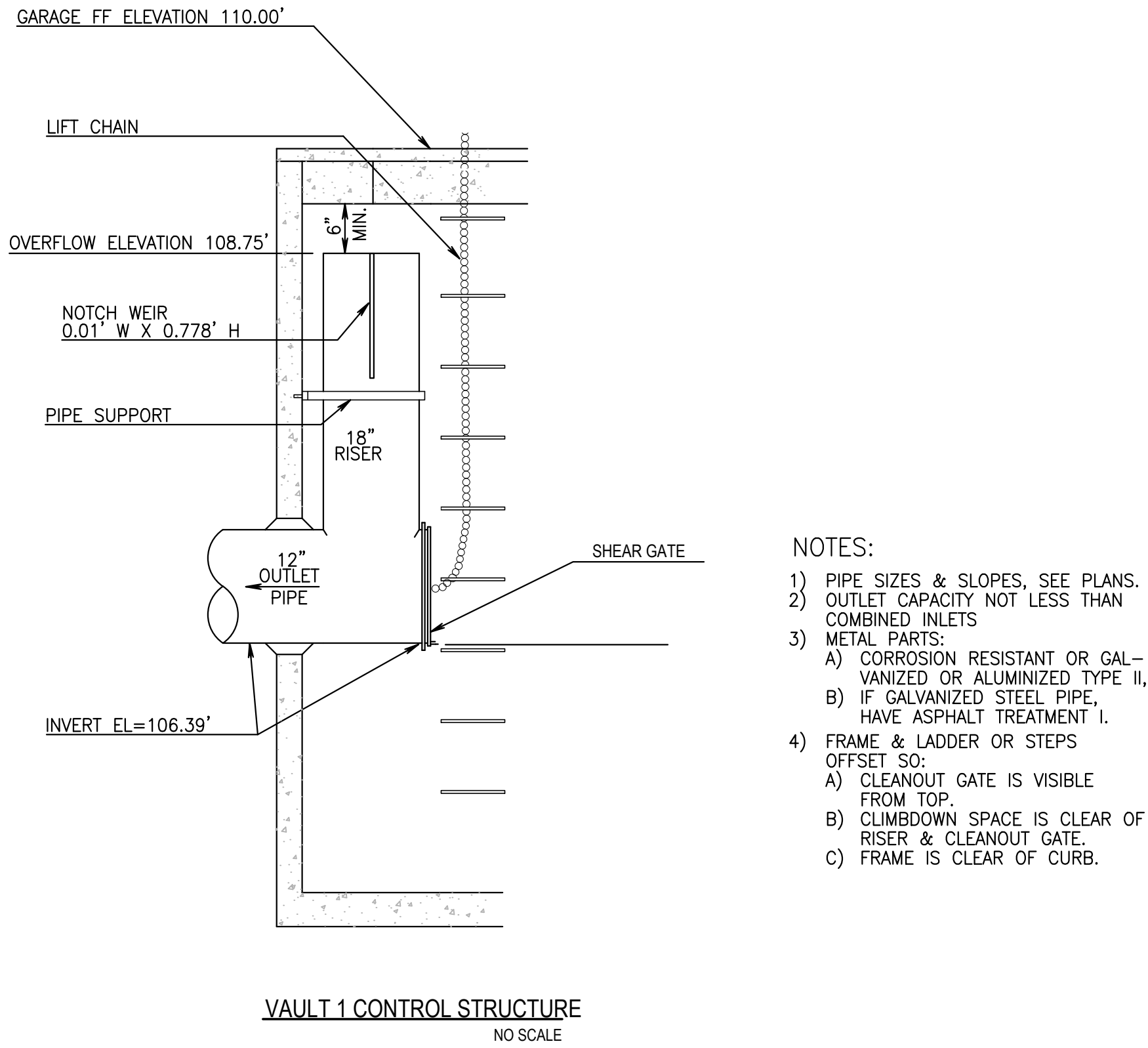
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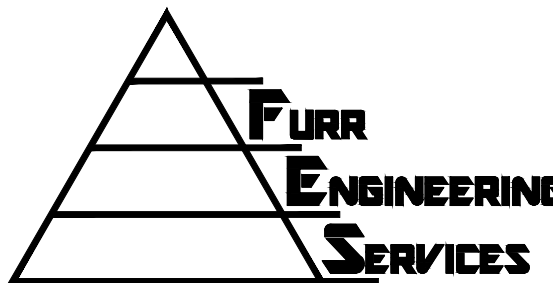
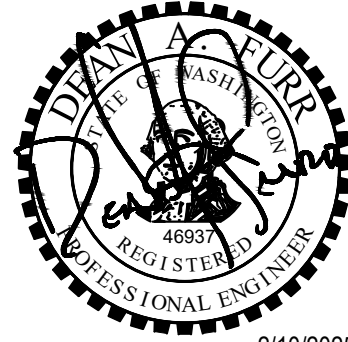


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STORM DETAILS

Revisions

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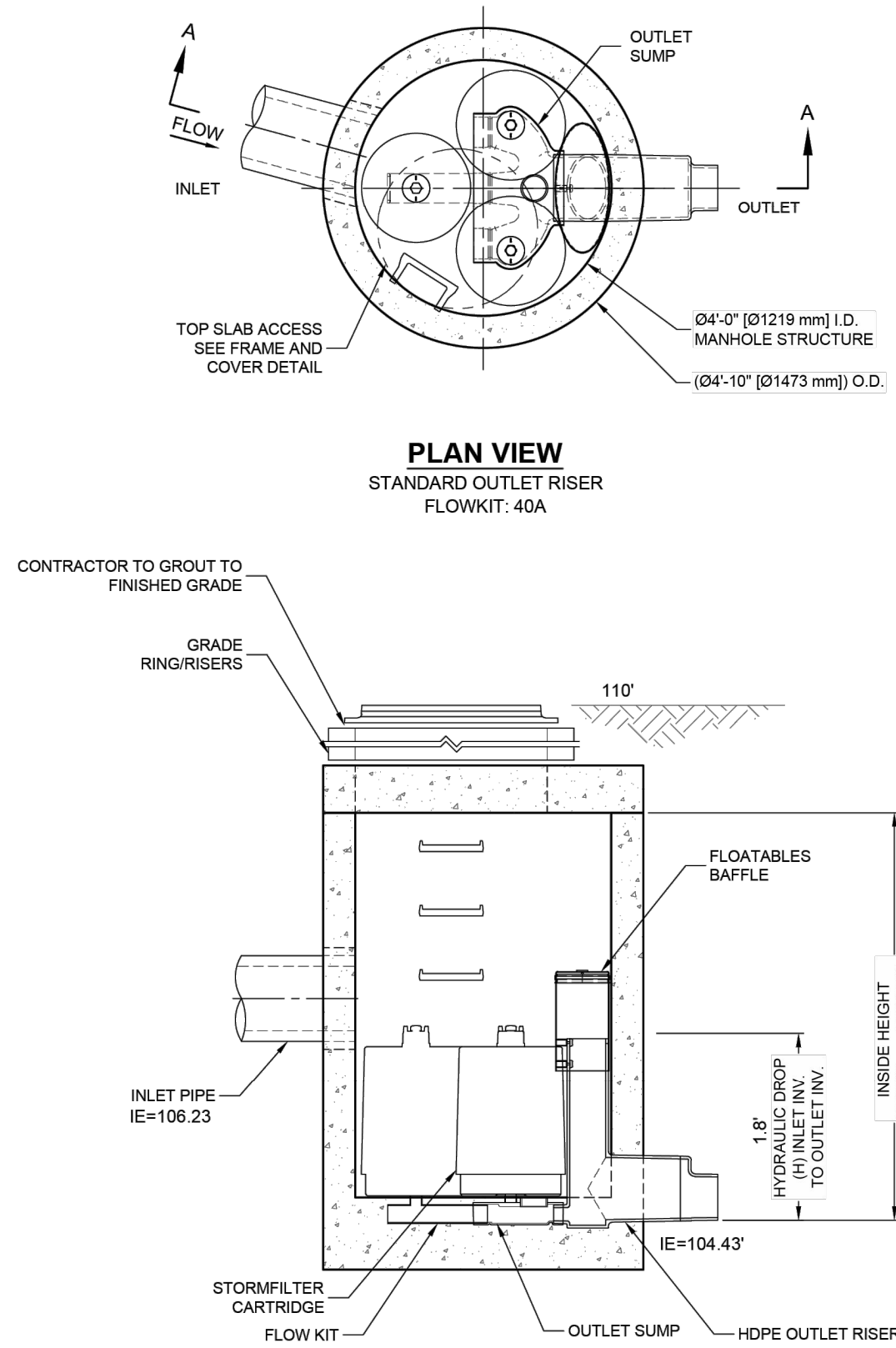
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Sheet Number

C4.2

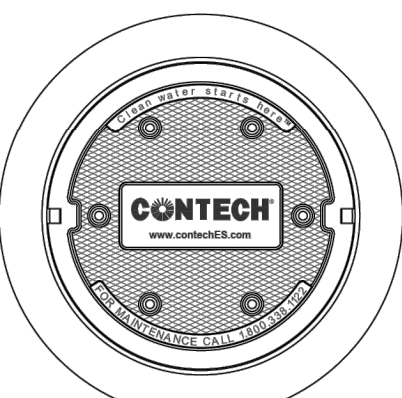


STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (3). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 3 CARTRIDGES. Ø4 (1219 mm) MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.0 CFS (28.3 L/s). IF THE SITE CONDITIONS EXCEED 1.0 CFS (28.3 L/s) AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION	27" (686 mm)	18" (458 mm)	LOW DROP
CARTRIDGE HEIGHT	3.05' (930 mm)	2.3' (700 mm)	1.5' (450 mm)
RECOMMENDED HYDRAULIC DROP (ft)	2 (1.30)	1.67 (1.08)	1 (0.65)
SPECIFIC FLOW RATE (gpm/ft) (L/s/m²)	22.5 (1.42)	18.79 (1.19)	11.25 (0.71)
CARTRIDGE FLOW RATE (gpm) (L/s)	15 (0.95)	12.53 (0.79)	7.5 (0.44)

* 1.67 gpm/ft (1.08 L/s/m²) SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC
DATA REQUIREMENTS

STRUCTURE ID	SFMH-1
WATER QUALITY FLOW RATE (cfs) (L/s)	0.0356
PEAK FLOW RATE (cfs) (L/s)	0.016
RETURN PERIOD OF PEAK FLOW (yrs)	100
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	LD
NUMBER OF CARTRIDGES REQUIRED	1
CARTRIDGE FLOW RATE	8.53
MEDIA TYPE (PERLITE, ZPG, PSORB)	PSORB

PIPE DATA

PIPE #	IE	MATERIAL	DIAMETER
INLET PIPE #1	106.23'	PVC	12"
INLET PIPE #2			
OUTLET PIPE	104.43'	PVC	12"
RIM ELEVATION	110'		
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT

NOTES/SPECIAL REQUIREMENTS:

GENERAL NOTES

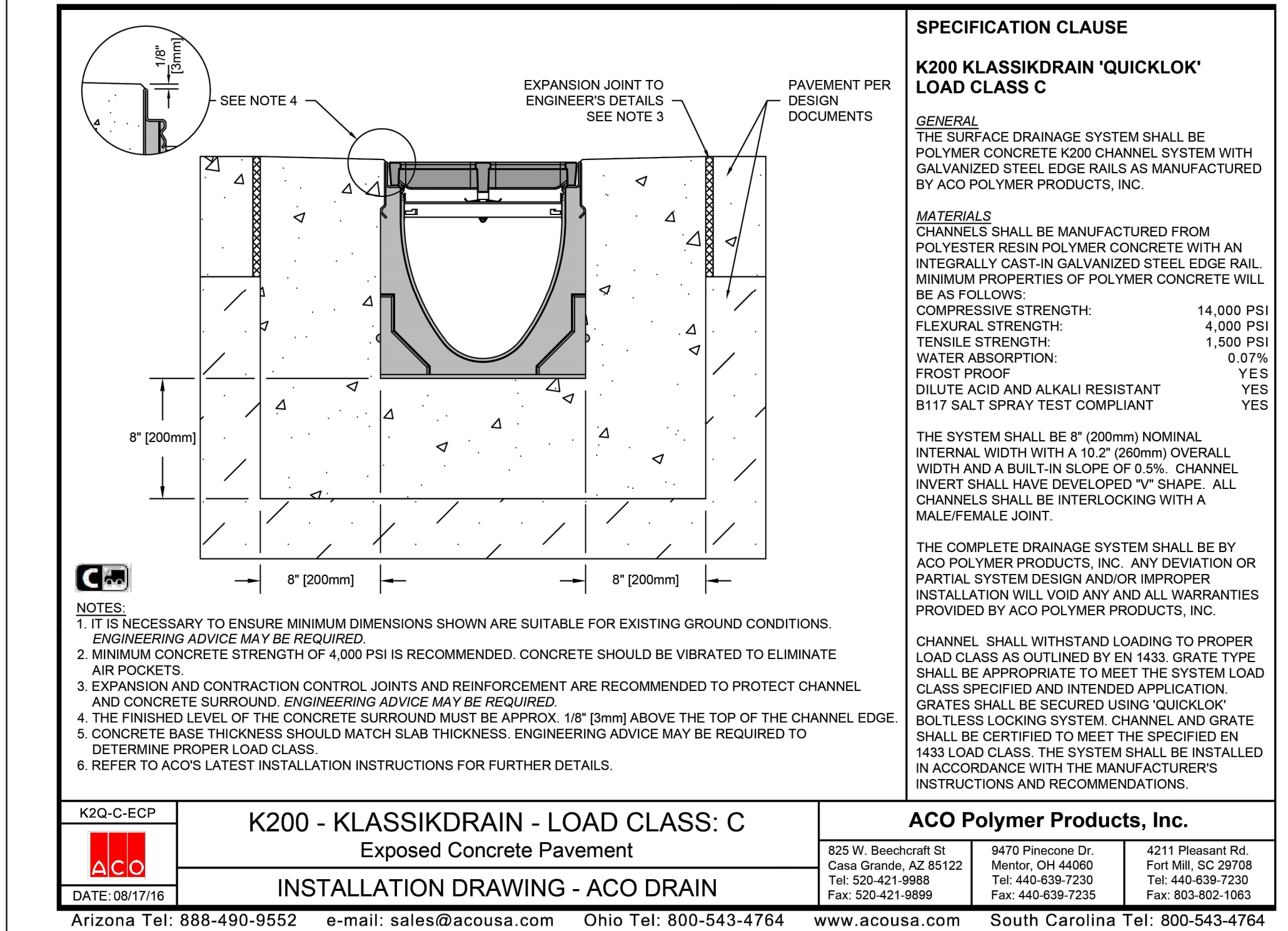
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERING SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' (1524 mm) AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M308 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES (178 mm). FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) (L/s) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft) (m²).
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
- C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLY STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
- E. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HOPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES (200 mm), CONTRACTOR TO REMOVE THE 8 INCH (200 mm) OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERROCO OR EQUAL AND PROVIDED BY CONTRACTOR.
- F. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.



SFMH48
STORMFILTER
STANDARD DETAIL



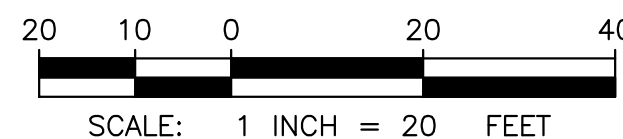
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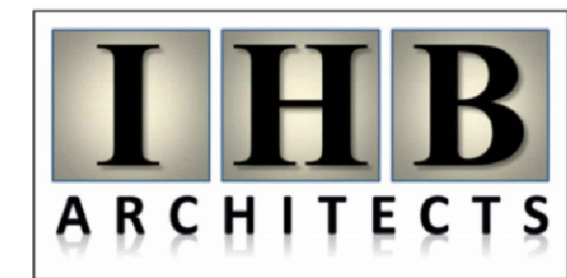


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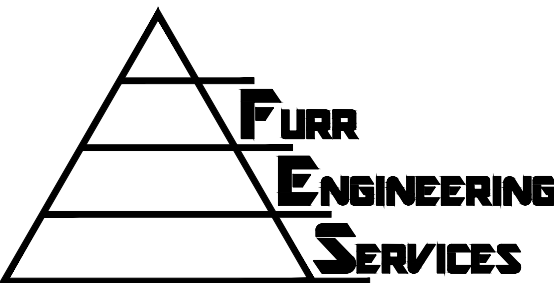
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ENTERING SIGHT
DISTANCE PLAN

Revisions

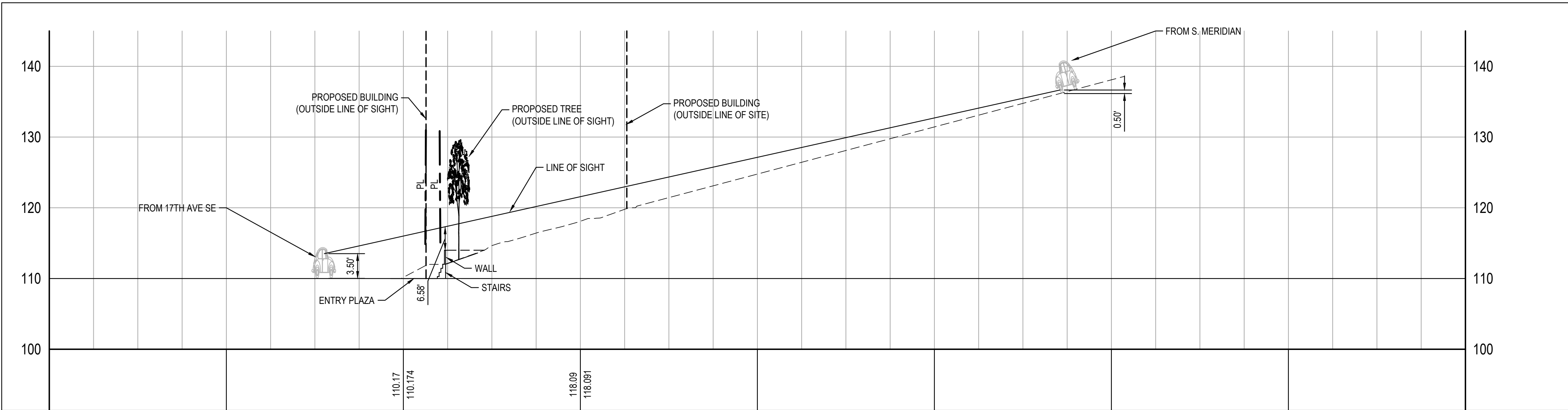
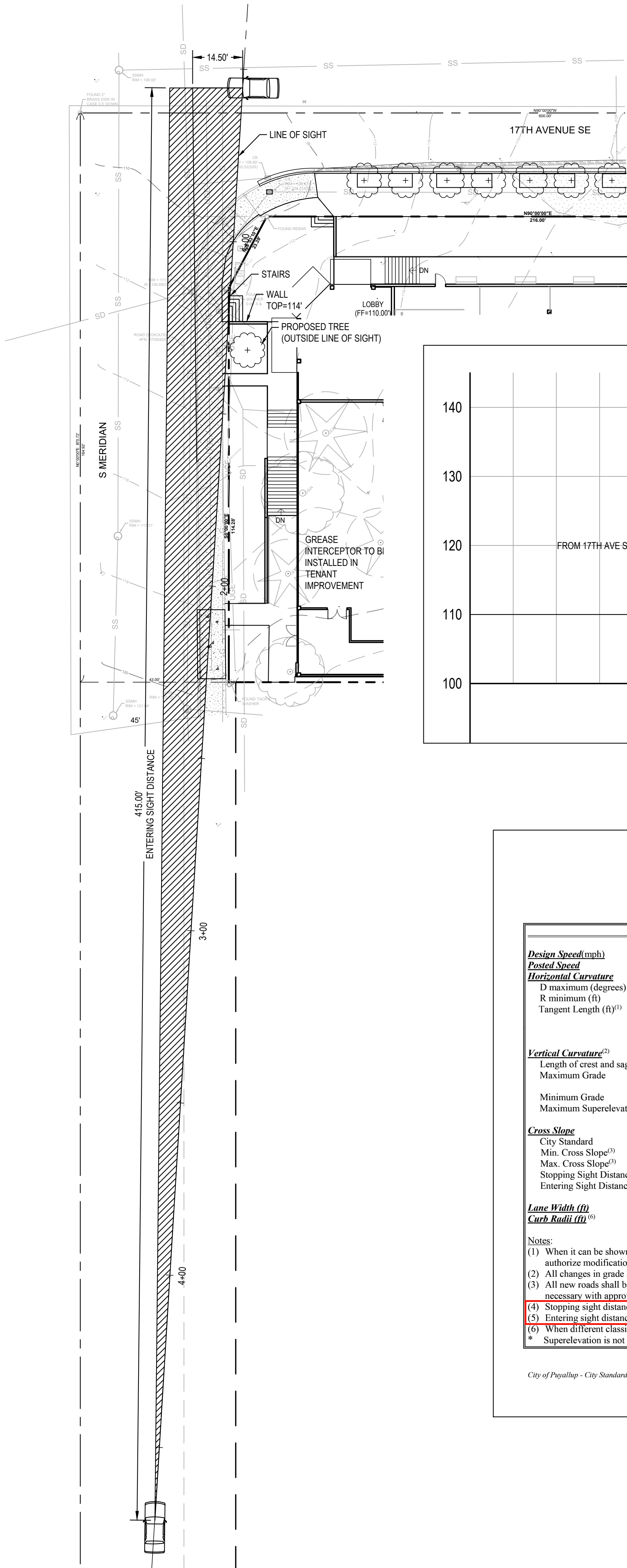
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SD1.0



ENTERING SIGHT DISTANCE VERTICAL
H:1" = 20' V:1" = 5'

Table 100-2
Roadway Geometric Design Criteria

	MAJOR/SECONDARY ARTERIAL			COLLECTOR			RESIDENTIAL
Design Speed(mph)	55	50	45	45	40	35	35
Posted Speed	45	40	35	35	30	25	25
Horizontal Curvature							
D maximum (degrees)	6.7°	9.6°	13.5°	13.5°	19.1°	25.5°	25.5°
R minimum (ft)	850	600	425	425	300	225	150
Tangent Length (ft) ⁽¹⁾	Minimum tangent length between reverse curves is dependent on superelevation runoff and entering sight distance. If none of these elements apply, the following minimum tangent lengths shall be used for Major/Secondary Arterials and Collectors: (2 lanes, 250 feet) (3 lanes, 300 feet) (4 lanes, 375 feet) (6 lanes, 450 feet)						100
Vertical Curvature ⁽²⁾							
Length of crest and sag based on stopping sight distance specified for design speed							
Maximum Grade (Major)	5.0%	5.0%	5.0%	10%	10%	10%	10%
(Sec.)	8.0%	8.0%	8.0%				
Minimum Grade	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Maximum Superelevation	5.0%	5.0%	5.0%	*	*	*	*
Cross Slope							
City Standard	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Min. Cross Slope ⁽³⁾	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Max. Cross Slope ⁽³⁾	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Stopping Sight Distance (ft) ⁽⁴⁾	550	475	400	400	325	250	250
Entering Sight Distance (ft) ⁽⁵⁾	530	470	415	415	350	300	300
Lane Width (ft)	11 (12 for turning lane)			11 (12 for turning lane)			9
Curb Radii (ft) ⁽⁶⁾	35			35			25

- Notes:
- When it can be shown that the minimum tangents would be impractical and where there would be no impact on traffic safety standards, the Engineering Services Staff may authorize modification of the requirement.
 - All changes in grade shall be connected by vertical curves of a minimum length of 200 feet unless otherwise specified by the engineering department.
 - All new roads shall be constructed with the city's standard cross slope. Existing roads to be widened may vary cross slope between minimum and maximum slopes as necessary with approval from the city engineer.
 - Stopping sight distance based on: design speed, object height of 0.5 feet and a driver's eye height of 3.5 feet.
 - Entering sight distance based on posted speed and shall apply to all intersections and driveways, commercial or residential.
 - When different classifications of streets intersect, the lower classification curb radii shall be used.
- * Superelevation is not allowed in these street classifications.

City of Puyallup - City Standards

Road
100-18

Revised 03/09/10

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