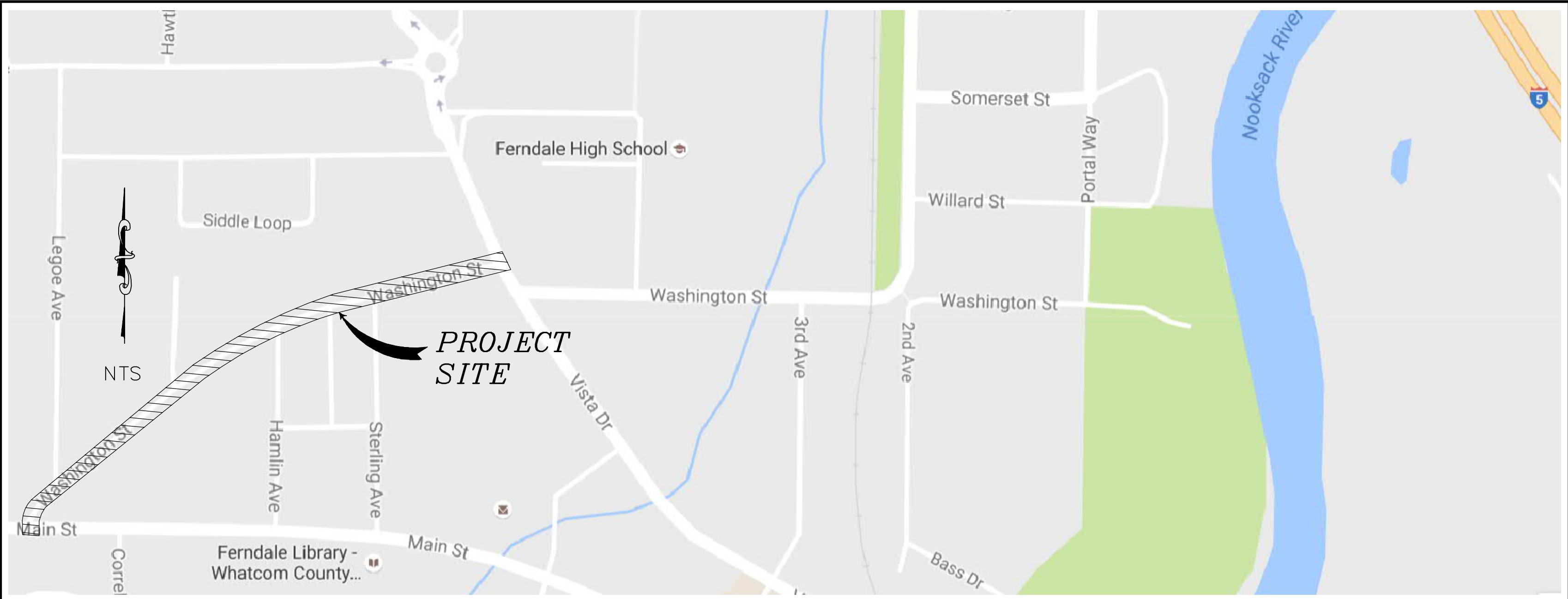


WASHINGTON STREET
IMPROVEMENT PROJECT
FERNDALE, WASHINGTON
CITY OF FERNDAL - PROJECT NO. ST2015-08
TIB PROJECT NO. 8-2-985(009)-1

VICINITY MAP

PROJECT LOCATED IN SECTION 19 & 20, TOWNSHIP 39N, RANGE 2E, W.M.

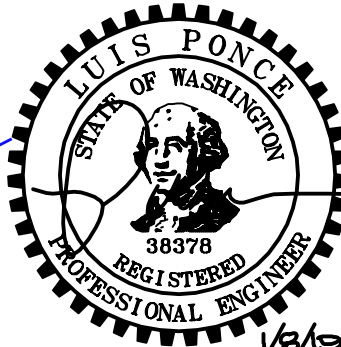
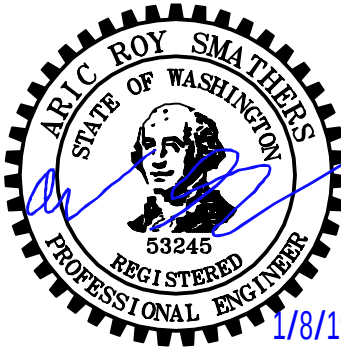


PROJECT LOCATION



SHEET SERIES INDEX

SHEET	DESCRIPTION	SHEET	DESCRIPTION
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18	WATER P&P - STA 14+50 TO 19+50		SPEED TABLE DETAIL
19	WATER P&P - STA 19+50 TO 24+50		
20	WATER P&P - STA 24+50 TO 28+50		
21	WATER DETAILS		
22	WATER DETAILS		



1/8/19 AS-BUILT

DESIGNED BY
ARS
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813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

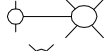
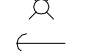
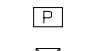
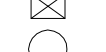
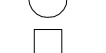
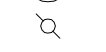
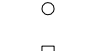
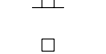
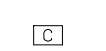
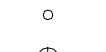
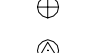
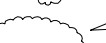
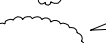
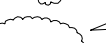
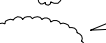
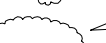
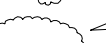
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
COVER

DWG 16026 COVER
JOB# 16026
SCALE H: N/A V: N/A

DATE 1/8/2019
SHEET 1 of 38

LEGEND

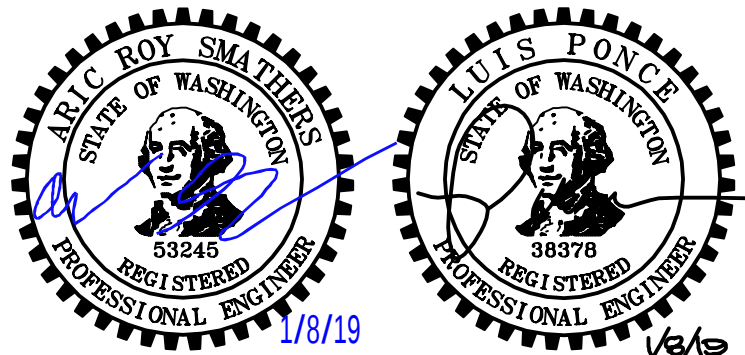
EXISTING	PROPOSED

	= EXISTING SIGNAL POLE
	= EXISTING SIGNAL POLE W/ LUMINAIRE
	= EXISTING STREET LIGHT ASSEMBLY
	= EXISTING YARD LIGHT
	= EXISTING GUY WIRE
	= EXISTING GAS METER
	= EXISTING GAS VALVE
	= EXISTING TRANSFORMER PAD
	= EXISTING POWER VAULT
	= EXISTING J-BOX
	= EXISTING UTILITY POT HOLE LOCATION
	= EXISTING MAIL BOX
	= EXISTING WATER SPIGOT
	= EXISTING WATER BLOW OFF
	= EXISTING WATER METER
	= EXISTING WATER VALVE
	= EXISTING FIRE HYDRANT
	= EXISTING TRAFFIC SIGNAL VAULT
	= EXISTING SEWER MANHOLE
	= EXISTING STORM DRAIN CATCH BASIN TYPE I
	= EXISTING STORM DRAIN CATCH BASIN TYPE II
	= EXISTING UTILITY POLE
	= EXISTING MONITORING WELL
	= EXISTING STORM CLEANOUT
	= EXISTING SEWER CLEANOUT
	= EXISTING SIGN
	= EXISTING TELEPHONE PEDESTAL
	= EXISTING COMMUNICATIONS VAULT
	= EXISTING BENCH MARK
	= EXISTING NAIL AND SHINER
	= EXISTING IRON PIPE
	= EXISTING MONUMENT (IN CASE)
	= EXISTING MONUMENT (SURFACE)
	= EXISTING ANGLE POINT
	= EXISTING TREE STUMP
	= EXISTING TREE
	= EXISTING VEGETATION

	= PROPOSED COUPLER
	= PROPOSED WATER METER
	= PROPOSED WATER VALVE
	= PROPOSED WATER PRESSURE REDUCING VALVE
	= PROPOSED STORM DRAIN INLET
	= PROPOSED STORM DRAIN CATCH BASIN TYPE II
	= PROPOSED SANITARY SEWER MANHOLE
	= PROPOSED STORM DRAIN CATCH BASIN TYPE I
	= CONNECT TO EXISTING PIPE
	= PROPOSED HYDRANT
	= PROPOSED UTILITY POLE
	= PROPOSED JBOX (TYPE I, II, III)
	= PROPOSED MONITORING WELL
	= PROP STORM CLEANOUT
	= PROPOSED SANITARY SEWER CLEAN OUT
	= PROPOSED SIGN
	= FLOW ARROW
	= PROPOSED TREE
	= SECTION MARK
	= POTHOLE EXISTING UTILITY

ABBREVIATIONS

Δ	= DELTA	EQUIV	= EQUIVALENT	MAX	= MAXIMUM	RT	= RIGHT
ø	= DIAMETER	EVEE	= END VERTICAL CURVE ELEVATION	MIN	= MINIMUM	S	= SOUTH
AB	= AS-BUILTS	EVCS	= END VERTICAL CURVE STATION	MOD	= MODIFIED	SCH	= SCHEDULE
AC	= ASBESTOS CEMENT	EX, EXIST	= EXISTING	MON	= MONUMENT	SD	= STORM DRAIN
AD	= ALGEBRAIC DIFFERENCE	IR	= EXISTING IRRIGATION	MPOC	= MID-POINT ON CURVE	SDCO	= STORM DRAIN CLEAN OUT
ASPH	= ASPHALT	F&C	= FRAME AND COVER	MTR	= METER	SDCB	= STORM DRAIN CATCH BASIN
BLDG	= BUILDING	F&G	= FRAME AND GRATE	MW	= MONITORING WELL	SDMH	= STORM DRAIN MANHOLE
BVCE	= BEGIN VERTICAL CURVE ELEVATION	FF	= FINISHED FLOOR	N	= NORTH	SE	= SOUTHEAST
BVCS	= BEGIN VERTICAL CURVE STATION	FG	= FINISHED GRADE	NE	= NORTHWEST	SEN	= EXISTING SIGN
C&G	= CURB & GUTTER	F	= FLOW LINE	NW	= NORTHWEST	SP	= STANDARD PLAN
CATV	= CABLE TELEVISION	FL	= FLANGE	OC	= ON CENTER	SSCO	= SANITARY SEWER CLEAN OUT
CD	= CONTROLLED DENSITY FILL	FT	= FEET	PMVMT	= PAVEMENT	SSMH	= SANITARY SEWER MANHOLE
℄	= CLASS, CENTERLINE	FT/FT	= FEET PER FOOT	PC	= POINT OF CURVATURE	STA	= STATION
CMP	= CORRUGATED METAL PIPE	FTR	= FRONTIER	PCC	= POINT OF COMPOUND CURVATURE,	STD	= STANDARD
CMU	= CONCRETE MASONRY UNIT	GALV	= GALVANIZED		= PORTLAND CEMENT CONCRETE	SW	= SOUTHWEST
CNG	= CASCADE NATURAL GAS	GRVL	= GRAVEL	PED	= PEDESTAL	TEL	= TELEPHONE
COMP	= COMPACTED	GV	= GATE VALVE	POC	= POINT ON CURVE	TL	= TRAFFIC LOOP
CON	= CONIFER	HOPE	= HIGH DENSITY POLYETHYLENE	POSS	= POSSIBLE	TYP	= TYPICAL
CONC	= CONCRETE	HMA	= HOT MIX ASPHALT	PRC	= POINT OF REVERSE CURVE	UTL	= UTILITY POLE
CONC	= CONTOUR	HP	= HIGH POINT	PRV	= PRESSURE REDUCING VALVE	UTIL	= UTILITY
CPSSP	= CORRUGATED POLYETHYLENE	HVSF	= HIGH VISIBILITY SILT FENCE	PROP	= PROPOSED	VC	= VERTICAL CURVE
CPSSP	= STORM SEWER PIPE	HYD	= HYDRANT	PSE	= PUGENT SOUND ENERGY	VLT	= VAULT
CULV	= CULVERT	HYD, INV	= INVERT ELEVATION	PT	= POINT OF TANGENCY	VPC	= VERTICAL POINT OF CURVATURE
D/W	= DRIVEWAY	IW	= INJECTION WELL	PVC	= POLYVINYL CHLORIDE	VPI	= VERTICAL POINT OF INTERSECTION
DB	= DIRECT BURY	L	= LENGTH	PVI	= POINT OF VERTICAL INTERSECTION	VPT	= VERTICAL POINT OF TANGENCY
DEC	= DECIDUOUS	LDSCS	= LANDSCAPING	PWR	= POWER	W	= WEST
DI	= DUCTILE IRON	LF	= LINEAR FEET	R	= RADIUS	WM	= WATER MAIN
E	= EAST	LOC	= LOCATION	R&C	= RING AND COVER	WSDOT	= WASHINGTON STATE DEPARTMENT
EL	= ELEVATION	LP	= LOW POINT	RET	= RETAINING		= OF TRANSPORTATION
EOP, EP	= EDGE OF PAVEMENT	LT	= LEFT	ROW	= RIGHT OF WAY	XEOA	= EXISTING EDGE OF ASPHALT



AS-BUILT

DESIGNED BY	ARS
DRAWN BY	PJC
CHECKED BY	LP

R&E **Reichhardt & Ebe**
ENGINEERING INC
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813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

CITY OF FERNDALE
2095 MAIN ST
FERNDALE, WA 98248

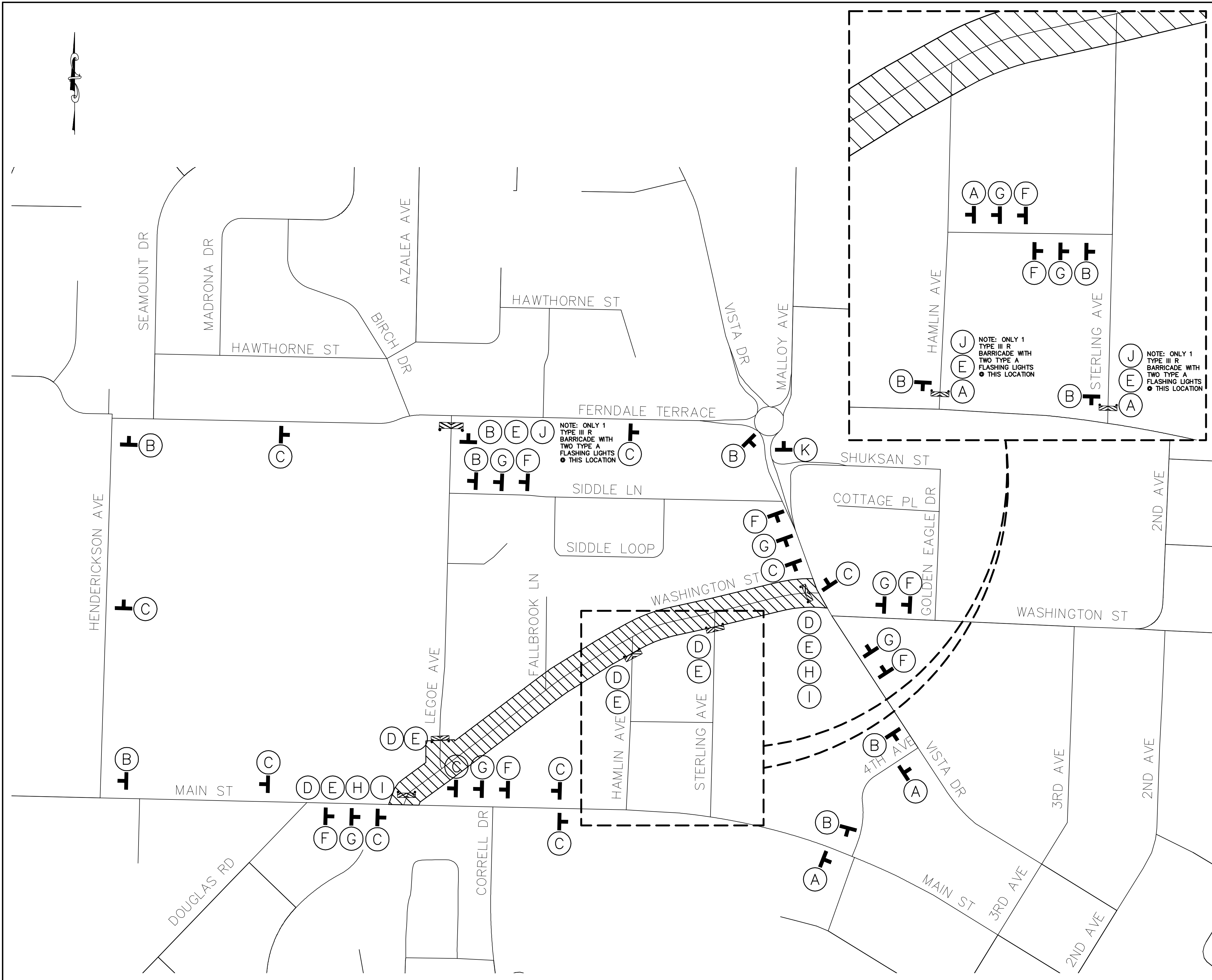
WASHINGTON STREET IMPROVEMENTS

MAIN STREET TO VISTA DRIVE

LEGEND AND ABBREVIATIONS

DWG 16026 COVER	
JOB# 16026	SCALE

DATE	1/8/2019
SHEET	2 of 38



LEGEND

- [T-shaped symbol] = SIGN
- [Hatched box] = PROPOSED WORK AREA
- (A) [Left arrow sign] M4-10L
- (B) [Right arrow sign] M4-10R
- (C) [Up arrow sign] M4-9S
- (D) [Road closed sign] R 11-4 (ON BARRICADE)
- (E) [Barricade symbol] TWO TYPE III R AND TYPE III L, BARRICADE WITH 2 TYPE A FLASHING WARNING LIGHTS
- (F) [Road closed ahead sign] W 20-3
- (G) [Detour ahead sign] W20-2
- (H) [Detour sign] M4-8
- (I) [Double arrow sign] M6-4
- (J) [Road closed 1/4 mile ahead sign] R 11-3
- (K) [Circular arrow sign]

SIGN SPACING = X (1)		
RURAL ROADS	45/55 MPH	500'±
URBAN ARTERIALS & RURAL ROADS	35/40 MPH	350'±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)
ALL SIGNS ARE BLACK ON ORANGE UNLESS DESIGNATED OTHERWISE		

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SIGN SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



SUBMITTED WITH
DESIGN PLAN

DESIGNED BY
ARS
DRAWN BY
PJC/LMH
CHECKED BY
LP



Reichhardt & Ebe
ENGINEERING INC
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813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

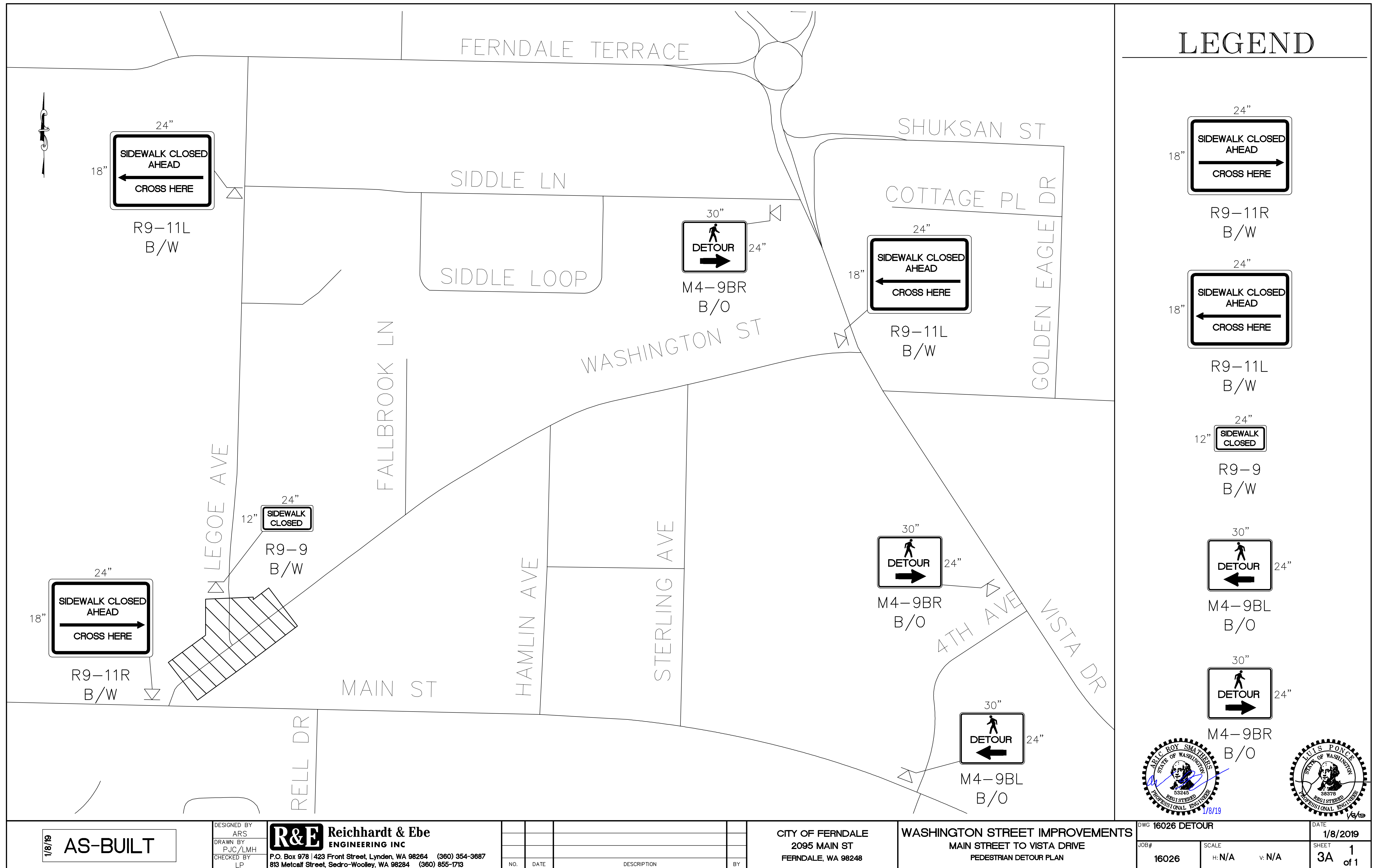
CITY OF FERDALE
2095 MAIN ST
FERDALE, WA 98248

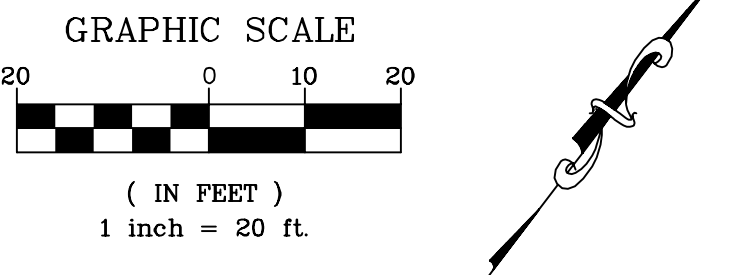
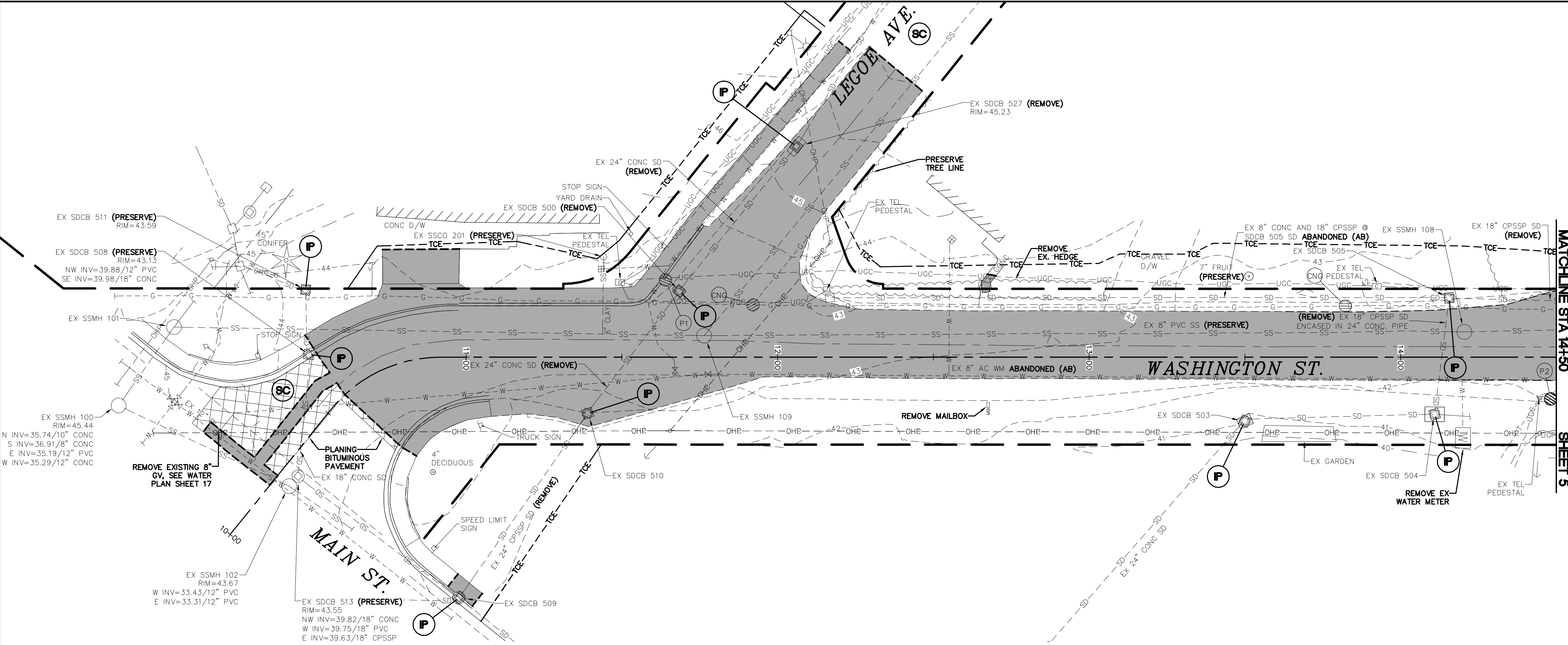
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
DETOUR PLAN

DWG 16026 DETOUR
JOB# 16026

SCALE
H: N/A V: N/A

DATE
1/8/2019
SHEET
3 of 38





EROSION CONTROL LEGEND

WASHINGTON STATE DEPT. OF ECOLOGY BEST MANAGEMENT PRACTICES (BMP)
REF.: STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, 2012

- NOTES:
1. BMP C120 (PERMANENT SEEDING) SHOWN IN GRADING PLAN.
 2. SEE TESC DETAILS AND TESC GENERAL NOTES, SHEET 8
 3. GENERALLY THE HIGH VISIBILITY SILT FENCE AND CLEARING LIMITS FOLLOW THE RIGHT OF WAY OR CONSTRUCTION EASEMENTS UNLESS OTHERWISE DRAWN ON THE PLANS.
 4. REMOVE ALL TREES WITHIN THE CLEARING LIMITS. NOT ALL TREES ARE SHOWN WITHIN THE CLEARING LIMITS.

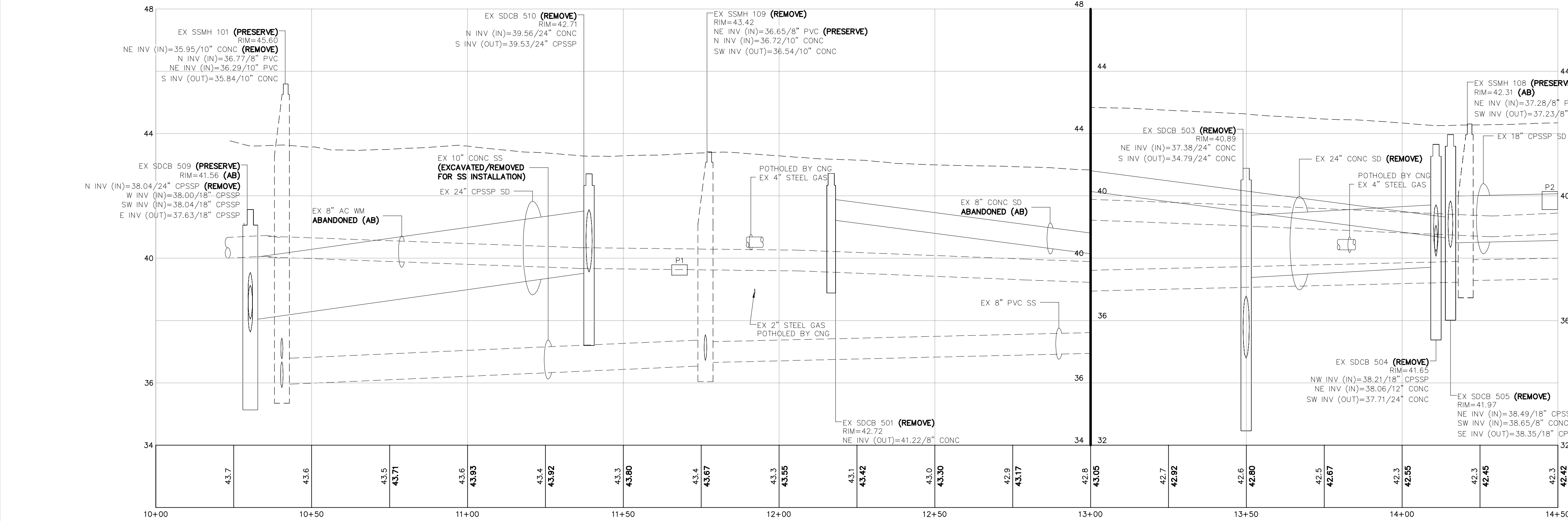
SYMBOL

- BMP C220: INLET PROTECTION - CB INSERT - SEE DETAIL SHEET 8
- BMP C105 AND C140: STREET CLEANING

NOTES:

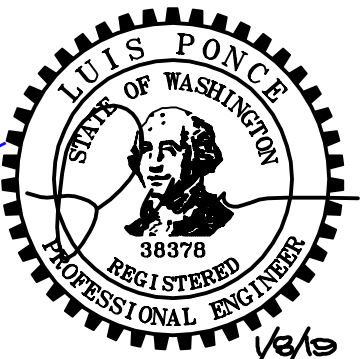
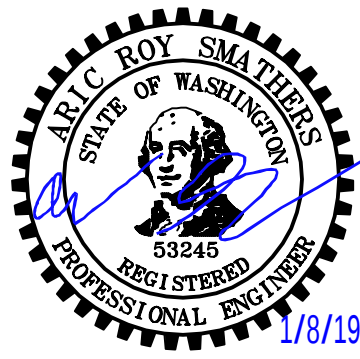
WATER MAIN LOCATION ASSUMED FROM APPROXIMATELY STA 10+25 TO 11+75.

=UTILITY POTHOLED LOCATION



POTHOLES		
#	DESCRIPTION	OWNER
P1	(4) 4" PVC - 3.4'± TO TOP	FTR
P2	(1) 2" PVC - 2.2'± TO TOP	FTR
	(1) 1" DB - 1.8'± TO TOP	FTR

NOTE:
POT HOLE DATA IS FOR INFORMATIONAL PURPOSES ONLY. POT HOLE DATA IS FROM FIELD MEASUREMENTS PROVIDED BY APPLIED PROFESSIONAL SERVICES, INC. ON 5/1/2017 AND ARE NOT SURVEYED. THIS INFORMATION MAY NOT BE ENTIRELY ACCURATE OR COMPLETE.



1/8/19
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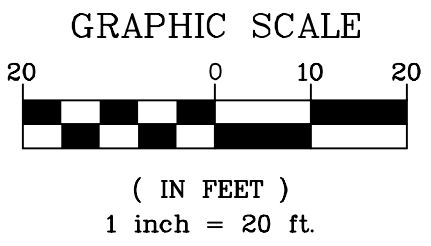
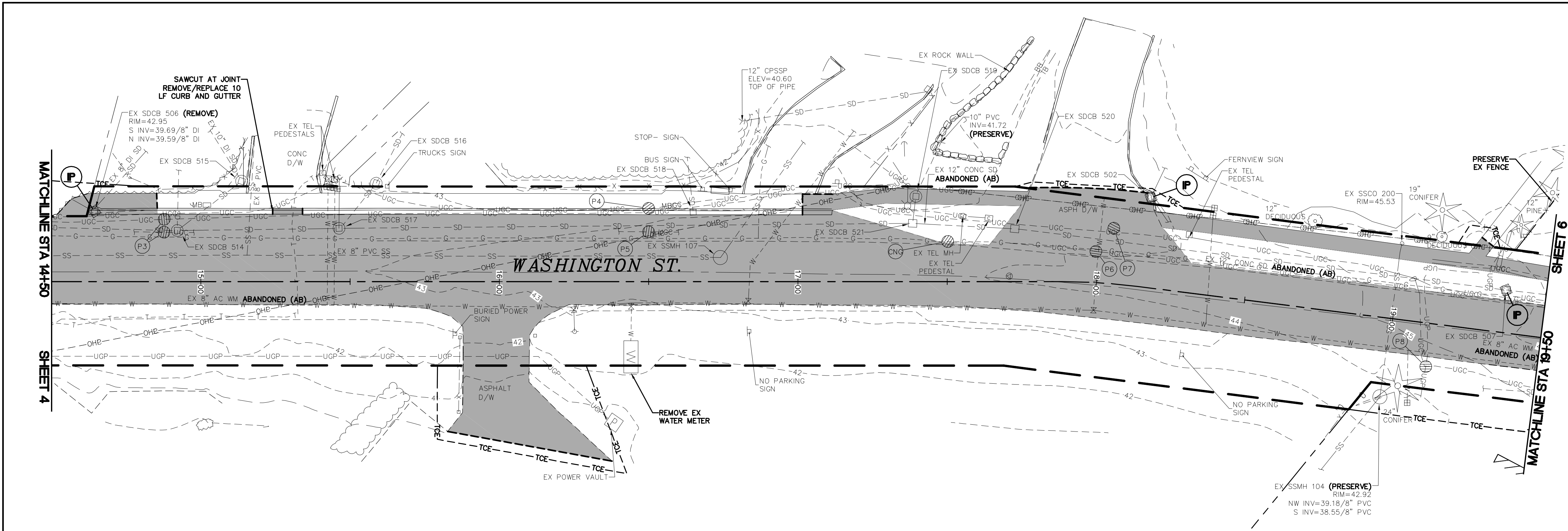
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813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
EX COND, TESC, DEMO, STA 10+00 TO 14+50

DWG 16026 TESC + DEMO		DATE 1/8/2019	
JOB# 16026	SCALE H: 1"=20' V: 1"=2'	SHEET 4 of 38	

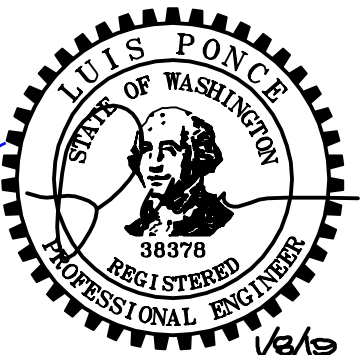
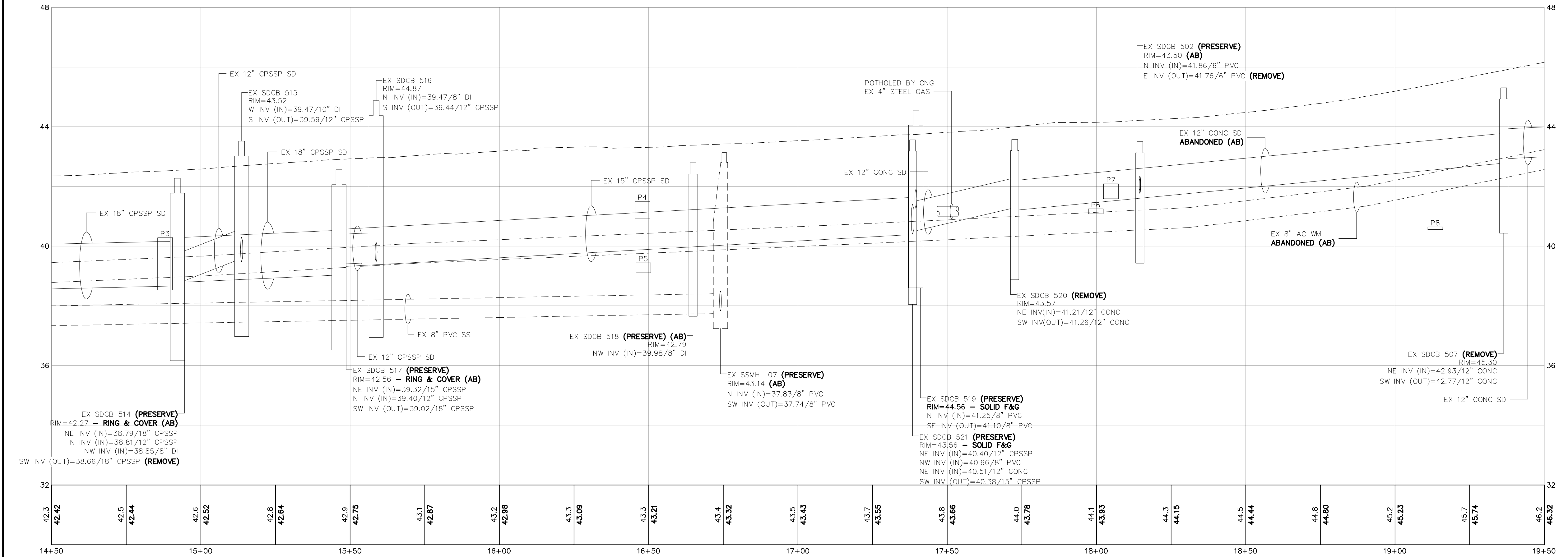


POTHOLES		
#	DESCRIPTION	OWNER
P3	(1) 4" DB - 3.3'± TO TOP (1) 4" PVC - 1.8'± TO TOP	FTR
P4	(1) 2" PVC - 2.2'± TO TOP (1) 4" PVC - 1.8'± TO TOP (1) 2" PVC - 1.8'± TO TOP	FTR
P5	(1) 4" DB - 3.0'± TO TOP	FTR
P6	(1) 2" DB - 2.7'± TO TOP	FTR
P7	(1) 4" PVC - 1.7'± TO TOP (1) 4" PE - 1.8'± TO TOP	FTR
P8	(2) 1" PVC - 4.0'± TO TOP (1) 1" DB - 4.0'± TO TOP	FTR

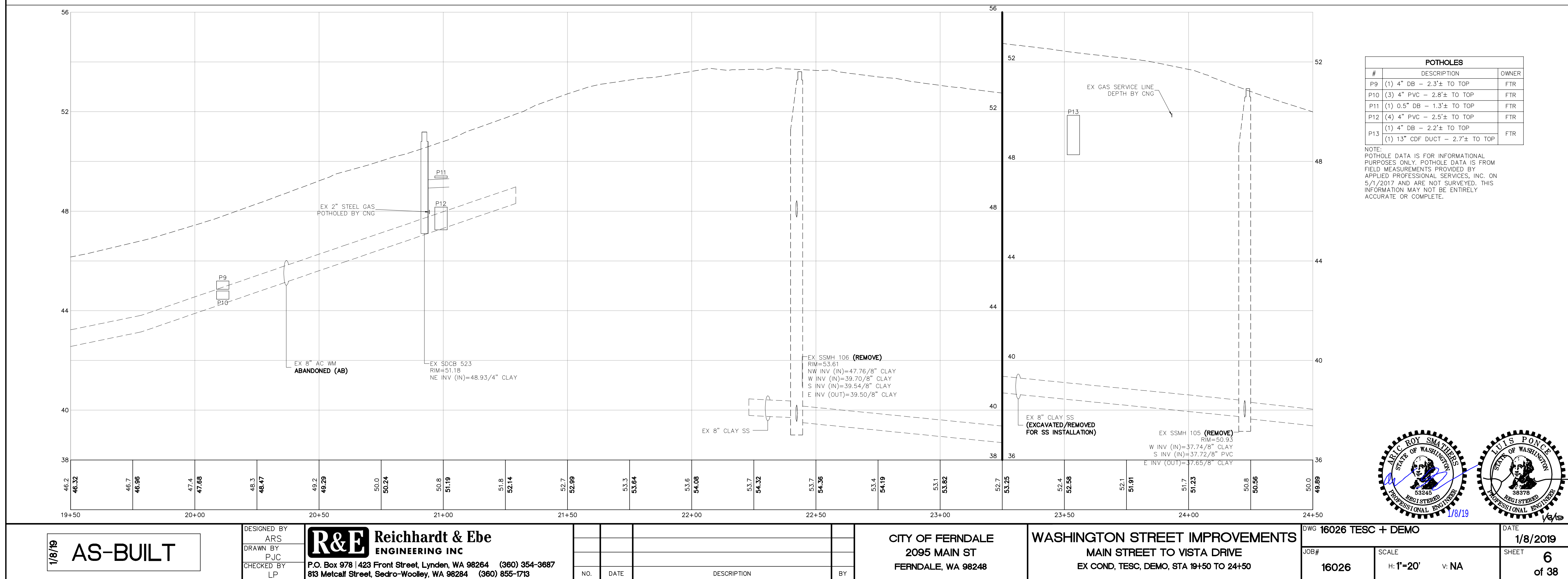
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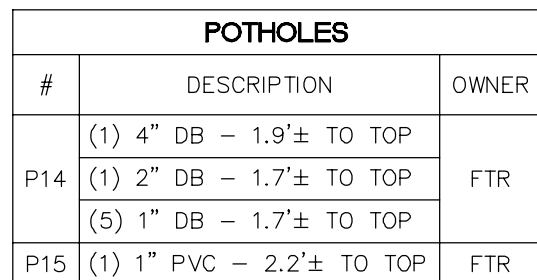
⊘ = UTILITY POTHOLED LOCATION

NOTES:
WATER MAIN LOCATION ASSUMED FROM APPROXIMATELY STA 18+00 TO 22+30

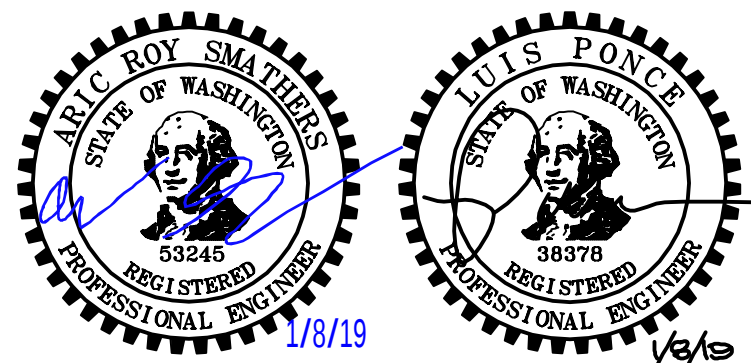


1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE EX COND TESC DEMO STA 14+50 TO 19+50	DWG 16026 TESC + DEMO		DATE 1/8/2019
	DRAWN BY PJC								CHECKED BY LP	JOB# 16026	SCALE H: 1"=20' V: 1"=2'





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CHECKED BY	LP

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WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
EX COND TESC DEMO STA 24+50 TO 28+50

JOB#

SCALE
H: 1"=20'

v: NA

SHEET 7 of 29

CONSTRUCTION SWPPP ELEMENTS

THIS PLAN PROVIDES THE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL ADAPT THE PLAN IN ORDER TO PREVENT SEDIMENT LADEN STORM WATER FROM LEAVING THE SITE. THE CONTRACTOR'S CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) SHALL UTILIZE THE WASHINGTON STATE DEPARTMENT OF ECOLOGY 2014 STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (SWMWW) FOR SELECTING, INSTALLING AND MAINTAINING THE CORRECT BMP'S BASED OF METHOD OF CONSTRUCTION UTILIZED BY THE CONTRACTOR. ALL ITEM'S SHALL BE OVERSEEN BY A CSECL AND BE SUBJECT TO INSPECTION BY THE ENGINEER AND/OR WHATCOM COUNTY PUBLIC WORKS DEPARTMENT.

ELEMENT 1: PRESERVE VEGETATION/MARK CLEARING LIMITS

- BEFORE BEGINNING LAND DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRADING, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA.
- RETAIN THE DUFF LAYER, NATIVE TOP SOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.
- **BMP C101: PRESERVING NATURAL VEGETATION**
- **BMP C102: BUFFER ZONES**
- **BMP C103/C233: HIGH VISIBILITY SILT FENCE**

ELEMENT 2: ESTABLISH CONSTRUCTION ACCESS

- LIMIT CONSTRUCTION VEHICLE ACCESS AND EXIT TO ONE ROUTE, IF POSSIBLE.
- STABILIZE ACCESS POINTS WITH A PAD OF QUARRY SPALLS, CRUSHED ROCK, OR OTHER EQUIVALENT BMPs, TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.
- LOCATE WHEEL WASH OR TIRE BATHS ON SITE, IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVE IN PREVENTING TRACKING SEDIMENT ONTO ROADS.
- IF SEDIMENT IS TRACKED OFF SITE, CLEAN THE AFFECTED ROADWAY THOROUGHLY AT THE END OF EACH DAY, OR MORE FREQUENTLY AS NECESSARY (FOR EXAMPLE, DURING WET WEATHER). REMOVE SEDIMENT FROM ROADS BY SHOVELING, SWEEPING, OR PICK UP AND TRANSPORT THE SEDIMENT TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- CONDUCT STREET WASHING ONLY AFTER SEDIMENT IS REMOVED IN ACCORDANCE WITH THE ABOVE BULLET.
- CONTROL STREET WASH WASTEWATER BY PUMPING BACK ON-SITE, OR OTHERWISE PREVENT IT FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
- **BMP C105: STABILIZED CONSTRUCTION ENTRANCE/EXIT**
- **BMP C107: CONSTRUCTION ROAD/PARKING AREA STABILIZATION**

ELEMENT 3: CONTROL FLOW RATES

- PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM OF DEVELOPMENT SITES FROM EROSION AND THE ASSOCIATED DISCHARGE OF TURBID WATERS DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.
- WHERE NECESSARY TO COMPLY WITH THE BULLET ABOVE, CONSTRUCT STORMWATER RETENTION OR DETENTION FACILITIES AS ONE OF THE FIRST STEPS IN GRADING. ASSURE THAT DETENTION FACILITIES FUNCTION PROPERLY BEFORE CONSTRUCTING SITE IMPROVEMENTS (E.G. IMPERVIOUS SURFACES).
- IF PERMANENT INFILTRATION PONDS ARE USED FOR FLOW CONTROL DURING CONSTRUCTION, PROTECT THESE FACILITIES FROM SILTATION DURING THE CONSTRUCTION PHASE.
- **BMP C208: TRIANGULAR SILT DIKE (GEOTEXTILE-ENCASED CHECK DAM)**

ELEMENT 4: INSTALL SEDIMENT CONTROLS

- DESIGN, INSTALL, AND MAINTAIN EFFECTIVE EROSION CONTROLS AND SEDIMENT CONTROLS TO MINIMIZE THE DISCHARGE OF POLLUTANTS.
- CONSTRUCT SEDIMENT CONTROL BMPs (SEDIMENT PONDS, TRAPS, FILTERS, ETC.) AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPs SHALL BE INSTALLED BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.
- MINIMIZE SEDIMENT DISCHARGES FROM THE SITE, THE DESIGN, INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.
- DIRECT STORMWATER RUNOFF FROM DISTURBED AREAS THROUGH A SEDIMENT POND OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP, BEFORE THE RUNOFF LEAVES A CONSTRUCTION SITE OR BEFORE DISCHARGE TO AN INFILTRATION FACILITY. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST MEET THE FLOW CONTROL PERFORMANCE STANDARD IN ELEMENT #3, BULLET #1.
- LOCATE BMPs INTENDED TO TRAP SEDIMENT ON-SITE IN A MANNER TO AVOID INTERFERENCE WITH THE MOVEMENT OF JUVENILE SALMONIDS ATTEMPTING TO ENTER OFF-CHANNEL AREAS OR DRAINAGES.
- WHERE FEASIBLE, DESIGN OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN.
- **BMP C208: TRIANGULAR SILT DIKE (GEOTEXTILE-ENCASED CHECK DAM)**

ELEMENT 5: STABILIZE SOILS

- STABILIZE EXPOSED AND UNWORKED SOILS BY APPLICATION OF EFFECTIVE BMPs THAT PREVENT EROSION. APPLICABLE BMPs INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE EARLY ON AREAS TO BE PAVED, AND DUST CONTROL.
- CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.
- CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.
- SOILS MUST NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW TO PREVENT EROSION:
 - DURING THE DRY SEASON (MAY 1 – SEPT. 30): 7 DAYS
 - DURING THE WET SEASON (OCTOBER 1 – APRIL 30): 2 DAYS
- STABILIZE SOILS AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.
- STABILIZE SOIL STOCKPILES FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, BE LOCATED AWAY FROM STORM DRAIN INLETS, WATERWAYS AND DRAINAGE CHANNELS.
- MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY.
- MINIMIZE THE DISTURBANCE OF STEEP SLOPES.
- MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
- **BMP C120: TEMPORARY AND PERMANENT SEEDING**
- **BMP C123: PLASTIC COVERING (AS NEEDED)**
- **BMP C130: SURFACE ROUGHENING**
- **BMP C140: DUST CONTROL**

ELEMENT 6: PROTECT SLOPES

- DESIGN AND CONSTRUCT CUT-AND-FILL SLOPES IN A MANNER TO MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (FOR EXAMPLE, TRACK WALKING).
- DIVERT OFF-SITE STORMWATER (RUN-ON) OR GROUND WATER AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES AND/OR SWALES. OFF-SITE STORMWATER SHOULD BE MANAGED SEPARATELY FROM STORMWATER GENERATED ON THE SITE.
- AT THE TOP OF SLOPES, COLLECT DRAINAGE IN PIPE SLOPE DRAINS OR PROTECTED CHANNELS TO PREVENT EROSION.
- TEMPORARY PIPE SLOPE DRAINS MUST HANDLE THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR AND 1-HOUR FLOW RATE PREDICTED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDROLOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.
- PLACE EXCAVATED MATERIAL ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.
- PLACE CHECK DAMS AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.
- **BMP C120: TEMPORARY AND PERMANENT SEEDING**
- **BMP C130: SURFACE ROUGHENING**

ELEMENT 7: PROTECT DRAIN INLETS

- PROTECT ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SO THAT STORMWATER RUNOFF SHALL NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.
- CLEAN OR REMOVE AND REPLACE INLET PROTECTION DEVICES WHEN SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE (UNLESS A DIFFERENT STANDARD IS SPECIFIED BY THE PRODUCT MANUFACTURER).
- **BMP C220: STORM DRAIN INLET PROTECTION**

ELEMENT 8: STABILIZE CHANNELS AND OUTLETS

- DESIGN, CONSTRUCT, AND STABILIZE ALL ON-SITE CONVEYANCE CHANNELS TO PREVENT EROSION FROM THE FOLLOWING EXPECTED PEAK FLOWS:
 - CHANNELS MUST HANDLE THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR, 1-HOUR FLOW RATE INDICATED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDROLOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.
- PROVIDE STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES AND DOWNSTREAM REACHES AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.
- **BMP C209: OUTLET PROTECTION**

ELEMENT 9: CONTROL POLLUTANTS

- DESIGN, INSTALL, IMPLEMENT AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS.
- HANDLE AND DISPOSE OF ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ON-SITE IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.
- PROVIDE COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ON-SITE FUELING TANKS MUST INCLUDE SECONDARY CONTAINMENT. SECONDARY CONTAINMENT MEANS PLACING TANKS OR CONTAINERS WITHIN AN IMPERVIOUS STRUCTURE CAPABLE OF CONTAINING 110% OF THE VOLUME CONTAINED IN THE LARGEST TAKE WITHIN THE CONTAINMENT STRUCTURE. DOUBLE-WALLED TANKS DO NOT REQUIRE ADDITIONAL SECONDARY CONTAINMENT.
- CONDUCT MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES USING SPILL PREVENTION AND CONTROL MEASURES. CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.
- DISCHARGE WHEEL WASH OR TIRE BATH WASTEWATER TO A SEPARATE ON-SITE TREATMENT SYSTEM THAT PREVENTS DISCHARGE TO SURFACE WATER, SUCH AS CLOSED-LOOP RECIRCULATION OR UPLAND APPLICATION, OR TO THE SANITARY SEWER, WITH LOCAL SEWER DISTRICT APPROVAL.
- APPLY FERTILIZERS AND PESTICIDES IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. FOLLOW MANUFACTURERS' LABEL REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES.
- USE BMPs TO PREVENT CONTAMINATION OF STORMWATER RUNOFF BY PH MODIFYING SOURCES. THE SOURCES FOR THIS CONTAMINATION INCLUDE, BUT ARE NOT LIMITED TO: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, DEWATERING CONCRETE VAULTS, CONCRETE PUMPING AND MIXER WASHOUT WATERS.
- ADJUST THE PH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.
- ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF-SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCKS ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. DO NOT DUMP EXCESS CONCRETE ON-SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE WASHOUT OR CONCRETE DISCHARGE TO SURFACE WATERS OF THE STATE IS PROHIBITED.
- OBTAIN WRITTEN APPROVAL FROM ECOLOGY BEFORE USING CHEMICAL TREATMENT OTHER THAN CO2 OR DRY ICE TO ADJUST PH.
- **BMP C151: CONCRETE HANDLING**
- **BMP C154: CONCRETE WASHOUT**

ELEMENT 10: CONTROL DE-WATERING

- DISCHARGE FOUNDATION, VAULT, AND TRENCH DE-WATERING WATER, WHICH HAS SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, INTO A CONTROLLED CONVEYANCE SYSTEM BEFORE DISCHARGE TO A SEDIMENT TRAP OR SEDIMENT POND.
- DISCHARGE CLEAN, NON-TURBID DE-WATERING WATER, SUCH AS WELL-POINT GROUND WATER, TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT #8, PROVIDED THE DE-WATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. DO NOT ROUTE CLEAN DEWATERING WATER THROUGH STORMWATER SEDIMENT PONDS. NOTE THAT SURFACE WATERS OF THE STATEDMAY EXIST ON A CONSTRUCTION SITE AS WELL AS OFF SITE, FOR EXAMPLE, A CREEK RUNNING THROUGH A SITE.
- HANDLE HIGHLY TURBID OR OTHERWISE CONTAMINATED DEWATERING WATER SEPARATELY FROM STORMWATER.
- OTHER TREATMENT OR DISPOSAL OPTIONS MAY INCLUDE:
 - 1. INFILTRATION.
 - 2. TRANSPORT OFF-SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.
 - 3. ECOLOGY-APPROVED ON-SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.
 - 4. SANITARY OR COMBINED SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.
 - 5. USE OF A SEDIMENTATION BAG THAT DISCHARGES TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

CONTRACTOR TO UTILIZE APPROPRIATE BMPs FROM THE 2012 SWMMWW IF DE-WATERING IS NEEDED

ELEMENT 11: MAINTAIN BMPs

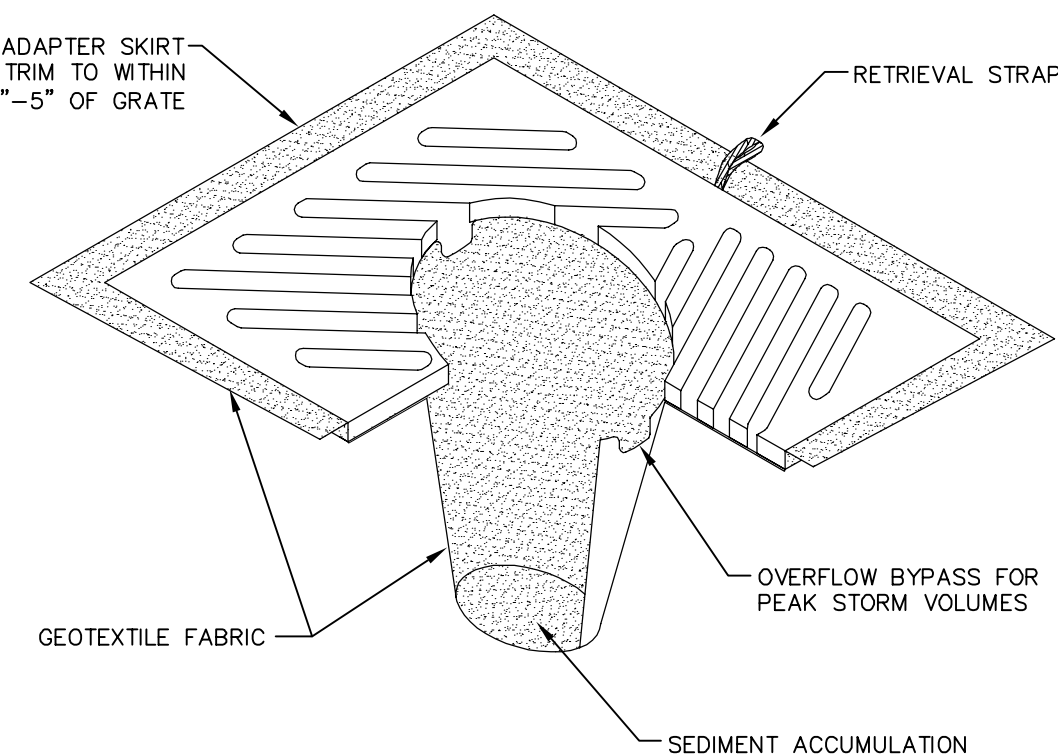
- MAINTAIN AND REPAIR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPs AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION IN ACCORDANCE WITH BMP SPECIFICATIONS.
- REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS AFTER ACHIEVING FINAL SITE STABILIZATION OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED.
- **BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD**

ELEMENT 12: MANAGE THE PROJECT

- PHASE DEVELOPMENT PROJECTS TO THE MAXIMUM DEGREE PRACTICABLE AND TAKE INTO ACCOUNT SEASONAL WORK LIMITATIONS.
- INSPECTION AND MONITORING – INSPECT, MAINTAIN AND REPAIR ALL BMPs AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. PROJECTS REGULATED UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT MUST CONDUCT SITE INSPECTIONS AND MONITORING IN ACCORDANCE WITH SPECIAL CONDITION S4 OF THE CONSTRUCTION STORMWATER GENERAL PERMIT.
- MAINTAINING AN UPDATED CONSTRUCTION SWPPP – MAINTAIN, UPDATE, AND IMPLEMENT THE SWPPP.
- PROJECTS THAT DISTURB ONE OR MORE ACRES MUST HAVE SITE INSPECTIONS CONDUCTED BY A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). PROJECT SITES DISTURBING LESS THAN ONE ACRE MAY HAVE A CESCL OR A PERSON WITHOUT CESCL CERTIFICATION CONDUCT INSPECTIONS. BY THE INITIATION OF CONSTRUCTION, THE SWPPP MUST IDENTIFY THE CESCL OR INSPECTOR, WHO MUST BE PRESENT ON-SITE OR ON-CALL AT ALL TIMES.
- THE CESCL OR INSPECTOR (PROJECT SITES LESS THAN ONE ACRE) MUST HAVE THE SKILLS TO ASSESS THE:
 - SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER.
 - EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
- THE CESCL OR INSPECTOR MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. THEY MUST EVALUATE THE EFFECTIVENESS OF BMPs AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPs TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES. BASED ON THE RESULTS OF THE INSPECTION, CONSTRUCTION SITE OPERATORS MUST CORRECT THE PROBLEMS IDENTIFIED BY:
 - REVIEWING THE SWPPP FOR COMPLIANCE WITH THE 13 CONSTRUCTION SWPPP ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
 - IMMEDIATELY BEGINNING THE PROCESS OF FULLY IMPLEMENTING AND MAINTAINING APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPs AS SOON AS POSSIBLE, ADDRESSING THE PROBLEMS NOT LATER THAN WITHIN 10 DAYS OF THE INSPECTION. IF INSTALLATION OF NECESSARY TREATMENT BMPs IS NOT FEASIBLE WITHIN 10 DAYS, THE CONSTRUCTION SITE OPERATOR MAY REQUEST AN EXTENSION WITHIN THE INITIAL 10-DAY RESPONSE PERIOD.
 - DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK (SITES LARGER THAN 1 ACRE).
- THE CESCL OR INSPECTOR MUST INSPECT ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. ALL BMPs, AND ALL STORMWATER DISCHARGE POINTS AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THE SITE. (FOR PURPOSES OF THIS CONDITION, INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS. FOR EXAMPLE, IF A STORMWATER POND DISCHARGES CONTINUOUSLY OVER THE COURSE OF A WEEK, ONLY ONE INSPECTION IS REQUIRED THAT WEEK.) THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH.
- **BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD**

ELEMENT 13: PROTECT LOW IMPACT DEVELOPMENT BMPs

- NOT APPLICABLE



- NOTES:
1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING & GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
 2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
 3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, & RE-INSERTING IT INTO THE CATCH BASIN.

INLET PROTECTION
NTS

SUBMITTED WITH
DESIGN PLAN

DESIGNED BY
ARS
DRAWN BY
PJC
CHECKED BY
LP



Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Wooley, WA 98284 (360) 855-1713

NO.

DATE

DESCRIPTION

BY

CITY OF FERNDALE
2095 MAIN ST
FERNDALE, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
TESC DETAILS

DWG 16026 DETAILS

JOB#

16026

SCALE

H: N/A

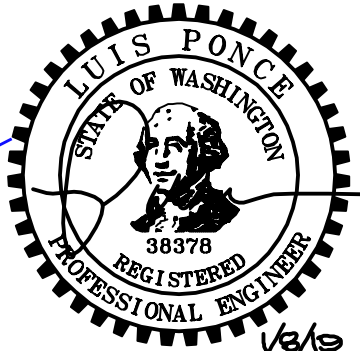
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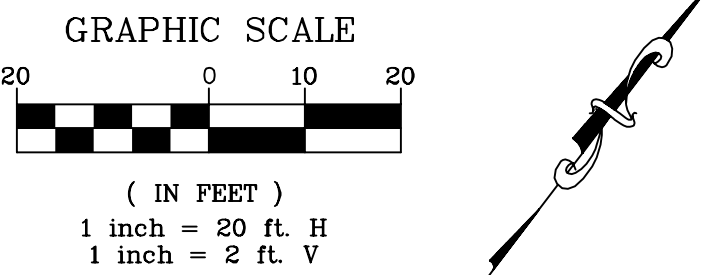
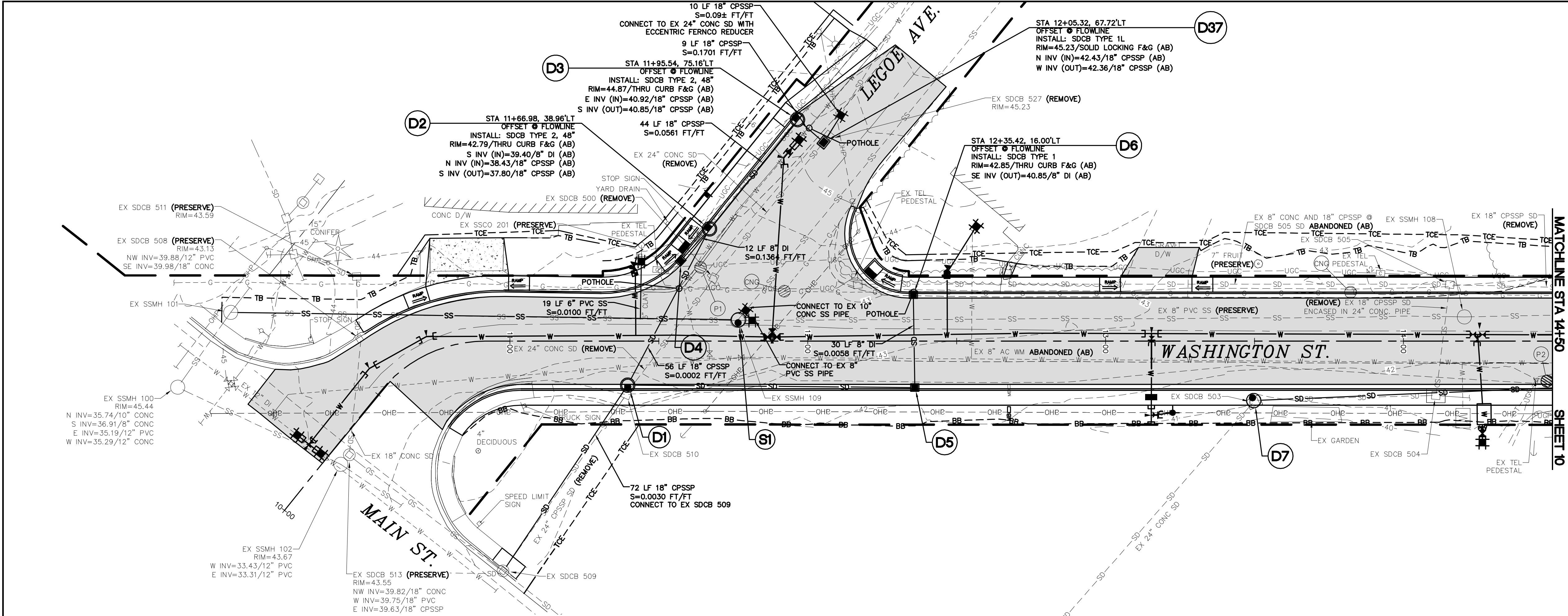
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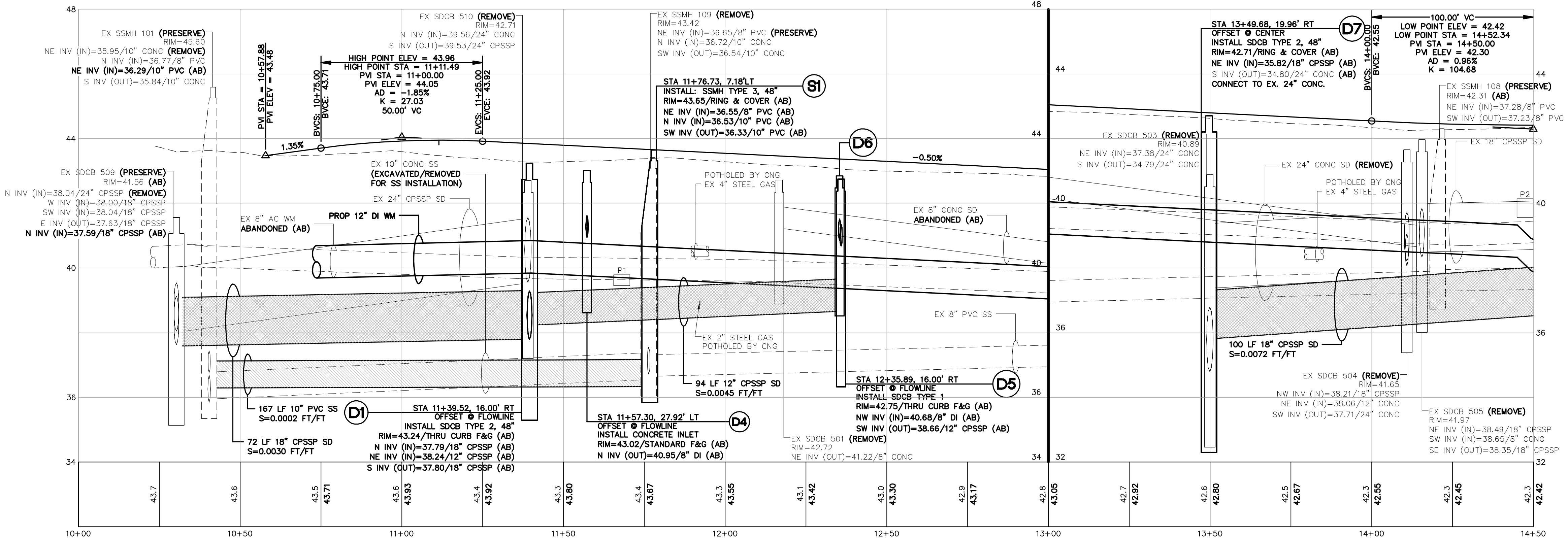




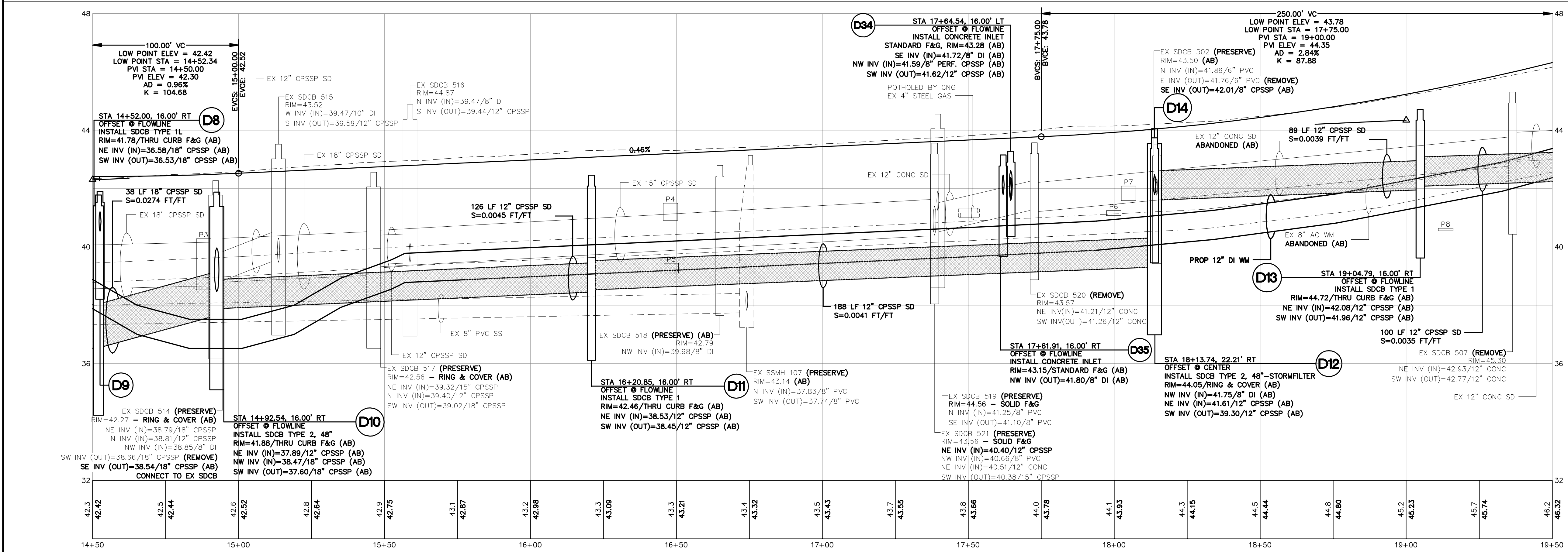
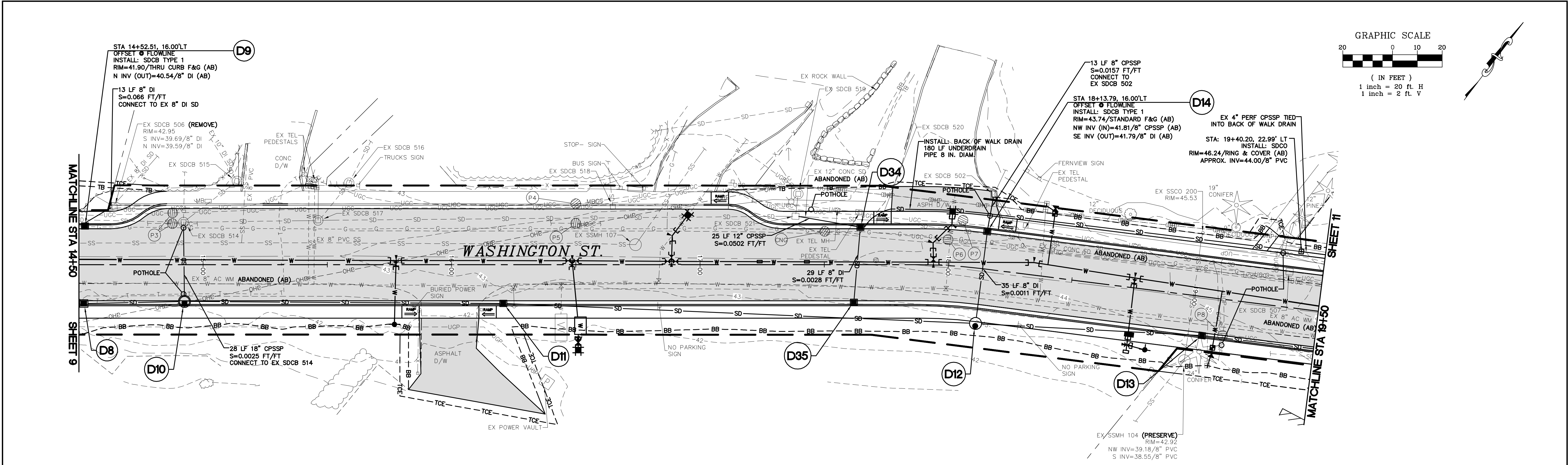
POTHOLES		
#	DESCRIPTION	OWNER
P1	(4) 4" PVC - 3.4'± TO TOP	FTR
P2	(1) 2" PVC - 2.2'± TO TOP	FTR
	(1) 1" DB - 1.8'± TO TOP	

NOTE:
POT HOLE DATA IS FOR INFORMATIONAL PURPOSES ONLY. POT HOLE DATA IS FROM FIELD MEASUREMENTS PROVIDED BY APPLIED PROFESSIONAL SERVICES, INC. ON 5/1/2017 AND ARE NOT SURVEYED, THIS INFORMATION MAY NOT BE ENTIRELY ACCURATE OR COMPLETE.

- = UTILITY POTHOLED LOCATION
- = CONNECT TO EXISTING



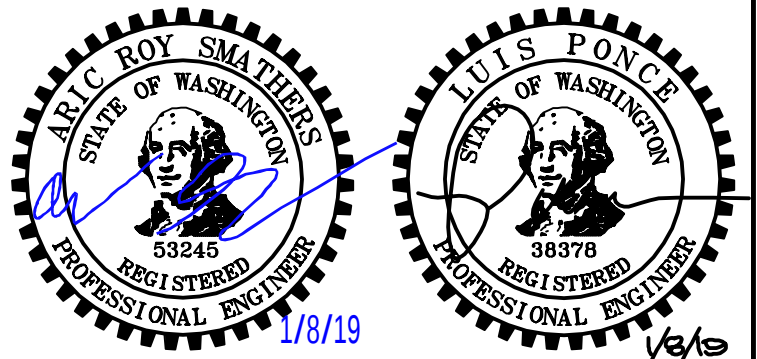
1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERDALE 2095 MAIN ST FERDALE, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE STORM AND SEWER P+P STA 10+00 TO 14+50	DWG 16026 SEWER STORM PP		DATE 1/8/2019
	DRAWN BY PJC								JOB# 16026	SCALE H: 1"=20' V: 1"=2'	SHEET 9
	CHECKED BY LP										of 38



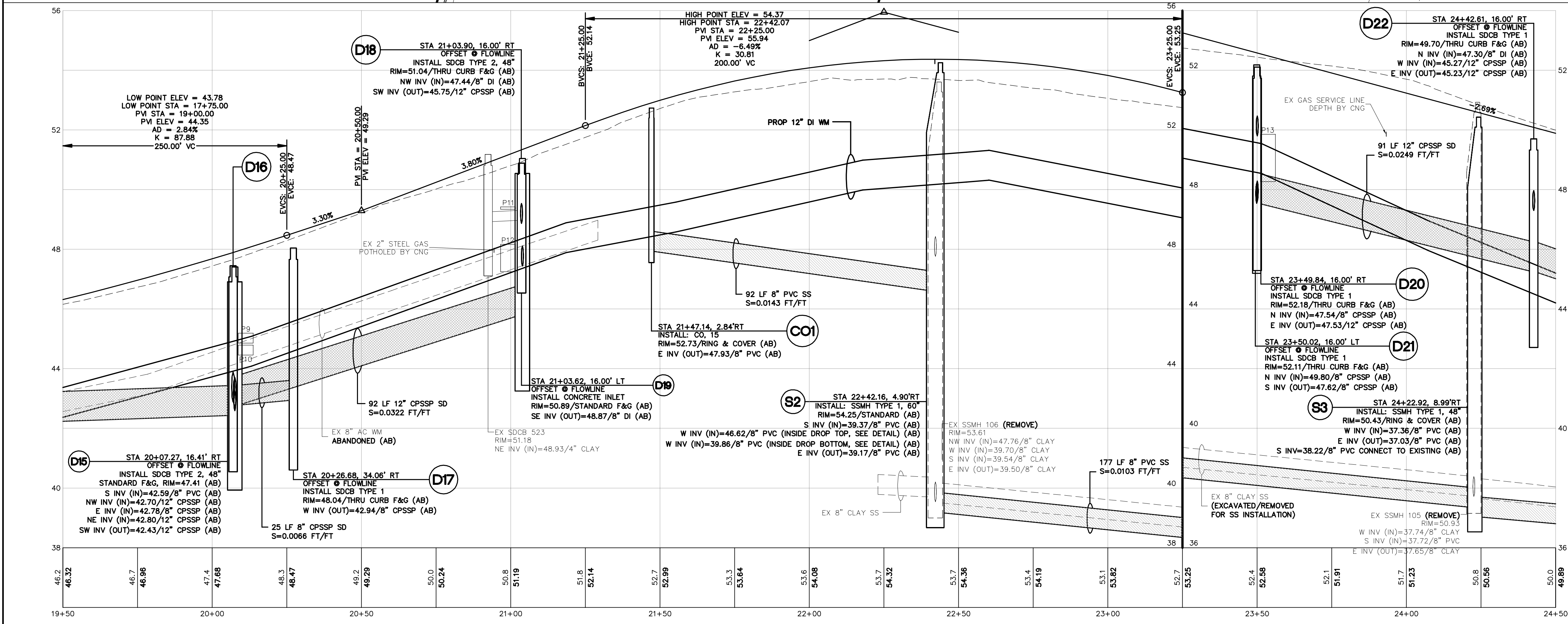
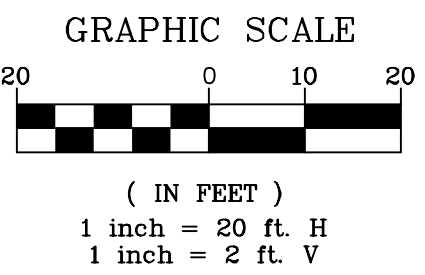
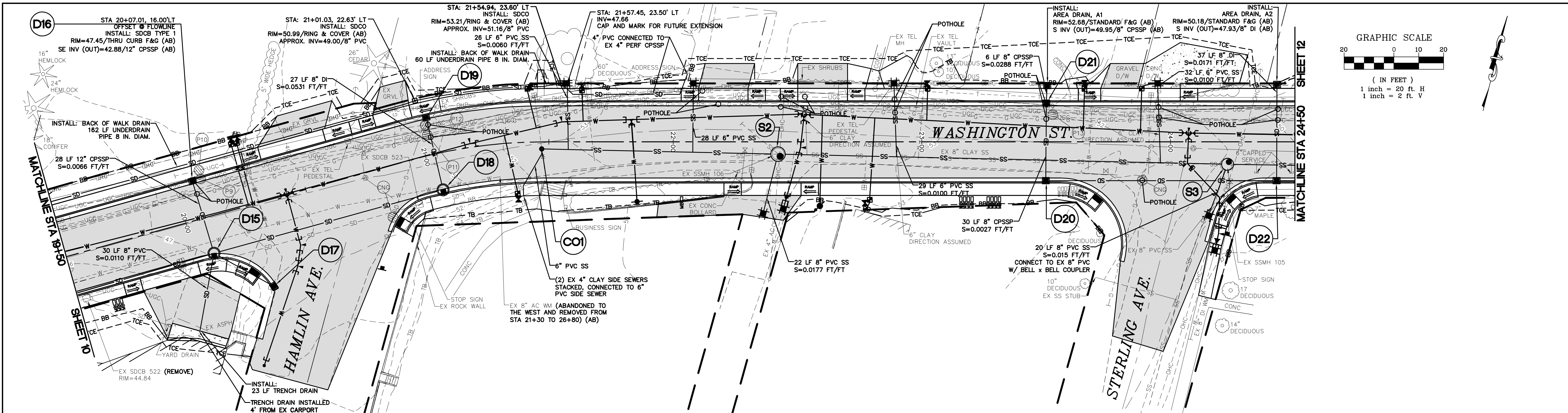
POTHOLES		
#	DESCRIPTION	OWNER
P3	(1) 4" DB - 3.3'± TO TOP	FTR
	(1) 4" PVC - 1.8'± TO TOP	
P4	(1) 2" PVC - 2.2'± TO TOP	FTR
	(1) 4" PVC - 1.8'± TO TOP	
P5	(1) 4" DB - 3.0'± TO TOP	FTR
P6	(1) 2" DB - 2.7'± TO TOP	FTR
P7	(1) 4" PVC - 1.7'± TO TOP	FTR
P8	(1) 4" PE - 1.8'± TO TOP	PSE
	(1) 1" PVC - 4.0'± TO TOP	

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✚ = CONNECT TO EXISTING



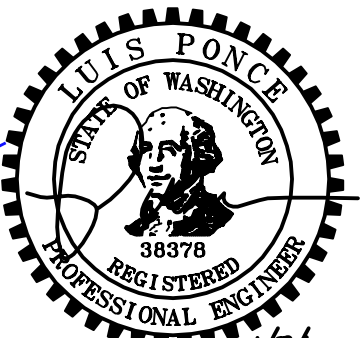
1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERDALE 2095 MAIN ST FERDALE, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE STORM AND SEWER P+P STA 14+50 TO 19+50	DWG 16026 SEWER STORM PP		DATE 1/8/2019
	DRAWN BY PJC								CHECKED BY LP	JOB# 16026	SCALE H: 1"=20' V: 1"=2'

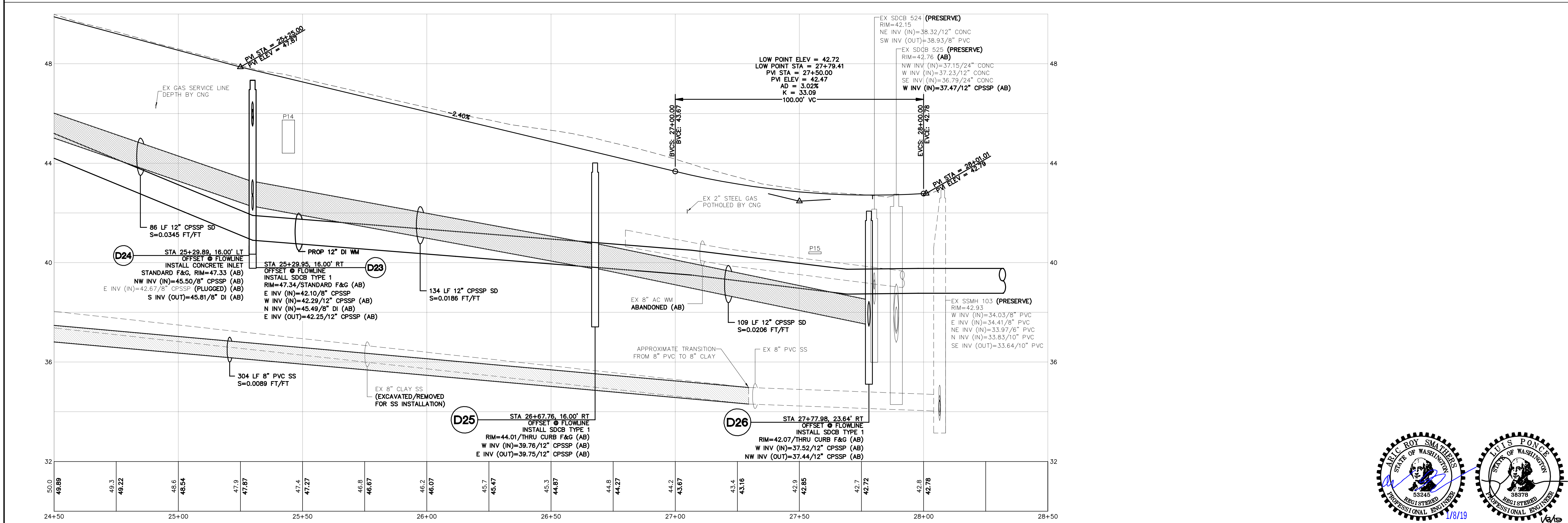
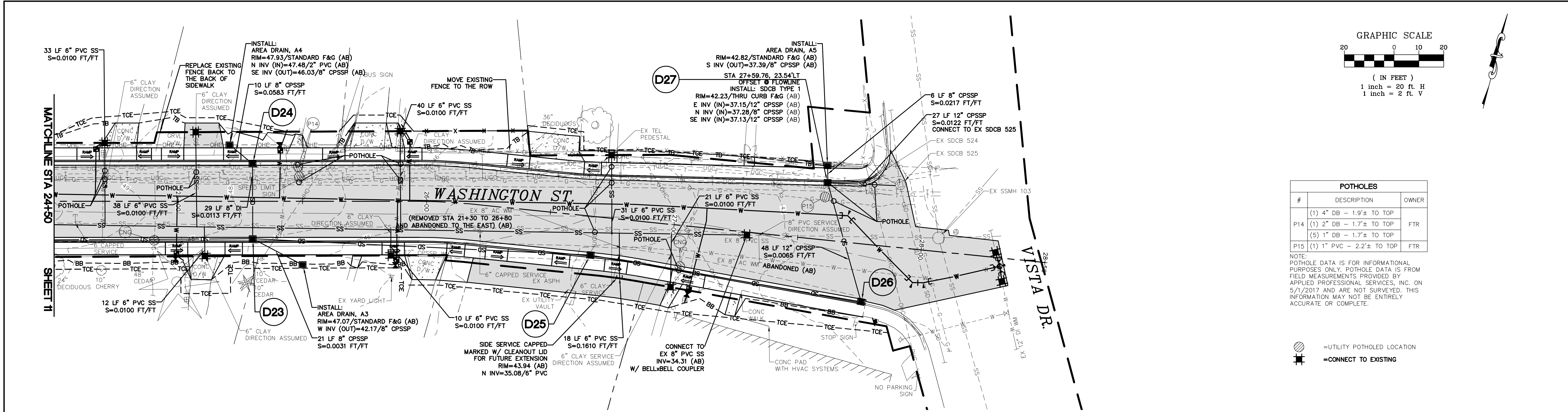


POTHOLES		
#	DESCRIPTION	OWNER
P9	(1) 4" DB - 2.3'± TO TOP	FTR
P10	(3) 4" PVC - 2.8'± TO TOP	FTR
P11	(1) 0.5" DB - 1.3'± TO TOP	FTR
P12	(4) 4" PVC - 2.5'± TO TOP	FTR
P13	(1) 4" DB - 2.2'± TO TOP	FTR
	(1) 13" CDF DUCT - 2.7'± TO TOP	FTR

NOTE:
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⊗ = UTILITY POTHOLE LOCATION
⊕ = CONNECT TO EXISTING





1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE STORM AND SEWER P+P STA 24+50 TO 28+50	DWG 16026 SEWER STORM PP		DATE 1/8/2019
	DRAWN BY PJC								CHECKED BY LP	JOB# 16026	SCALE H: 1"=20' V: 1"=2'



* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB[®] (PSORB) MEDIA ONLY


$$\begin{pmatrix} AB \\ AB \\ AB \end{pmatrix}$$

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 ENGINEERED 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. CONTRACTOR SHALL MEET AASHTO H=25-40 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANNING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

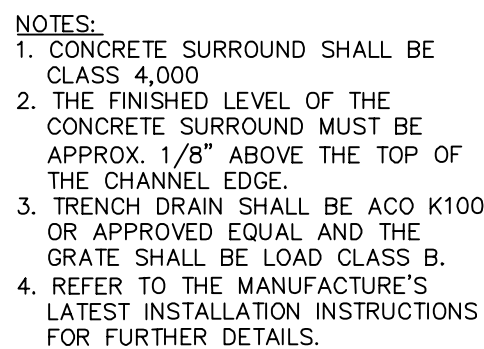
INSTALLATION NOTES

- 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 (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE 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 HDPE OUTLET STUB AND SAND CLOSURE. IF OUTLET PIPE IS LARGER THAN 8 INCHES, CONTRACTOR TO REMOVE THE 8 INCH 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.

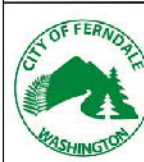
NTS



NTS



NTS



APPROVED

Public Works Director

8/11/17
Date

APRIL 18, 2017

**SANITARY SEWER SERVICE
DEEP MAIN CONNECTION
STANDARD DETAIL SS-8
NOT TO SCALE**

NOT

NOTES:

ALL FRAMES, COVERS AND VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADE AFTER THE FINAL LIFT OF PAVING HAS BEEN COMPLETED. THE FOLLOWING PROCEDURE SHALL BE USED:

1. CUT THE ASPHALT IN A DIAMOND AROUND THE STRUCTURE CASTING TO BE ADJUSTED.
2. REMOVE THE FILL MATERIAL WITHIN THE CUT PAVEMENT AREA TO 8 INCHES MIN. BELOW FINISH GRADE.
3. PLACE THE CASTING AT FINISH GRADE.
4. PLACE PORTLAND CEMENT CONCRETE TO WITHIN THE TOP 2 INCHES OF FINISH GRADE.
5. APPLY TACK TO THE STRUCTURE CASTING, CUT PAVEMENT, AND PC CONCRETE.
6. PLACE AND COMPACT 2 INCHES OF COMMERCIAL HMA TO FINISH GRADE.
7. SEAL PAVEMENT JOINTS WITH HOT ASPHALT JOINT SEALER AND TOP WITH SAND.



11/8/19

AS-BUILT

DESIGNED BY	ARS
DRAWN BY	PJC
CHECKED BY	LP



R&E Reichhardt & Ebe
ENGINEERING INC

P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN ST
FERNDALE, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
SANITARY SEWER DETAILS

DWG 16026 DETAILS S

JOB#

SCALE
H: **N/A**

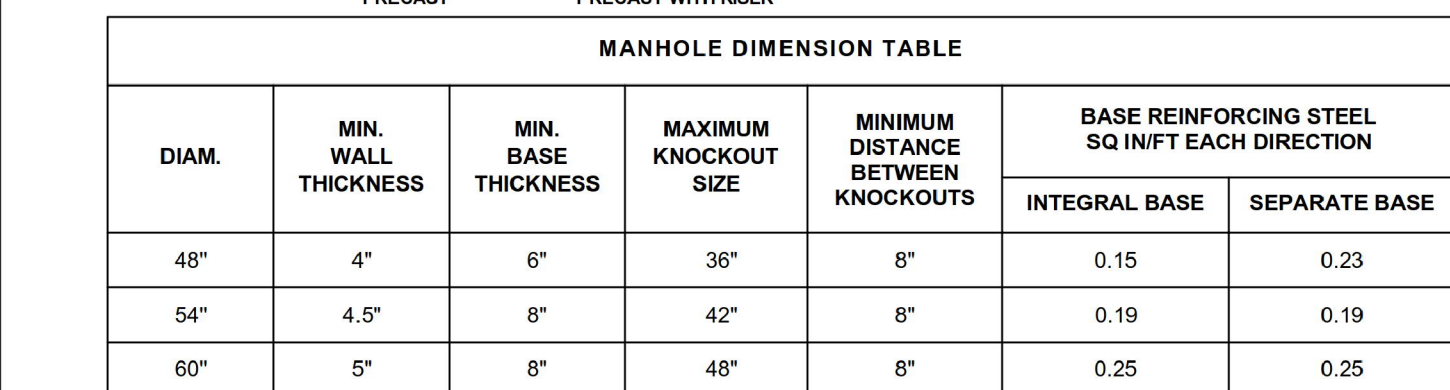
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DATE _____

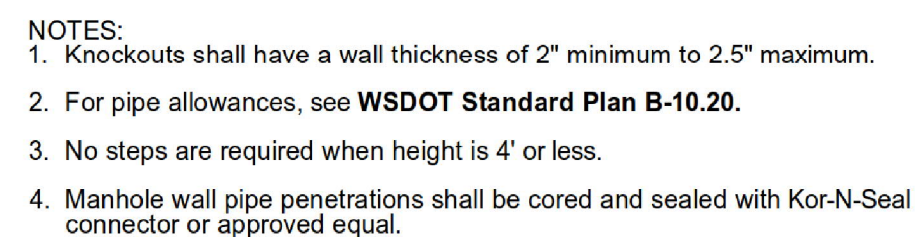
1/8/2019

12

13
of 26

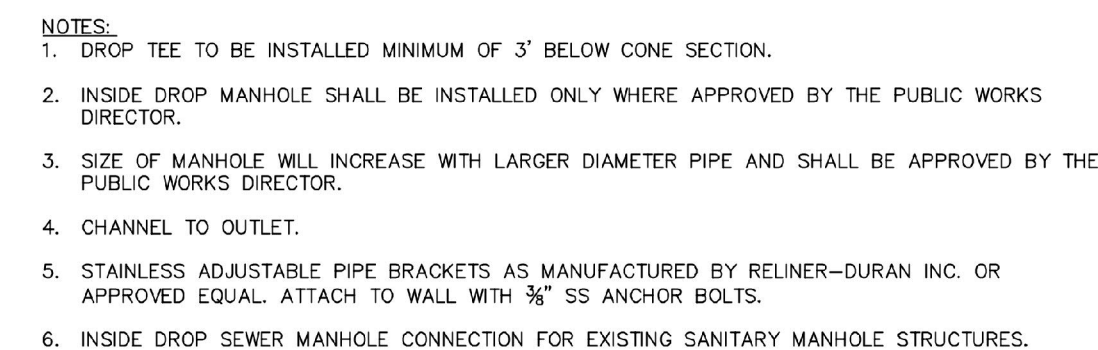


	APPROVED		SANITARY SEWER MANHOLE TYPE 1 STANDARD DETAIL SS- NOT TO SCALE
	 _____ Public Works Director	8/11/17 _____ Date	



MANHOLE DIMENSION TABLE				
DIAM.	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	42"	12"
144"	12"	12"	108"	12"

**SANITARY SEWER
MANHOLE TYPE 3
STANDARD DETAIL SS-4**
NOT TO SCALE

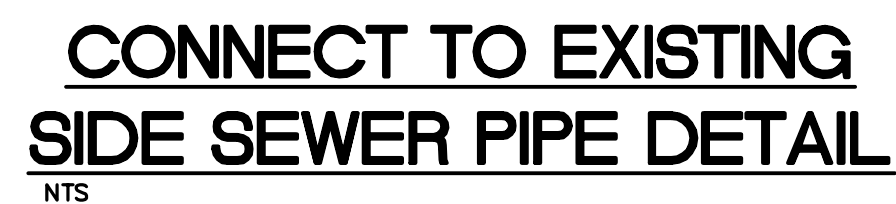


	APPROVED	
	 _____ Public Works Director	8/11/17 _____ Date

**INSIDE DROP SEWER
MANHOLE CONNECTION**

STANDARD DETAIL SS-13

NOT TO SCALE



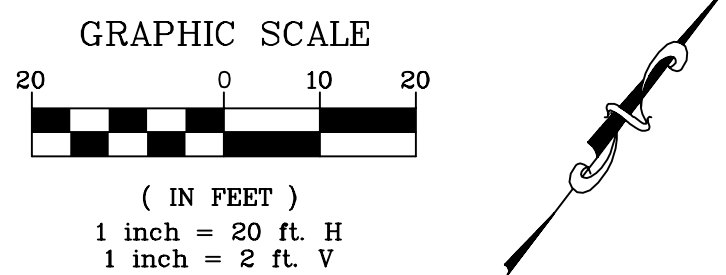
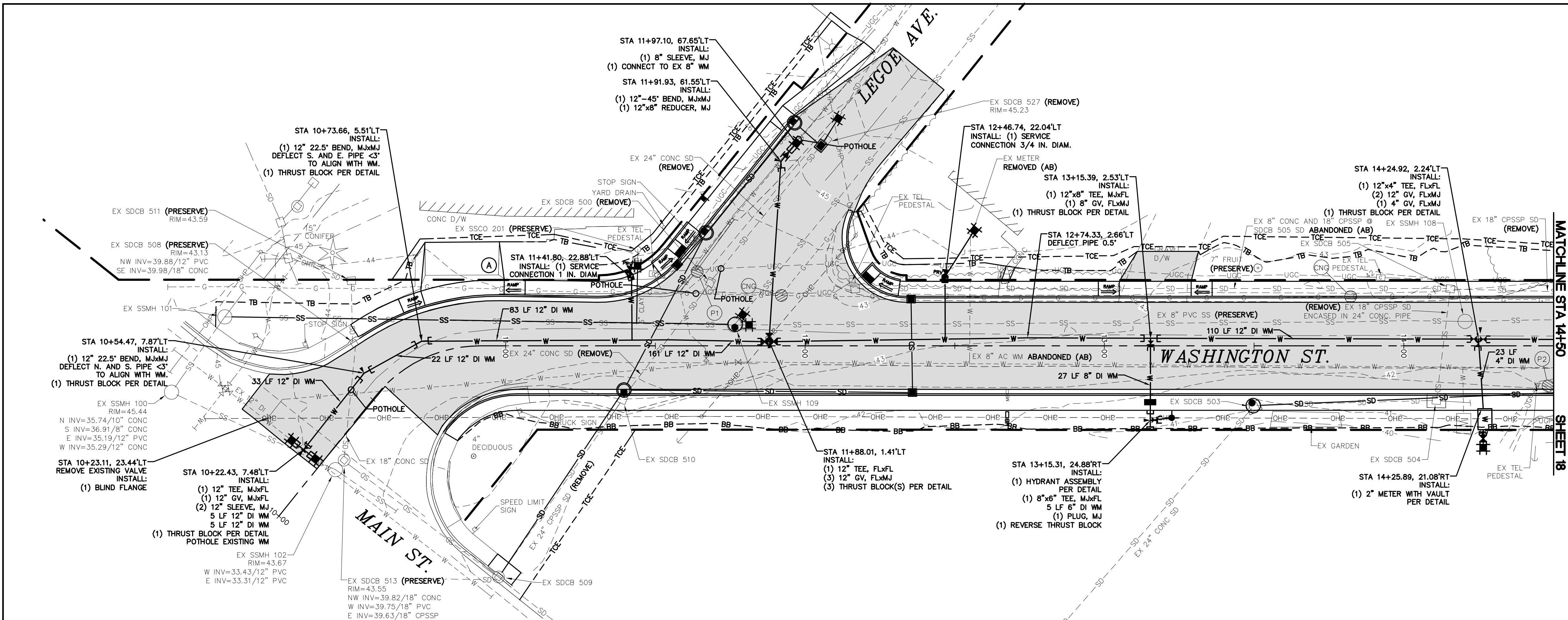
DESIGNED BY	ARS
DRAWN BY	PJC
CHECKED BY	LP

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813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

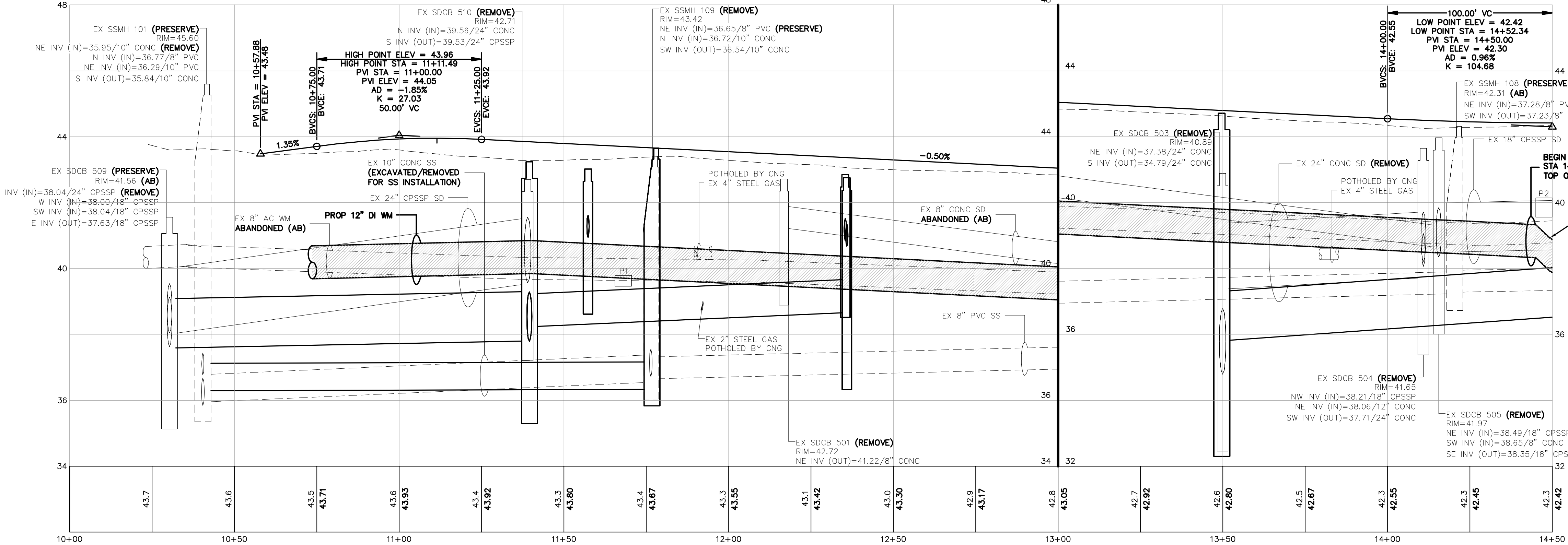
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
SANITARY SEWER DETAILS

SCALE

SHEET 14 of 38



WATER SERVICE CONNECTION NOTES:
A INSTALL 3/4 IN DIAMETER METER SETTER, SEE DETAIL

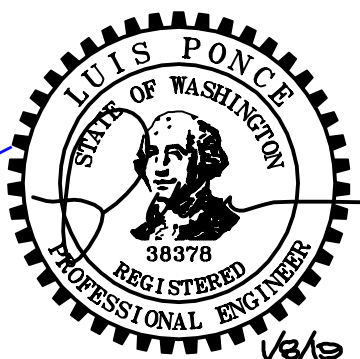


POTHOLES		
#	DESCRIPTION	OWNER
P1	(4) 4" PVC - 3.4'± TO TOP	FTR
P2	(1) 2" PVC - 2.2'± TO TOP	FTR
	(1) 1" DB - 1.8'± TO TOP	

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UTILITY POTHOLED LOCATION

VERTICAL DEFLECTION NOTES:
1 STATION 14+49.25, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=38.92



1/8/19 AS-BUILT

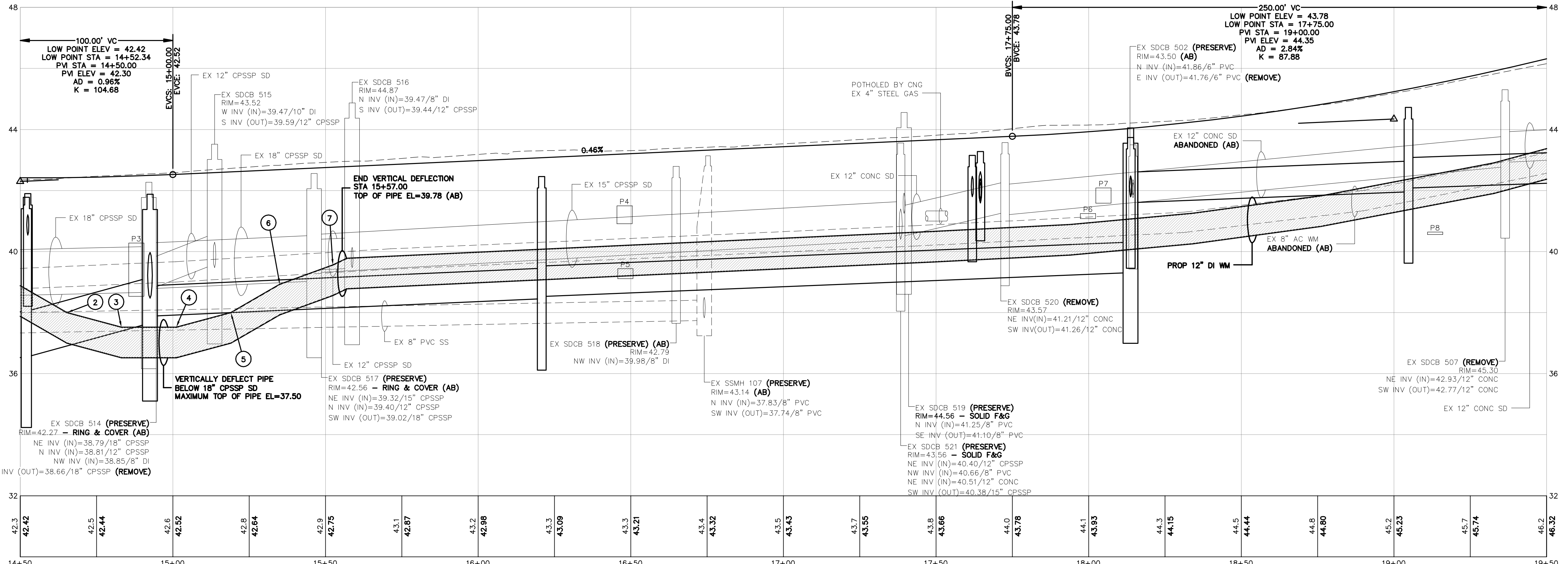
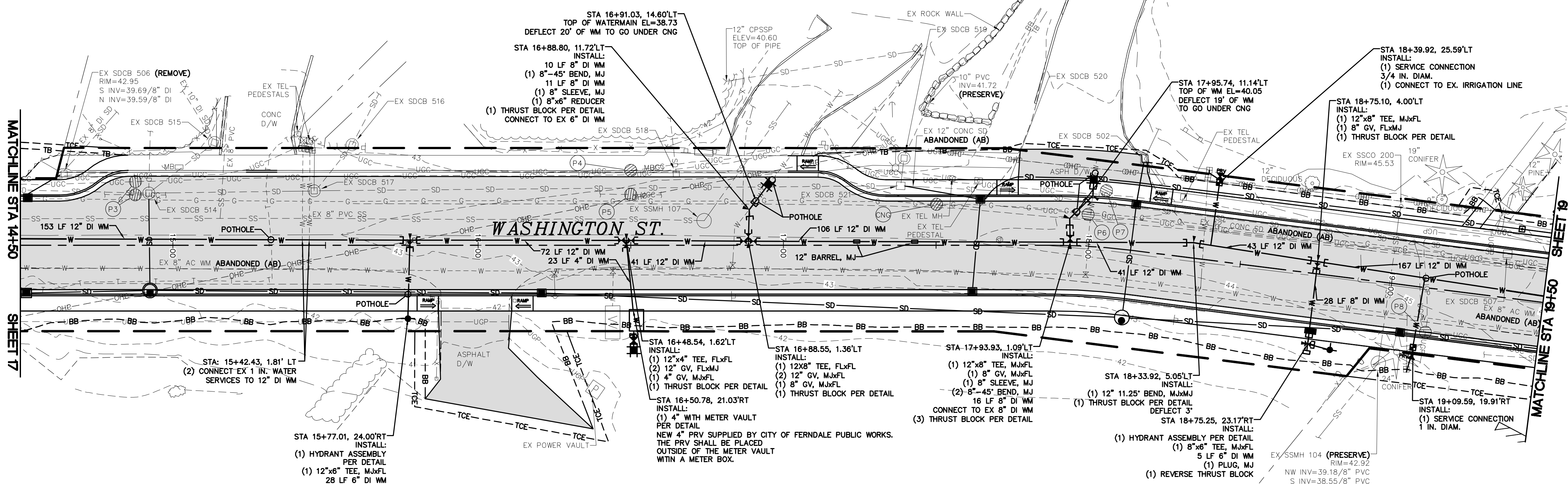
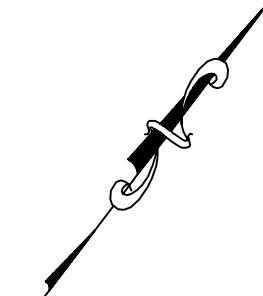
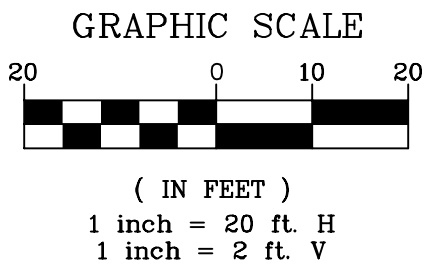
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ARS
DRAWN BY
PJC
CHECKED BY
LP
R&E Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
WATER P+P - STA 10+00 TO 14+50

DWG 16026 WATER PP	DATE 1/8/2019
JOB# 16026	SCALE H: 1"=20' V: 1"=2'
SHEET 17 of 38	

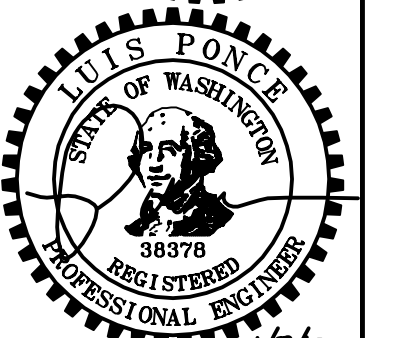
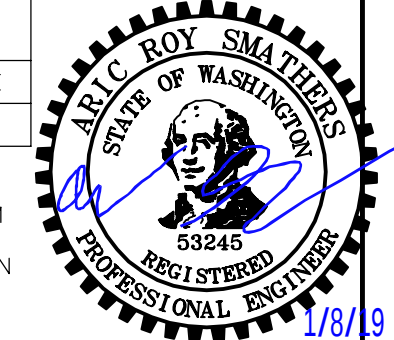


- VERTICAL DEFLECTION NOTES:**
- ② STATION 14+65.27, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=38.00
 - ③ STATION 14+83.14, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=37.52
 - ④ STATION 15+01.14, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=37.52
 - ⑤ STATION 15+19.01, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=38.00
 - ⑥ STATION 15+35.03, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=38.92
 - ⑦ STATION 15+52.41, VERTICALLY DEFLECT PIPE TOP OF PIPE EL=39.56

POTHOLES		
#	DESCRIPTION	OWNER
P3	(1) 4" DB - 3.3'± TO TOP	FTR
	(1) 4" PVC - 1.8'± TO TOP	
	(1) 2" PVC - 2.2'± TO TOP	
P4	(1) 4" PVC - 1.8'± TO TOP	FTR
	(1) 2" PVC - 1.8'± TO TOP	
	(1) 2" PVC - 1.8'± TO TOP	
P5	(1) 4" DB - 3.0'± TO TOP	FTR
P6	(1) 2" DB - 2.7'± TO TOP	FTR
P7	(1) 4" PVC - 1.7'± TO TOP	FTR
	(1) 4" PE - 1.8'± TO TOP	
P8	(2) 1" PVC - 4.0'± TO TOP	PSE
	(1) 1" DB - 4.0'± TO TOP	

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⊙ = UTILITY POTHOLED LOCATION



1/8/19
AS-BUILT

DESIGNED BY
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LP

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ENGINEERING INC
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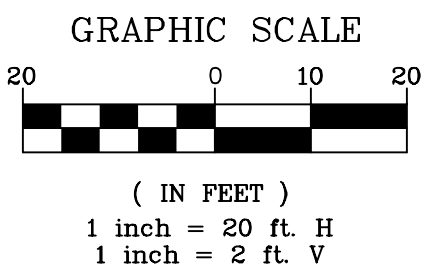
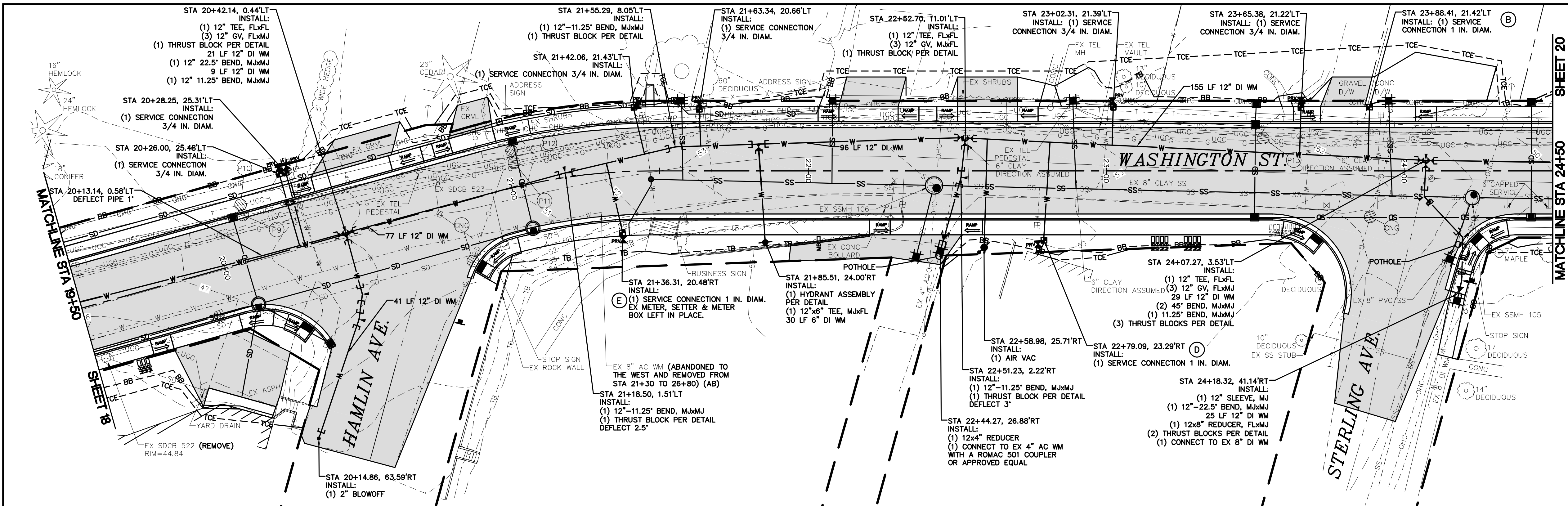
NO.	DATE	DESCRIPTION	BY

CITY OF FERDALE
2095 MAIN ST
FERDALE, WA 98248

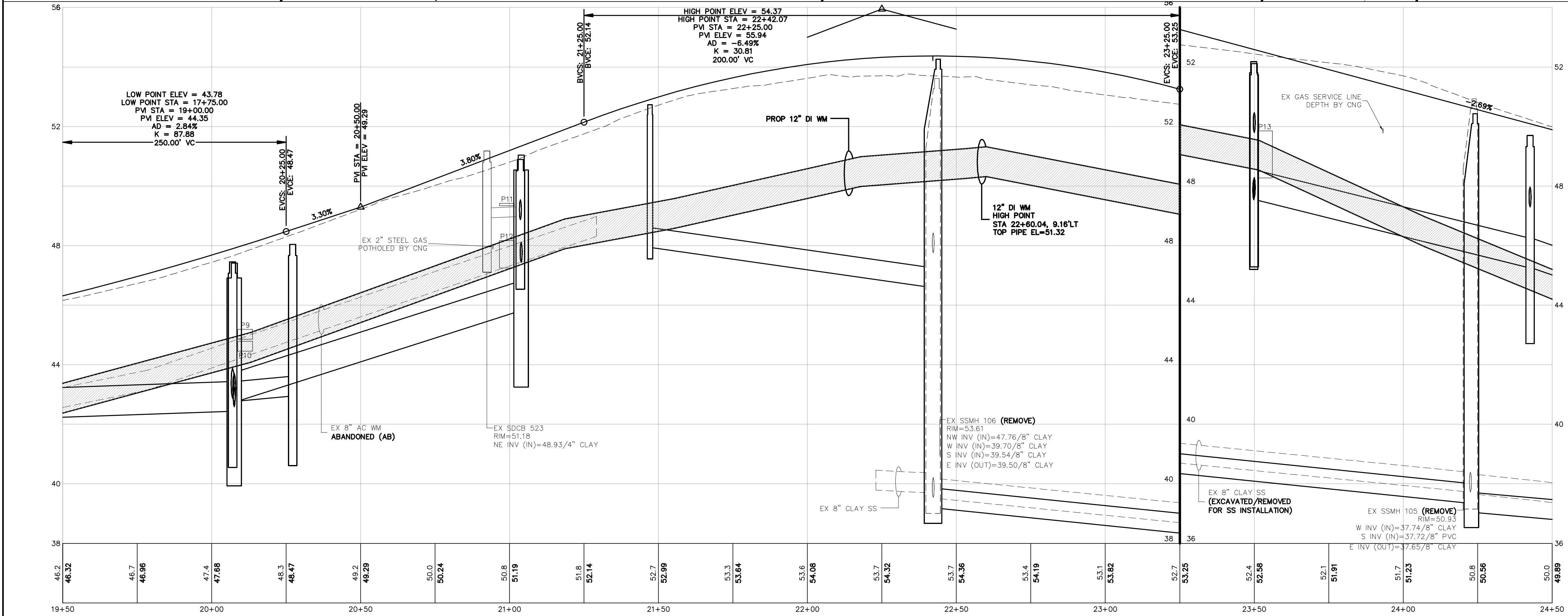
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
WATER P+P - STA 14+50 TO 19+50

DWG 16026 WATER PP
JOB# 16026
SCALE: H: 1"=20' V: 1"=2'

DATE
1/8/2019
SHEET
18
of 38



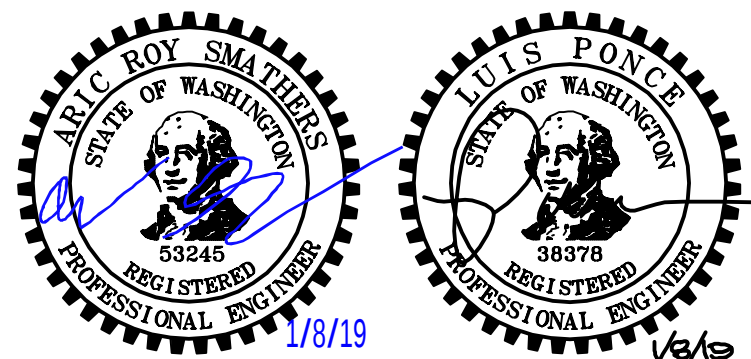
- WATER SERVICE CONNECTION NOTES:
- (B) INSTALL 3/4 IN DIAMETER METER SETTER, SEE DETAIL
 - (D) INSTALL 3/4 IN DIAMETER METER SETTER, SEE DETAIL
 - (E) INSTALL 3/4 IN DIAMETER METER SETTER, SEE DETAIL



POTHOLES		
#	DESCRIPTION	OWNER
P9	(1) 4\" DB - 2.3'± TO TOP	FTR
P10	(3) 4\" PVC - 2.8'± TO TOP	FTR
P11	(1) 0.5\" DB - 1.3'± TO TOP	FTR
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P13	(1) 4\" DB - 2.2'± TO TOP	FTR
P13	(1) 13\" CDF DUCT - 2.7'± TO TOP	FTR

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UTILITY POTHOLED LOCATION



1/8/19

AS-BUILT

DESIGNED BY
ARS

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ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

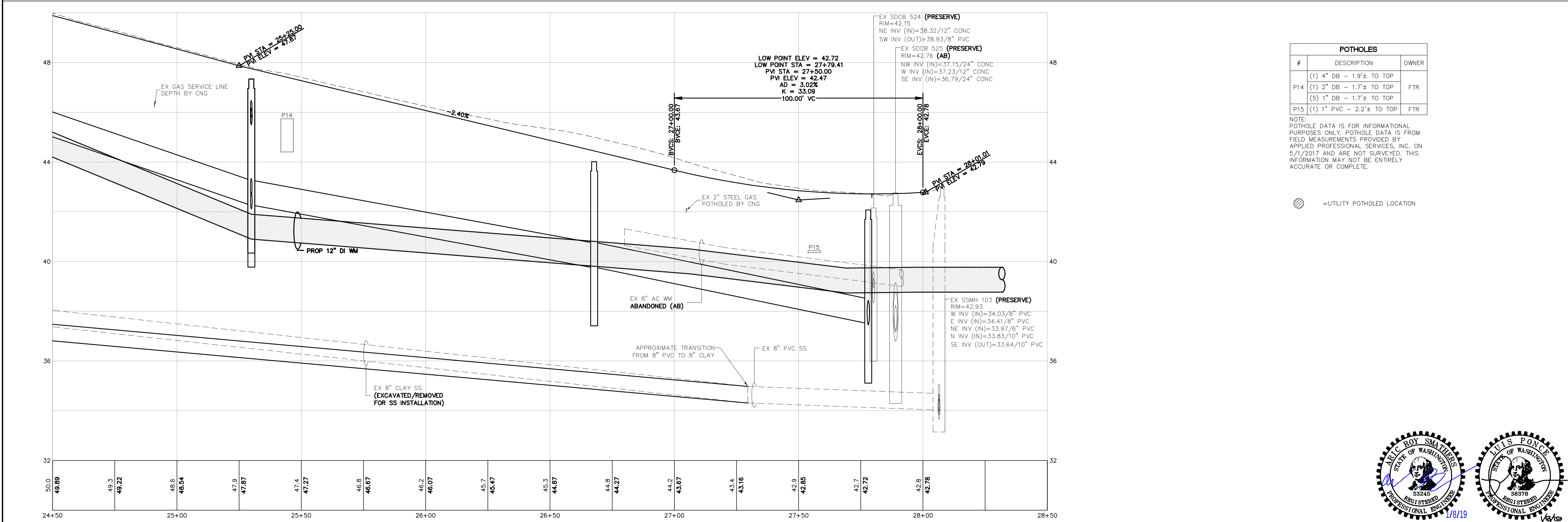
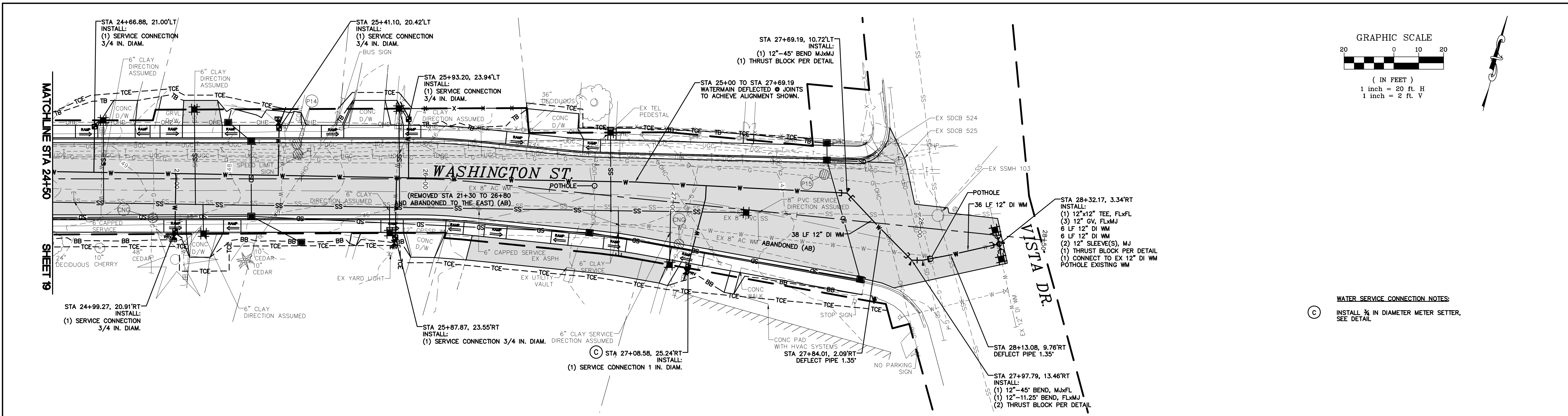
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
WATER P+P - STA 19+50 TO 24+50

DWG 16026 WATER PP

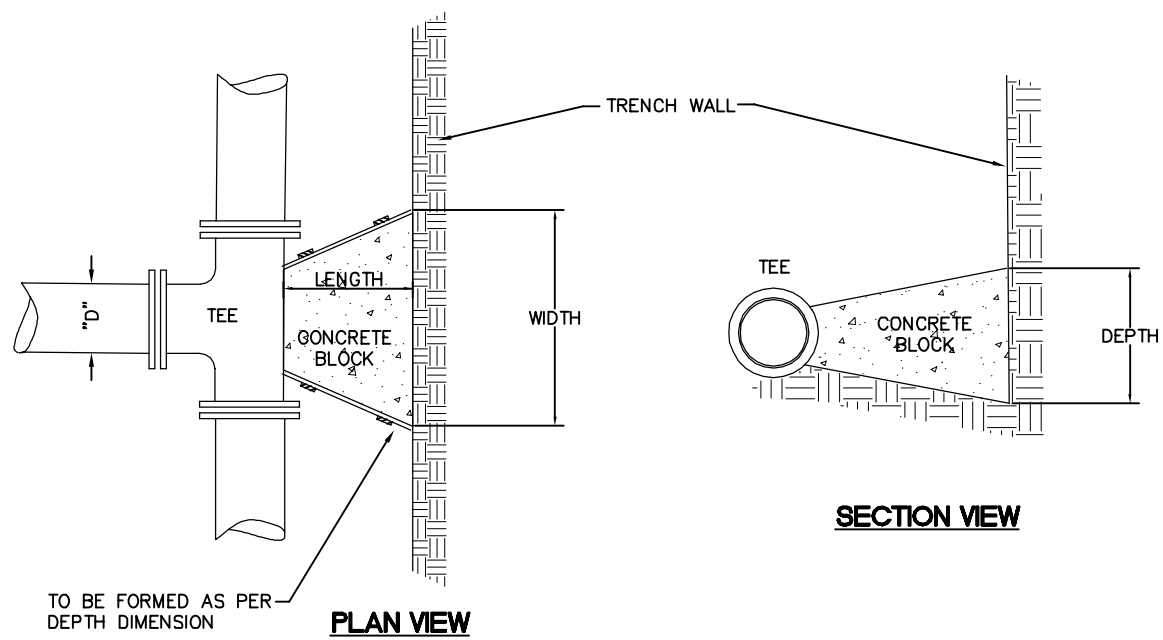
JOB# 16026

SCALE H: 1"=20' V: 1"=2'

DATE 1/8/2019
SHEET 19 of 38



1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE WATER P+P - STA 24+50 TO 28+50	DWG 16026 WATER PP		DATE 1/8/2019
	DRAWN BY PJC								CHECKED BY LP	JOB# 16026	SCALE H: 1"=20' V: 1"=2'

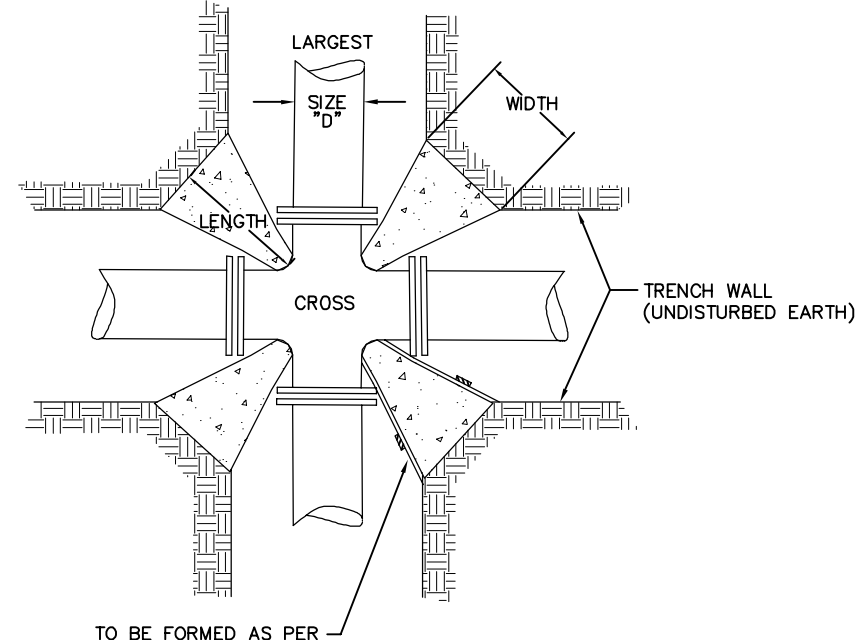


PLAN VIEW

"D"	WIDTH	DEPTH	LENGTH	VOL.
6"	1'-6"	1'-6"	12"	3.0
8"	2'-0"	2'-6"	12"	4.5
10"	2'-6"	2'-6"	12"	7.0
12"	3'-0"	3'-0"	18"	14.0

VOL. = Approx. Volume of Blocking Material Required in cu. ft.

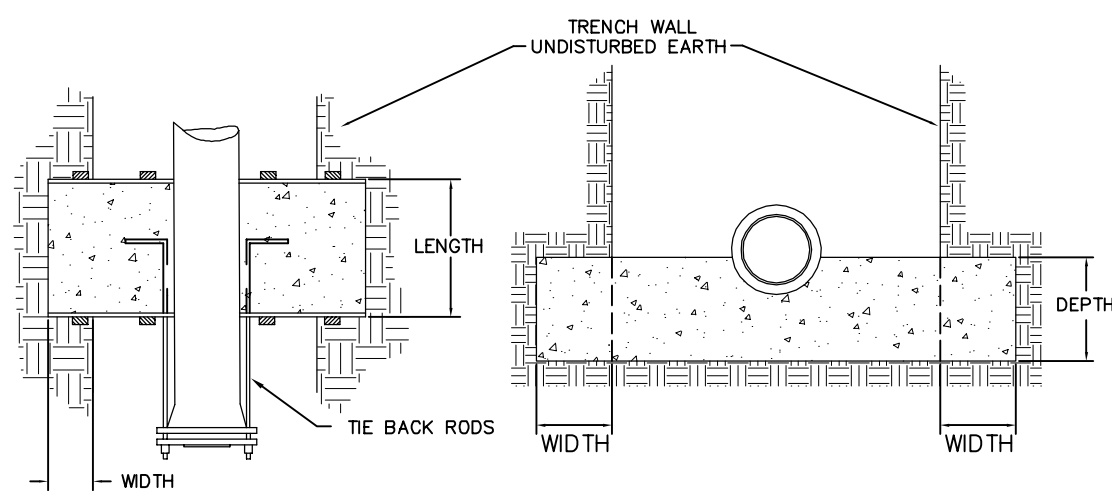
SOIL BEARING CAPACITY 1500 PSF MINIMUM
100 P.S.I. OPERATING PRESSURE



PLAN VIEW

"D"	WIDTH	DEPTH	LENGTH	VOL.	X4 blocks/joint
6"	1'-0"	1'-0"	12"	0.63	2.50 cu ft
8"	1'-3"	1'-3"	12"	1.00	4.01 cu ft
10"	1'-6"	1'-6"	12"	1.63	6.50 cu ft
12"	1'-9"	1'-9"	18"	3.05	12.19 cu ft

VOL. = Approx. Volume of Blocking Material Required in cu. ft.

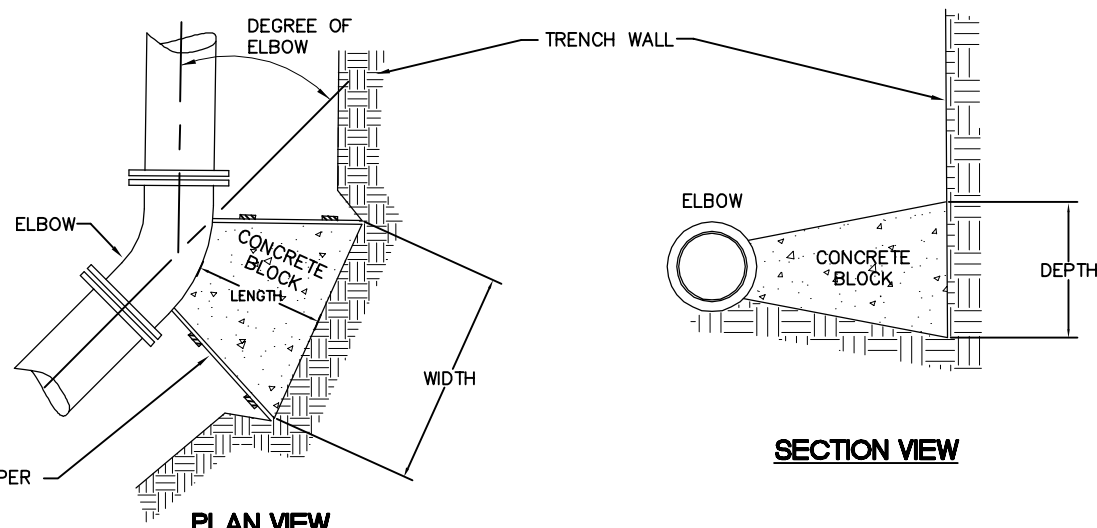


PLAN VIEW

SECTION VIEW

"D"	WIDTH	DEPTH	LENGTH	*VOL.	# OF RODS	ROD DIA.
6"	1'-6"	1'-6"	12"	7.5	2	1/2"
8"	2'-0"	2'-0"	18"	20.0	2	5/8"
10"	2'-6"	2'-6"	24"	37.5	2	3/4"
12"	2'-9"	2'-9"	24"	44.0	4	3/4"

*VOL. = Approx. Volume of Blocking Material Required in cu. ft.
RODS: A36 STEEL MINIMUM



PLAN VIEW

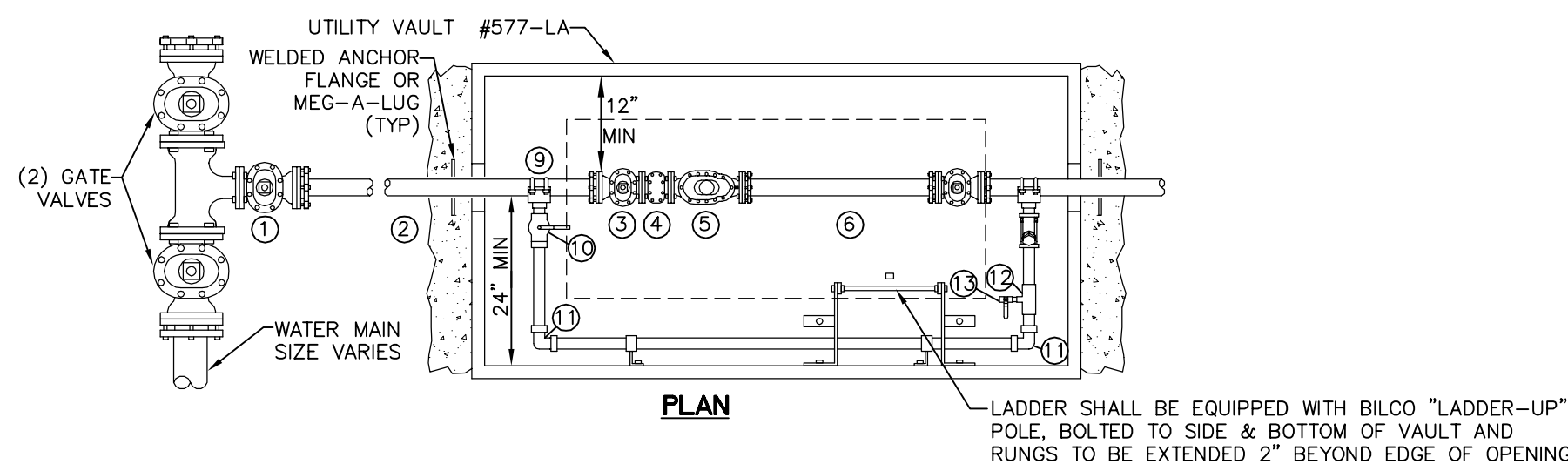
SECTION VIEW

SIZE	LENGTH	11 1/4"			22 1/2"			45"			90"		
		WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.
6"	12"	1'-0"	1'-0"	0.63	1'-0"	1'-0"	0.63	1'-6"	1'-6"	1.25	2'-3"	1'-6"	1.88
8"	12"	1'-3"	1'-3"	1.00	1'-3"	1'-3"	1.00	1'-9"	1'-9"	1.75	3'-0"	2'-0"	3.33
10"	12"	1'-6"	1'-6"	1.72	1'-9"	1'-6"	1.72	2'-3"	2'-3"	2.88	3'-6"	2'-6"	4.86
12"	18"	2'-0"	1'-9"	3.48	2'-0"	1'-9"	3.48	2'-9"	2'-6"	5.98	4'-0"	3'-0"	10.00

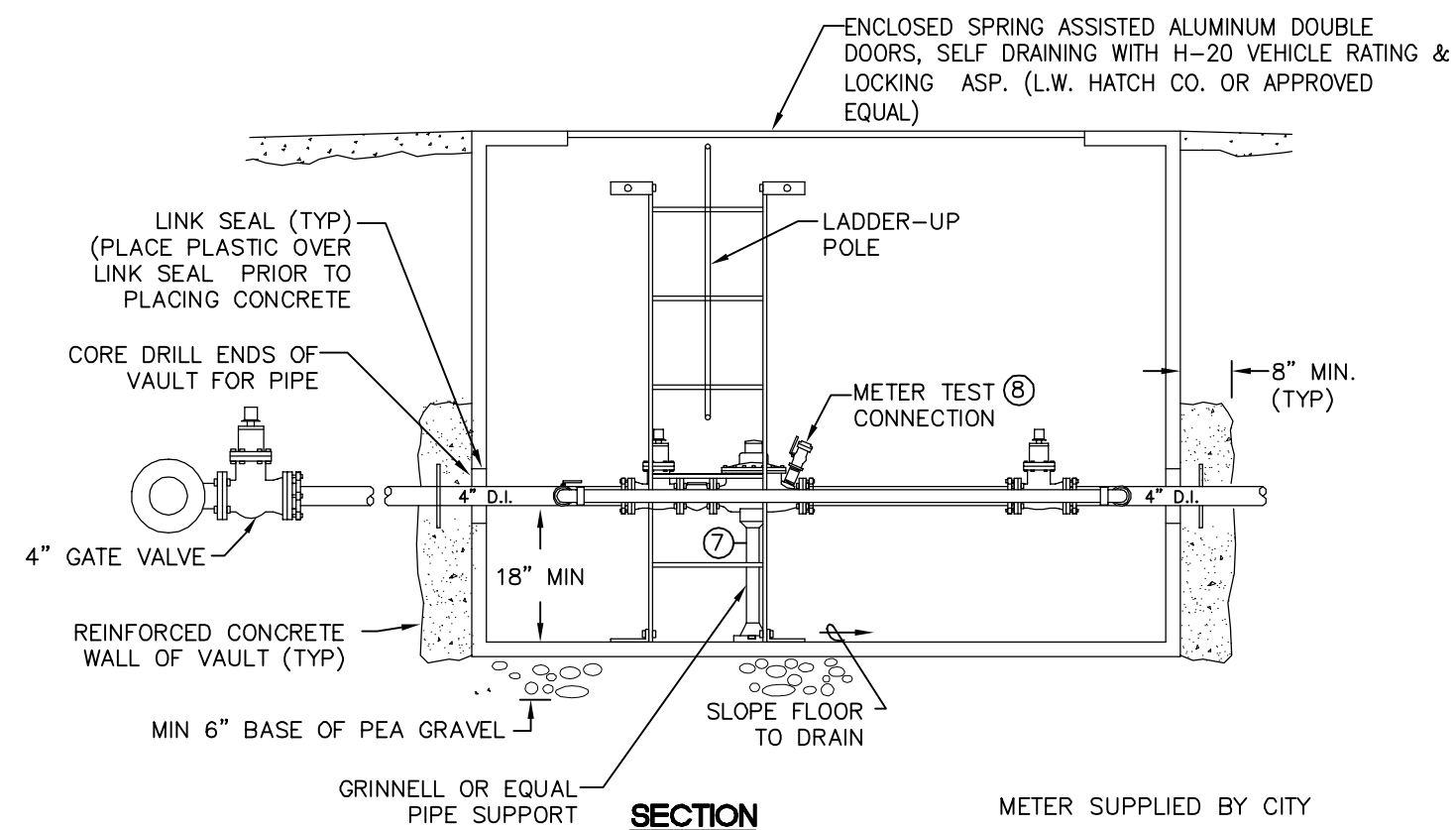
VOL. = Approx. Volume of Blocking Material Required in cu. ft.

THRUST BLOCKING

NTS



PLAN



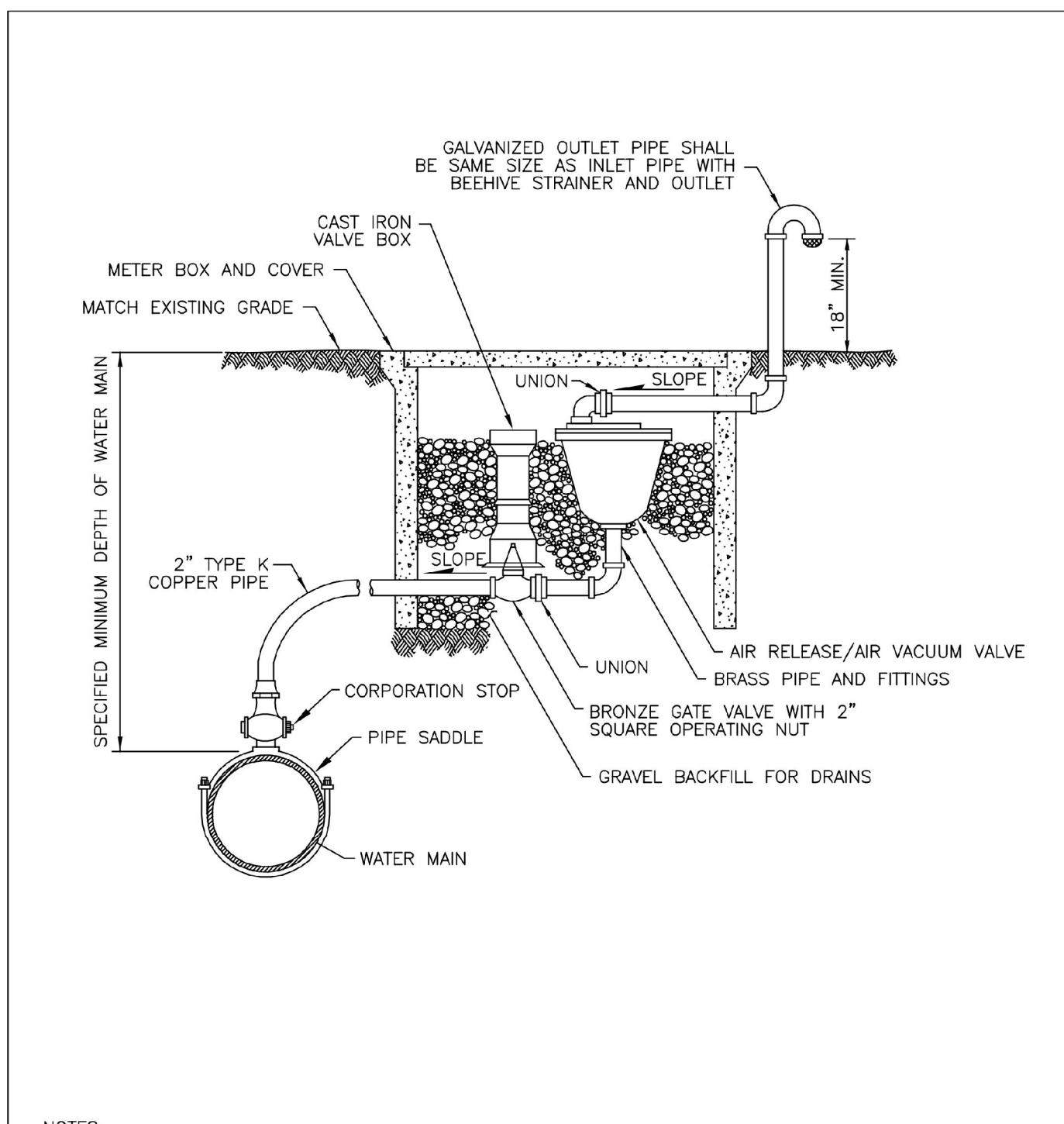
SECTION

4" METER INSTALLATION

NTS

- (1) 4" GATE VALVE (FL)
- (2) 4" D.I. PIPE, LENGTH AS REQUIRED
- (2) 4" GATE VALVES (FLxR), WHEEL OPERATED
- (1) 4" BRONZE BASKET STRAINER (FL)
- (1) 4" SENSUS TOUCH READ METER (FL) WITH TEST NIPPLE & VALVE
- (1) 4" UNI-FLANGE SPOOL, LENGTH AS REQ'D
- (2) ADJUSTABLE PIPE SUPPORTS
- 2-1/2" NST (FIRE HOSE) METER TEST CONNECTION:
 - (1) BRASS NIPPLE (LENGTH AND SIZE AS NEEDED)
 - (1) BRASS GATE VALVE (SIZED AS NEEDED)
 - (1) IPTx2 1/2" NST ADAPTER (SIZE AS NEEDED)
 - (1) 2 1/2" NST CAP

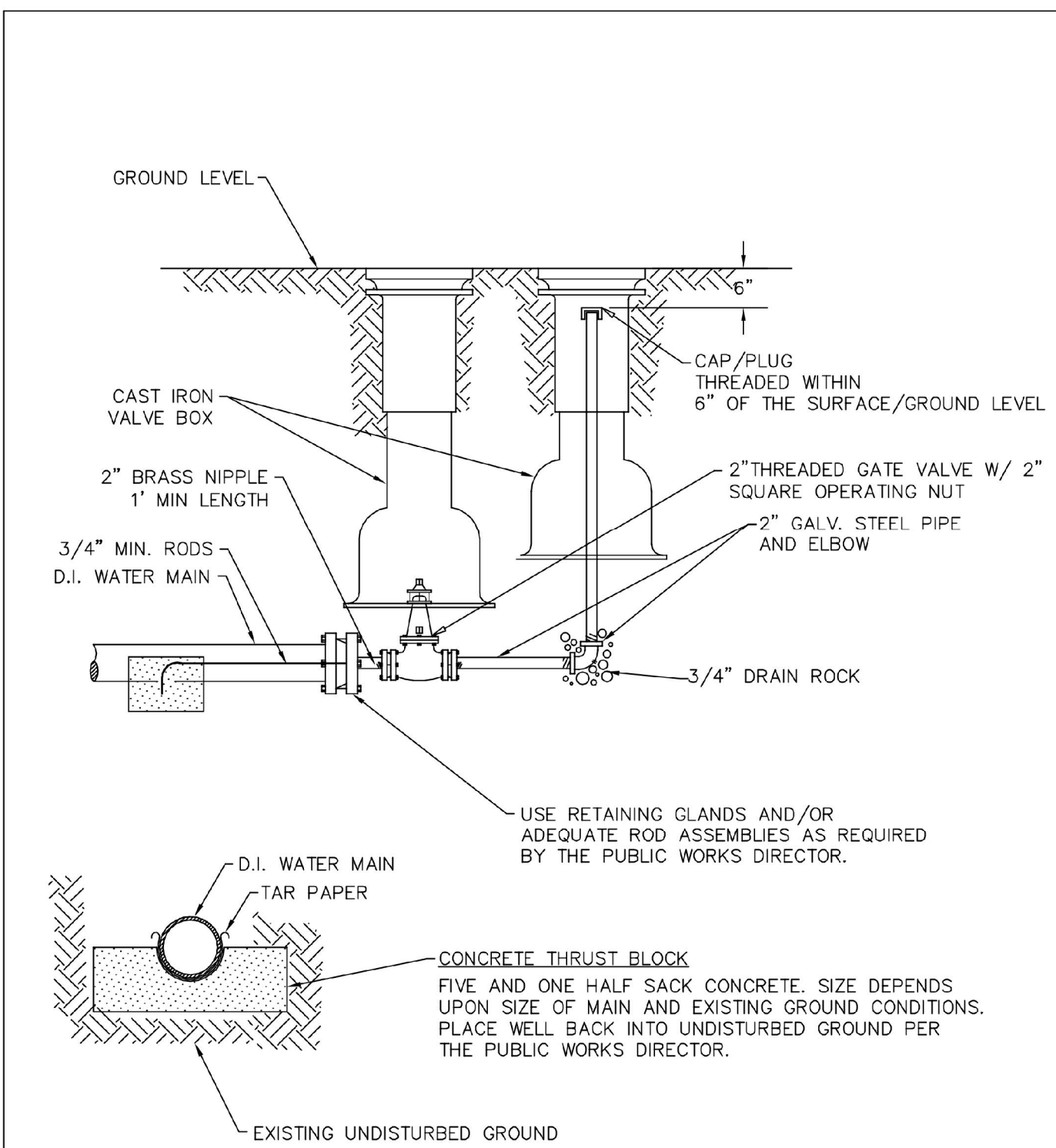
- 2" BY-PASS ASSEMBLY:
 - (2) 2" SADDLES W/ STAINLESS STL DOUBLE STRAPS
 - (2) 2" BALL VALVE (IP)
 - (2) 2" 90° BENDS (IP)
 - (1) 2" X 3/4" TEE (IP)
 - (1) 3/4" BALL VALVE (IP)
- PIPE (LENGTH AS NEEDED)
- SECURE PIPE TO VAULT WALL
- ALL 2" PIPE & FITTINGS SHALL BE BRASS.



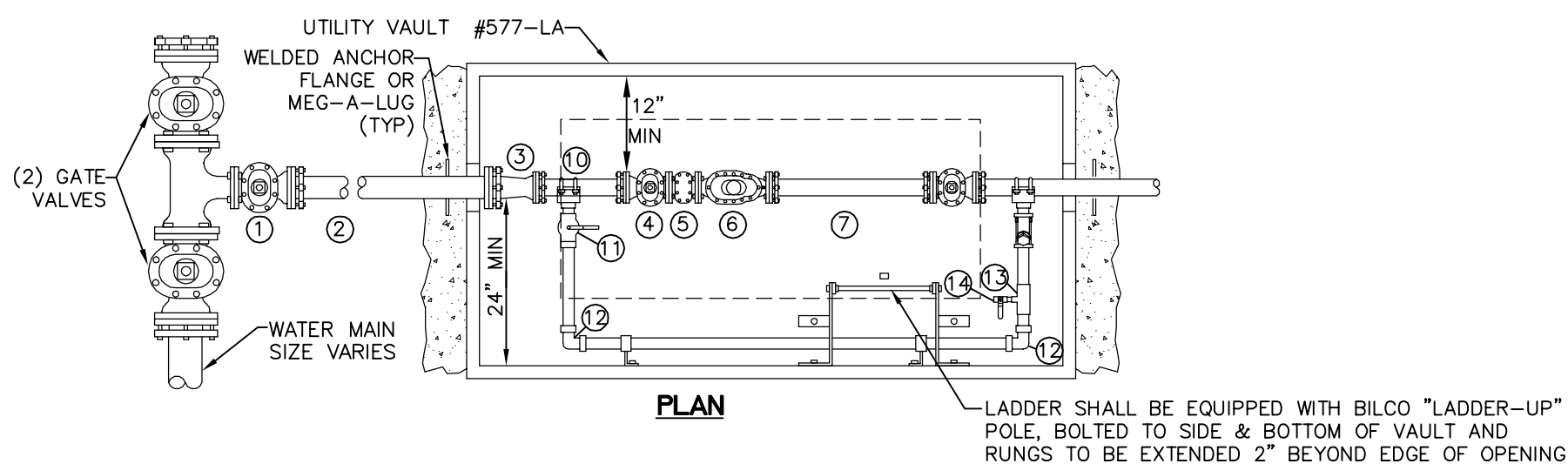
NOTES:

- THE SIZE OF THE COMBINATION AIR RELEASE/AIR VACUUM VALVE SHALL BE SPECIFIED IN THE CONTRACT. THE PIPING AND VALVES SHALL BE THE SAME SIZE AS THE COMBINATION AIR RELEASE/AIR VACUUM VALVE.
- LOCATE AT THE HIGH POINT OF THE MAIN, TAP TOP OF MAIN.

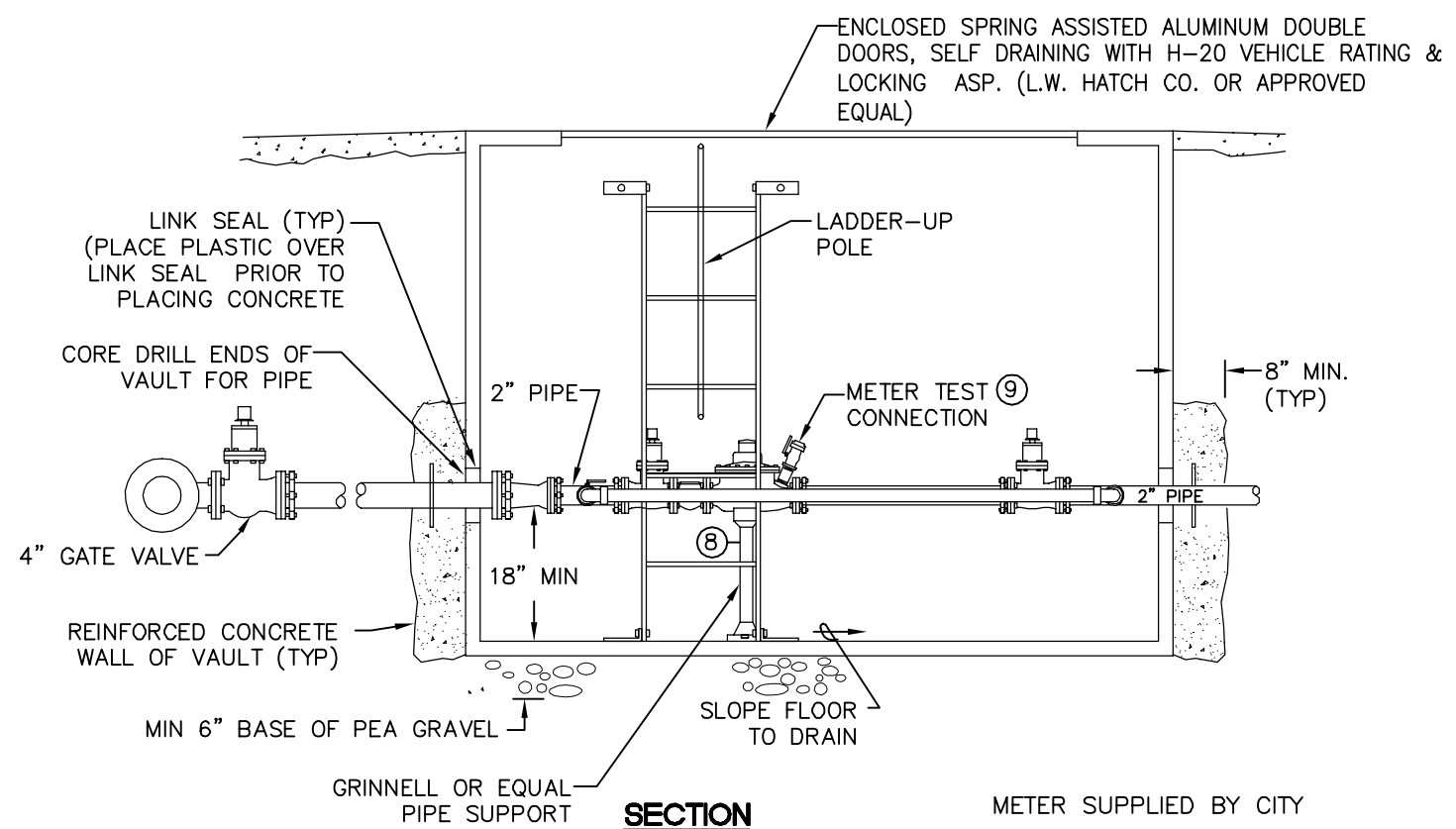
CITY OF FERDALE WASHINGTON	APPROVED	NOVEMBER 23, 2016	COMBINATION AIR RELEASE AIR VACUUM VALVE ASSEMBLY STANDARD DETAIL W-13 NOT TO SCALE
	Public Works Director	8/11/17 Date	



CITY OF FERDALE WASHINGTON	APPROVED	AUGUST 1, 2017	2" BLOW-OFF FUTURE WATERMAIN EXTENSION (ALTERNATIVE) STANDARD DETAIL W-10 NOT TO SCALE
	Public Works Director	8/11/17 Date	



PLAN



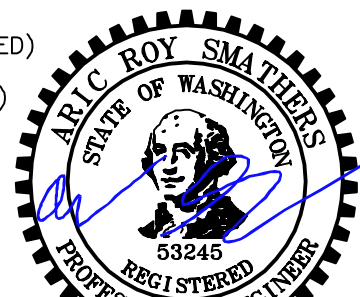
SECTION

2" METER INSTALLATION

NTS

- (1) 4" GATE VALVE (FL)
- 4" D.I. PIPE, LENGTH AS REQUIRED
- (1) 4"x2" REDUCER (FLxR)
- (2) 2" GATE VALVES (FLxR), WHEEL OPERATED
- (1) 2" BRONZE BASKET STRAINER (FL)
- (1) 2" SENSUS TOUCH READ METER (FL) WITH TEST NIPPLE & VALVE
- (1) 2" UNI-FLANGE SPOOL, LENGTH AS REQ'D
- (2) ADJUSTABLE PIPE SUPPORTS
- 2-1/2" NST (FIRE HOSE) METER TEST CONNECTION:
 - (1) BRASS NIPPLE (LENGTH AND SIZE AS NEEDED)
 - (1) BRASS GATE VALVE (SIZED AS NEEDED)
 - (1) IPTx2 1/2" NST ADAPTER (SIZE AS NEEDED)
 - (1) 2 1/2" NST CAP

- 2" BY-PASS ASSEMBLY:
 - (2) 2" SADDLES W/ STAINLESS STL DOUBLE STRAPS
 - (2) 2" BALL VALVE (IP)
 - (2) 2" 90° BENDS (IP)
 - (1) 2" X 3/4" TEE (IP)
 - (1) 3/4" BALL VALVE (IP)
- PIPE (LENGTH AS NEEDED)
- SECURE PIPE TO VAULT WALL
- ALL 2" PIPE & FITTINGS SHALL BE BRASS.



1/8/19

1/8/19

SUBMITTED WITH
DESIGN PLAN

DESIGNED BY
ARS
DRAWN BY
PJC
CHECKED BY
LP



**Reichhardt & Ebe
ENGINEERING INC**

P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERDALE
2095 MAIN ST
FERDALE, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
WATER DETAILS

DWG 16026 DETAILS
JOB# 16026
SCALE H: N/A V: N/A

DATE 1/8/2019
SHEET 21
of 38

NOTE:

1. CARSON HEAVYWALL MODEL 152/BCF OR APPROVED EQUAL WITH DUCTILE LID
2. METER BOXES LOCATED WITHIN THE SIDEWALK SHALL AT A MINIMUM BE A NON-SKID POLYMER LID, WITH 2" HOLE AS SHOWN BELOW AND SHALL HAVE A COEFFICIENT OF FRICTION OF 0.96 DRY AND 0.88 WET BASED ON TEST METHOD ASTM C-1028

12" BODY

18" BODY

NON-SKID GROOVE 1/32" DEEP x 1/16" WIDE TYP

LIFTING HOOK

2" HOLE CENTERED 7" FROM EDGE

ELEVATION VIEW

Diagram showing the vertical profile of a water service connection. Key components and dimensions include:

- EXISTING GROUND**: Indicated by a dashed line.
- CITY ROW OR EASEMENT**: Indicated by a horizontal line at the top.
- PRIVATE PROPERTY**: Indicated by a vertical dashed line on the right.
- METER SETTER**: A vertical pipe with a diameter of $3/4"$ - $1"$.
- METER BOX (SEE COF STANDARD PLAN W-X)**: A rectangular box with a height of $20" - 24"$.
- HOUSE SERVICE BY OTHERS**: Indicated by a horizontal line on the right.
- 1' DEEP PEA GRAVEL POCKET**: A gravel-filled area around the meter box.
- 3/4" - FORD VBH 72-12W-11-33** and **1" - FORD VBH74-12W-11-44**: Specifications for the meter box.
- 3/4" OR 1" TYPE K COPPER SERVICE**: The main service line.
- 3/4" OR 1" CURB STOP FORD B11 SERIES OR APPROVED EQUAL**: A stop valve on the service line.
- ROMAX TYPE, 2025 OR APPROVED EQUAL, TAPPING CLAMP WITH SADDLE. MUST USE COPPER THREADED CONNECTIONS.**: The connection method for tapping the main.
- WATER MAIN**: The main water supply line.
- 1' MAX**: Maximum distance from the meter box to the property line.

PLAN VIEW - SINGLE SERVICE

Diagram showing the horizontal layout of a single service connection. Key components and dimensions include:

- MAIN**: The main water supply line.
- WATER**: The water service line.
- 3/4" OR 1" CORPORATION STOP FORD F700 SERIES OR APPROVED EQUAL**: A stop valve on the main.
- 3/4" OR 1" CURB STOP FORD B11 SERIES OR APPROVED EQUAL**: A stop valve on the service line.
- 3/4" OR 1" TYPE K COPPER SERVICE**: The main service line.
- METER SETTER AND BOX**: A rectangular box with a diameter of $1'$.
- HOUSE SERVICE BY OTHERS**: Indicated by a horizontal line on the right.

PLAN VIEW - DOUBLE SERVICE

Diagram showing the horizontal layout of a double service connection. Key components and dimensions include:

- MAIN**: The main water supply line.
- WATER**: The water service line.
- 1" CORPORATION STOP FORD F700 SERIES OR APPROVED EQUAL**: A stop valve on the main.
- 3/4" CURB STOP FORD B11 SERIES OR APPROVED EQUAL**: A stop valve on the service line.
- 1" TEE OR "Y"**: A connection point for the double service.
- 1" TYPE K COPPER SERVICE**: The main service line.
- 3/4" COPPER**: The service line for the double service.
- METER SETTER & BOX**: A rectangular box with a diameter of $1'$.
- HOUSE SERVICE BY OTHERS**: Indicated by a horizontal line on the right.
- PRIVATE PROPERTY**: Indicated by a vertical dashed line on the right.
- PROPERTY CORNER**: Indicated by a point on the property line.
- HOUSE SERVICE BY OTHERS**: Indicated by a horizontal line on the right.

NOTES:

- METER(S) TO BE FURNISHED AND INSTALLED BY COF.
- WATER SERVICE TRENCH TO BE BACKFILLED WITH 12" MIN. DEPTH OF CLEAN SANDY FILL.

APPROVED

Public Works Director

DATE

8/11/17

NOVEMBER 23, 2016

TYPICAL 3/4" AND 1" WATER SERVICE

STANDARD DETAIL W-5

NOT TO SCALE

NOTE:

1. CARSON HEAVYWALL MODEL 1730BCF OR APPROVED EQUAL WITH DUCTILE LID
2. METER BOXES LOCATED WITHIN THE SIDEWALK SHALL AT A MINIMUM BE A NON-SKID POLYMER LID, WITH 2" HOLE AS SHOWN BELOW AND SHALL HAVE A COEFFICIENT OF FRICTION OF 0.96 DRY AND 0.88 WET BASED ON TEST METHOD ASTM C-1028

NON-SKID GROOVE 1/32 DEEP x 1/16 WIDE TYP

LIFTING HOOK

2" HOLE CENTERED 7" FROM EDGE

12" BODY

18" BODY

VERTICAL LINE

SET HYDRANT 1/4" RAKE PER FOOT

2 1/2"

STORZ OR EQUAL FITTING, BUNDCAP AND AIRCRAFT CABLE.

2" ABOVE CURB OR SIDEWALK

CURB OR SIDEWALK

SEE NOTE NUMBER 2

CAST IRON VALVE BOX

ALT. TYPE FOOT

2-3/4" TIE RODS, NUTS & WASHERS

D.I. HYD. TEE (M.J.xFLANGE) (M.J.xM.J.) (TYTON x TYTON)

WRAP BASE OF HYDRANT INCLUDING BLEEDER VALVES WITH SILT FABRIC.

BACKFILL WITH 1"-1 1/2" DRAIN ROCK TO ALLOW HYDRANT TO DRAIN

18"x18"x4" CONC BLOCK

HYDRANT-CONNECTION NIPPLE

SEE INSERT

(M.J. x FLANGE GATE VALVE) (M.J. x M.J. GATE VALVE)

NO OBSTRUCTIONS WITHIN 5' WORKING AREA

M.J. AT MAIN TEE

INSERT

NOTES:

1. FOR CLOSE COUPLED HYDRANTS USE ALL FLANGE TYPE CONNECTIONS.
2. IF HYDRANT RISES THROUGH CONCRETE USE EXPANSION STRIP AROUND HYDRANT BARREL.
3. ALL HYDRANT ASSEMBLIES WILL BE M&H MODEL 929T.

MODIFIED

AUGUST 2, 2017

FIRE HYDRANT ASSEMBLY

STANDARD DETAIL W-1

NOT TO SCALE

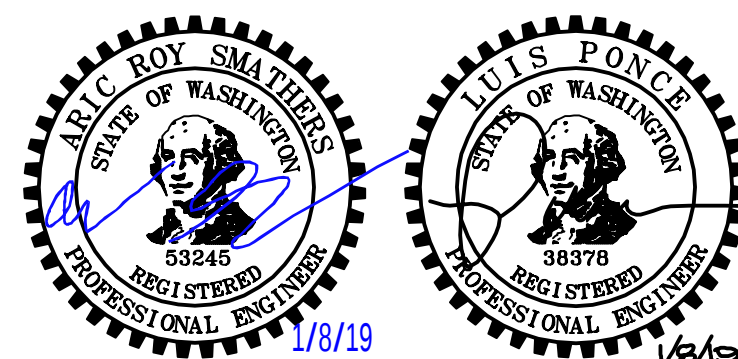
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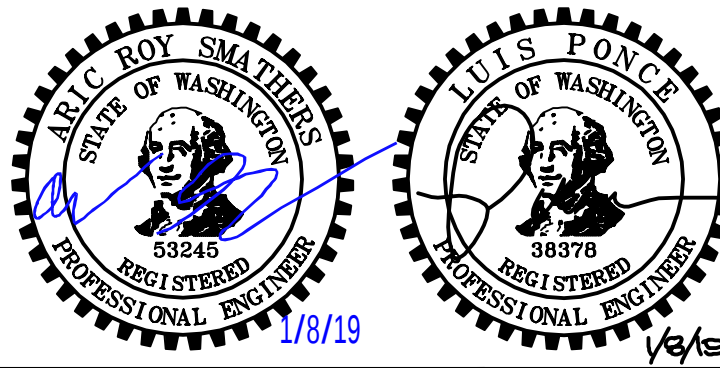
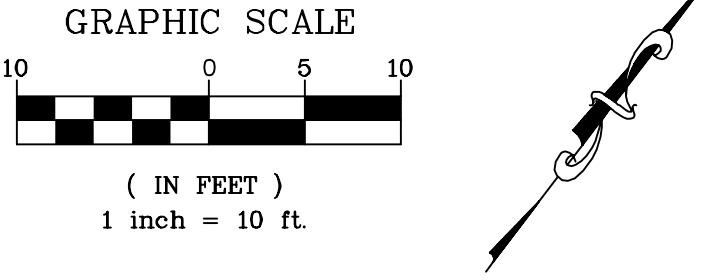
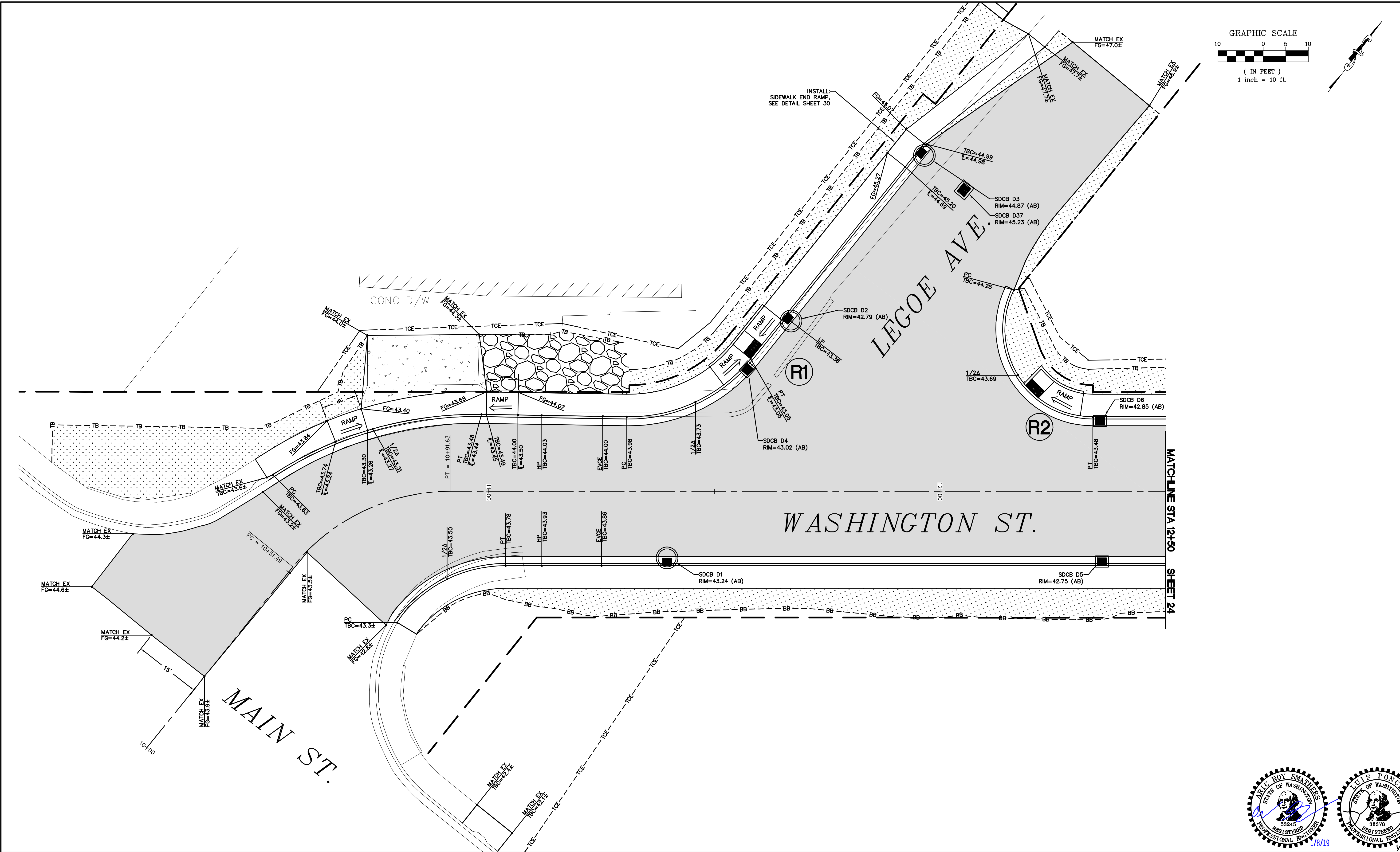
8/11/17

Public Works Director

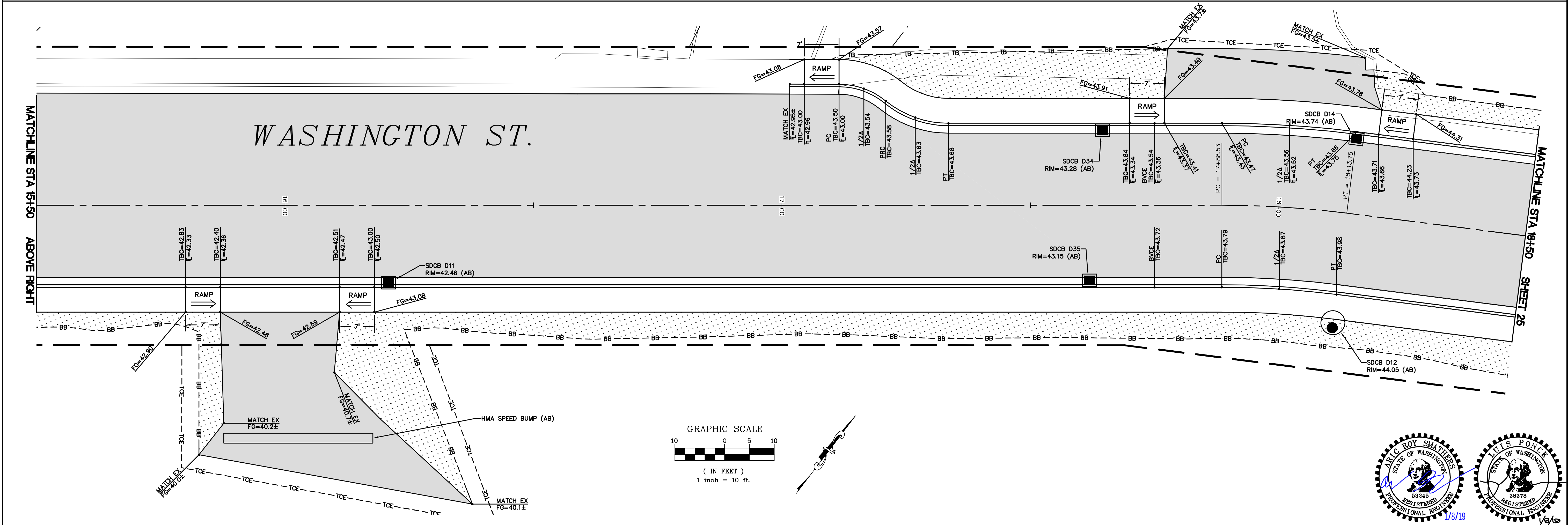
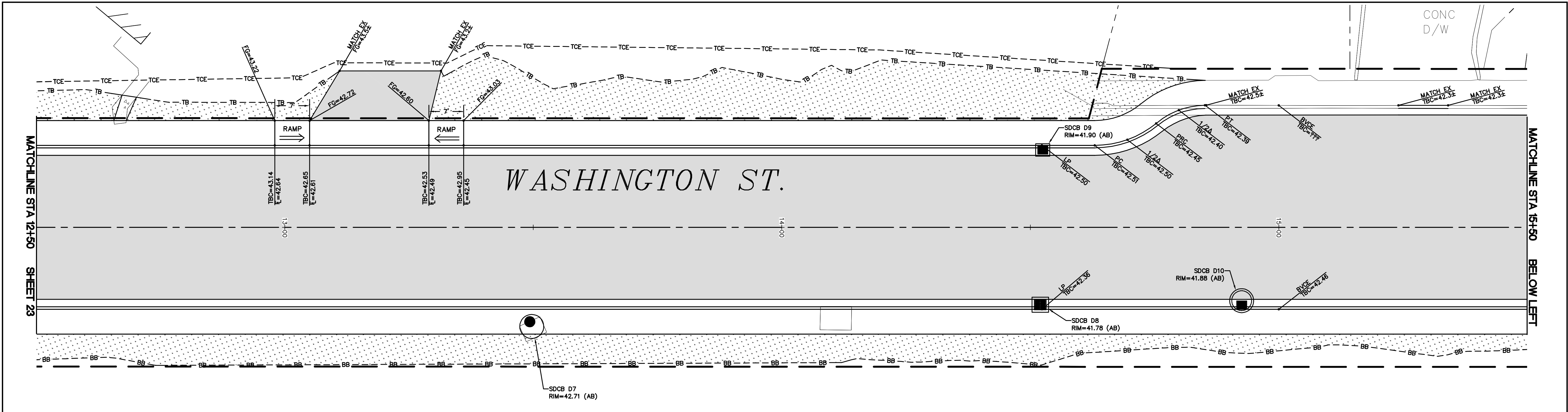
Date

TYTON FIRE PROTECTIVE EQUIPMENT

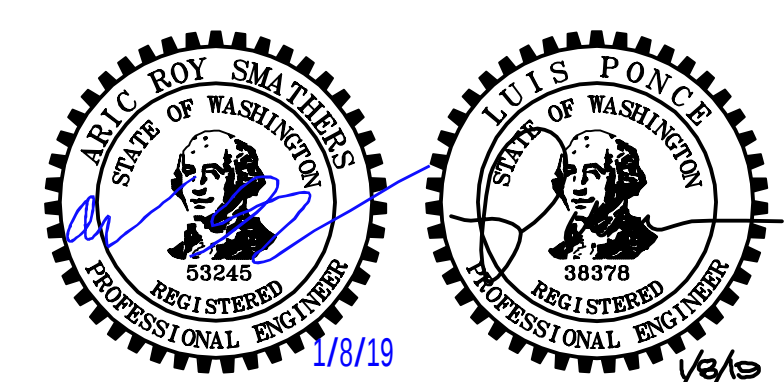
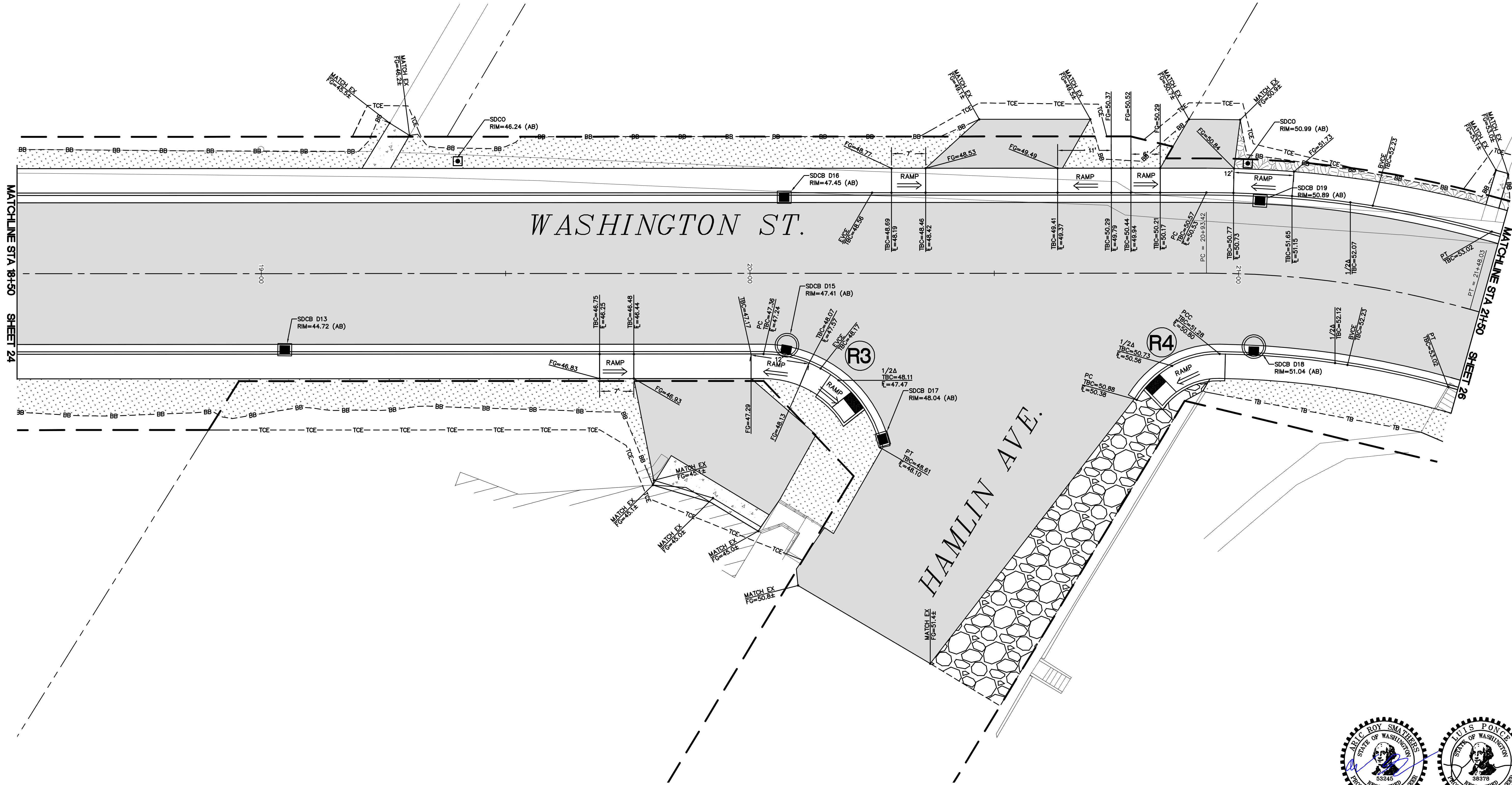
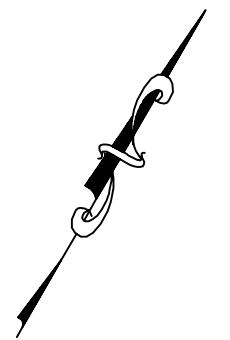
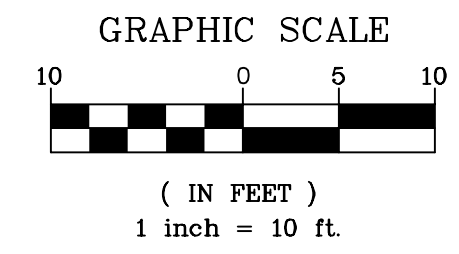




1/8/19	AS-BUILT	DESIGNED BY ARS DRAWN BY PJC/LMH CHECKED BY LP	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDALE 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE GRADING PLAN STA 10+00 TO 12+50	DWG 16026 GRADING		DATE 1/8/2019
										JOB# 16026	SCALE H: 1"=10' V: N/A	
										SHEET 23 of 38		



1/8/19	AS-BUILT	DESIGNED BY ARS DRAWN BY PJC/LMH CHECKED BY LP	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE GRADING PLAN STA 12+50 TO 18+50	DWG 16026 GRADING		DATE 1/8/2019
										JOB# 16026	SCALE H: 1"=10' V: N/A	
										SHEET 24 of 38		



1/8/19
AS-BUILT

DESIGNED BY
ARS
DRAWN BY
PJC/LMH
CHECKED BY
LP

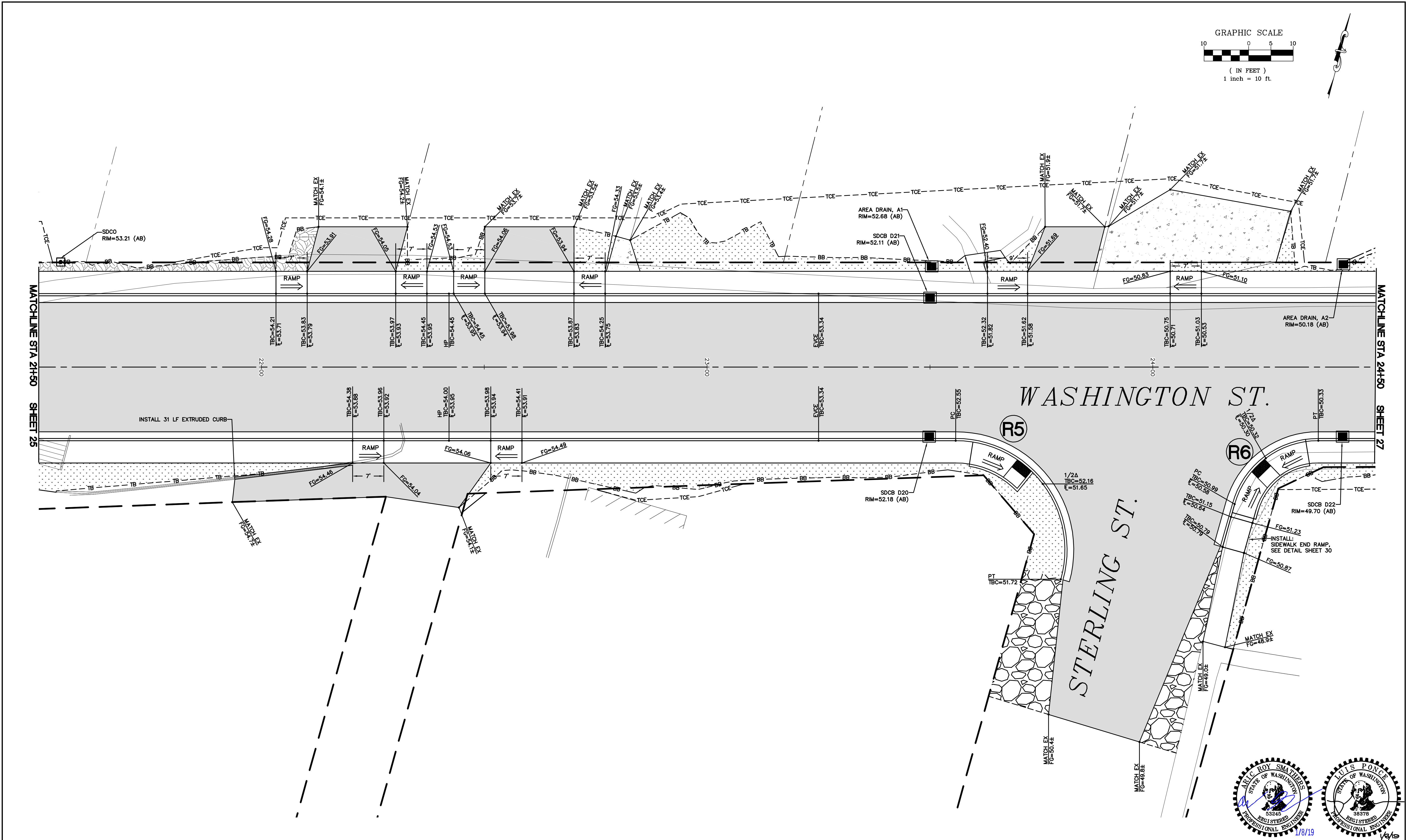
R&E Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

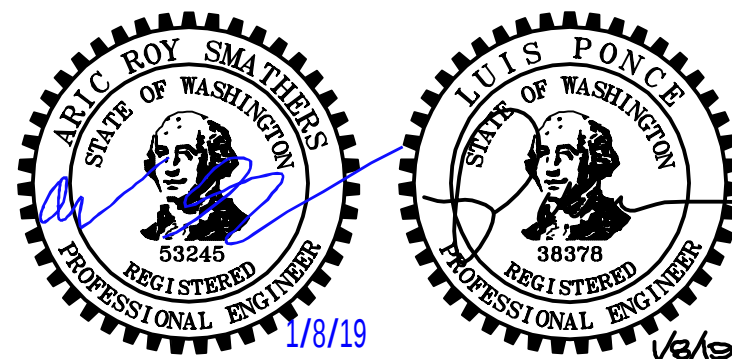
CITY OF FERNDALE
2095 MAIN ST
FERNDALE, WA 98248

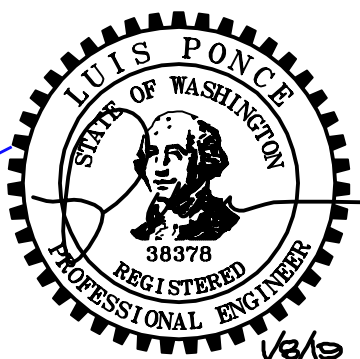
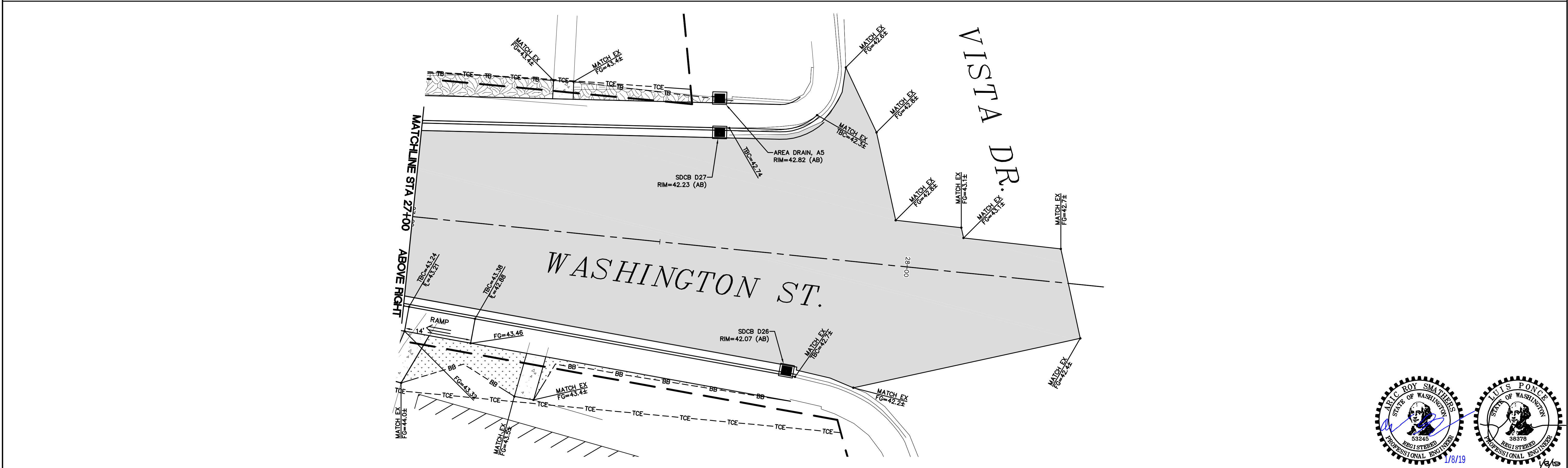
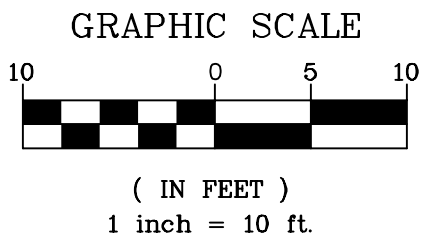
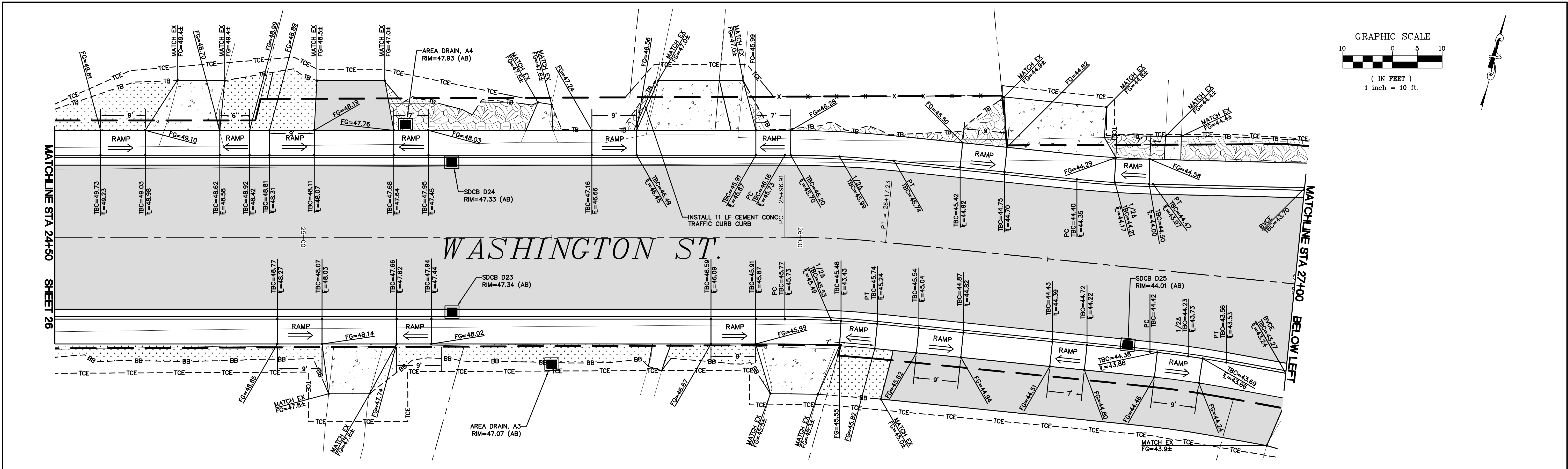
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
GRADING PLAN STA 18+50 TO 21+50

DWG 16026 GRADING		DATE 1/8/2019	
JOB# 16026	SCALE H: 1"=10' V: N/A	SHEET 25 of 38	

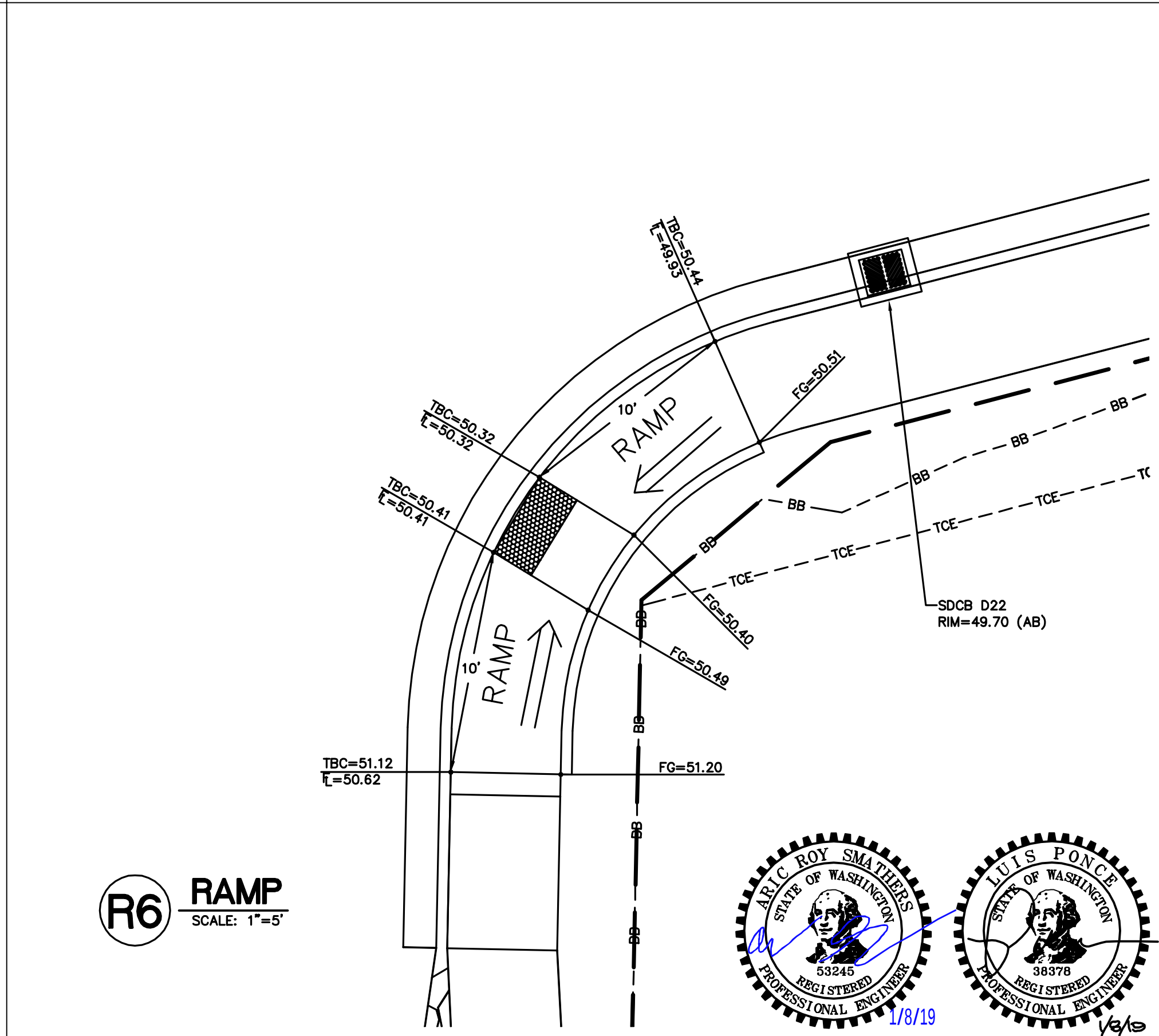
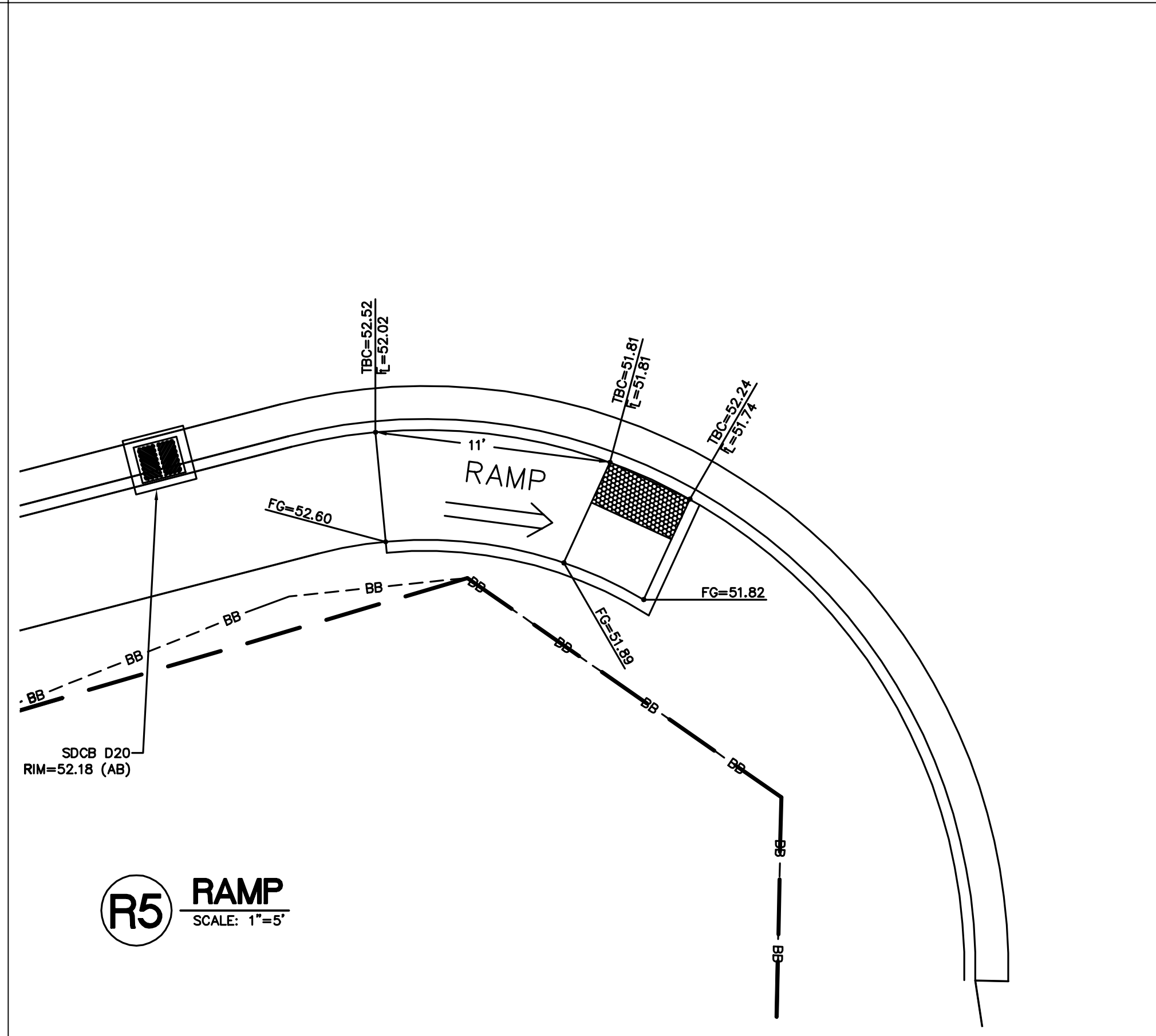
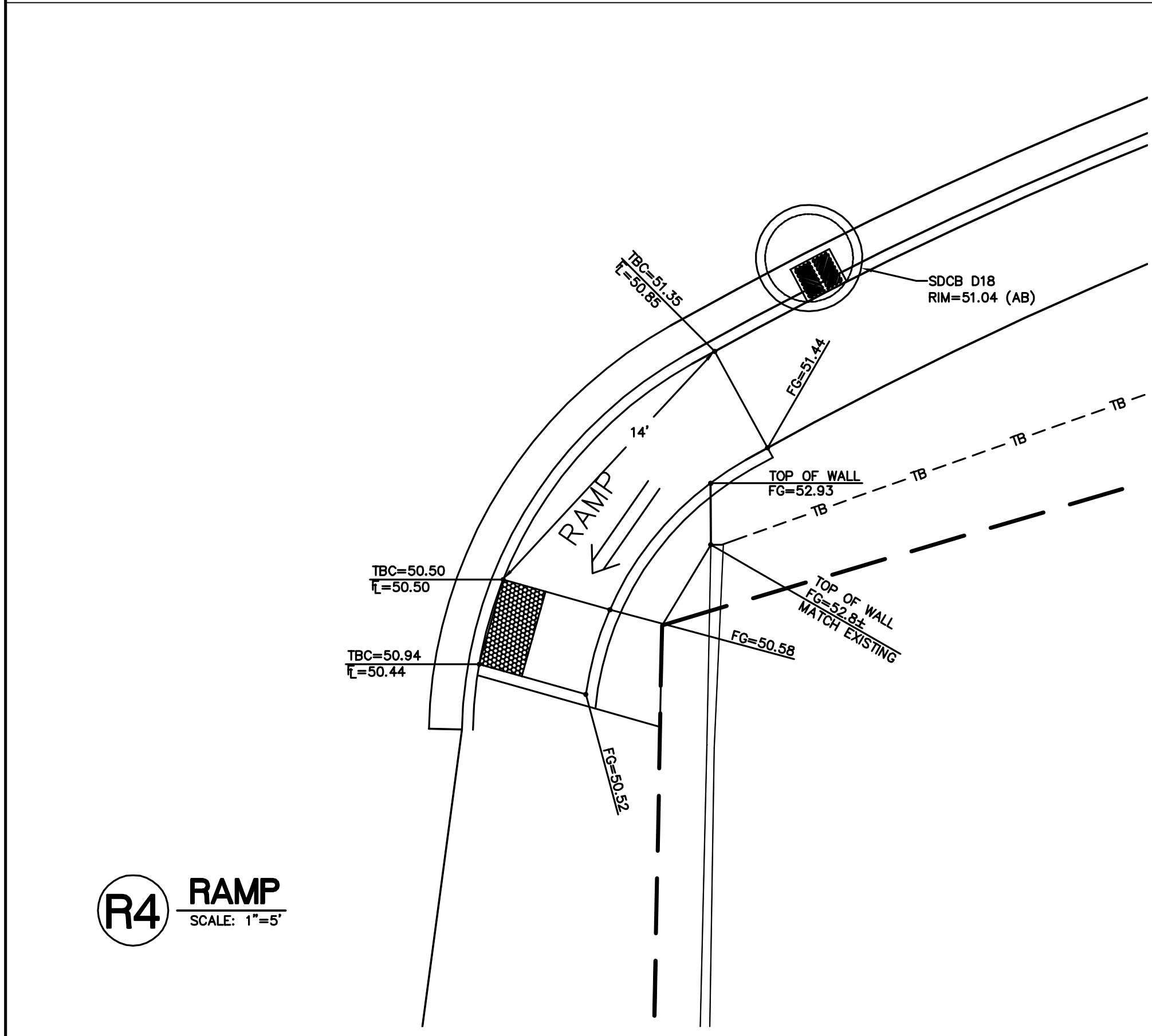
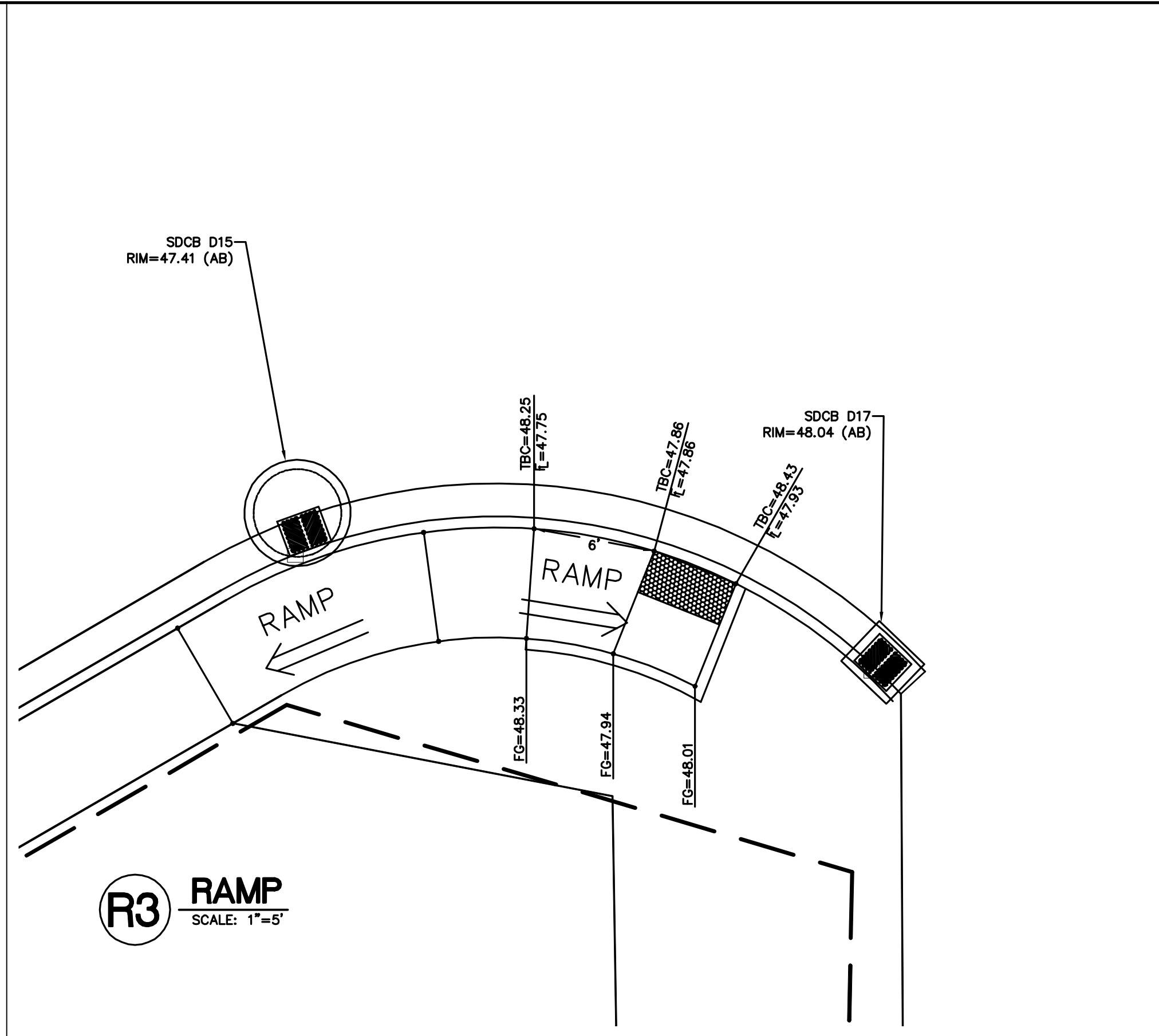
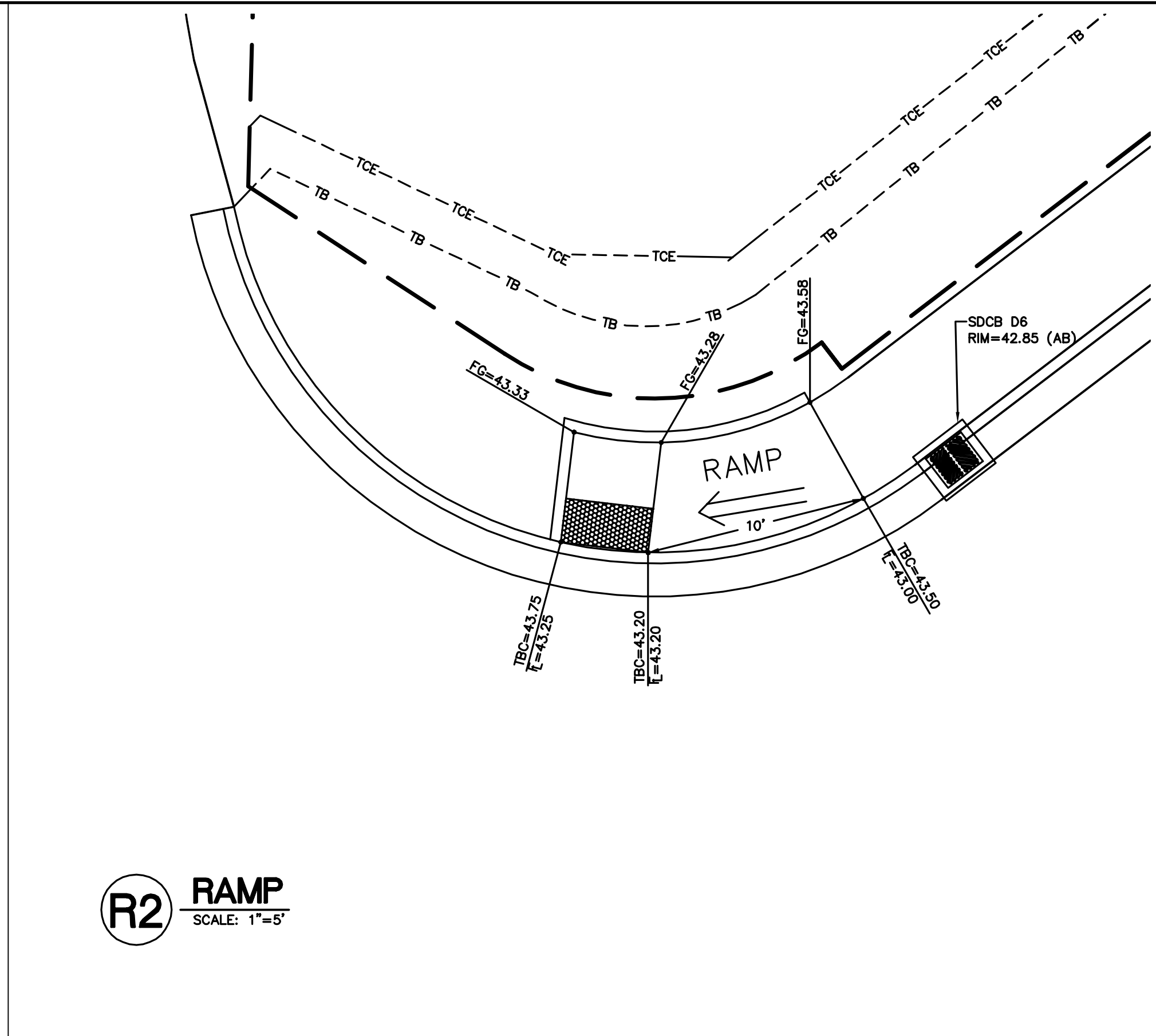
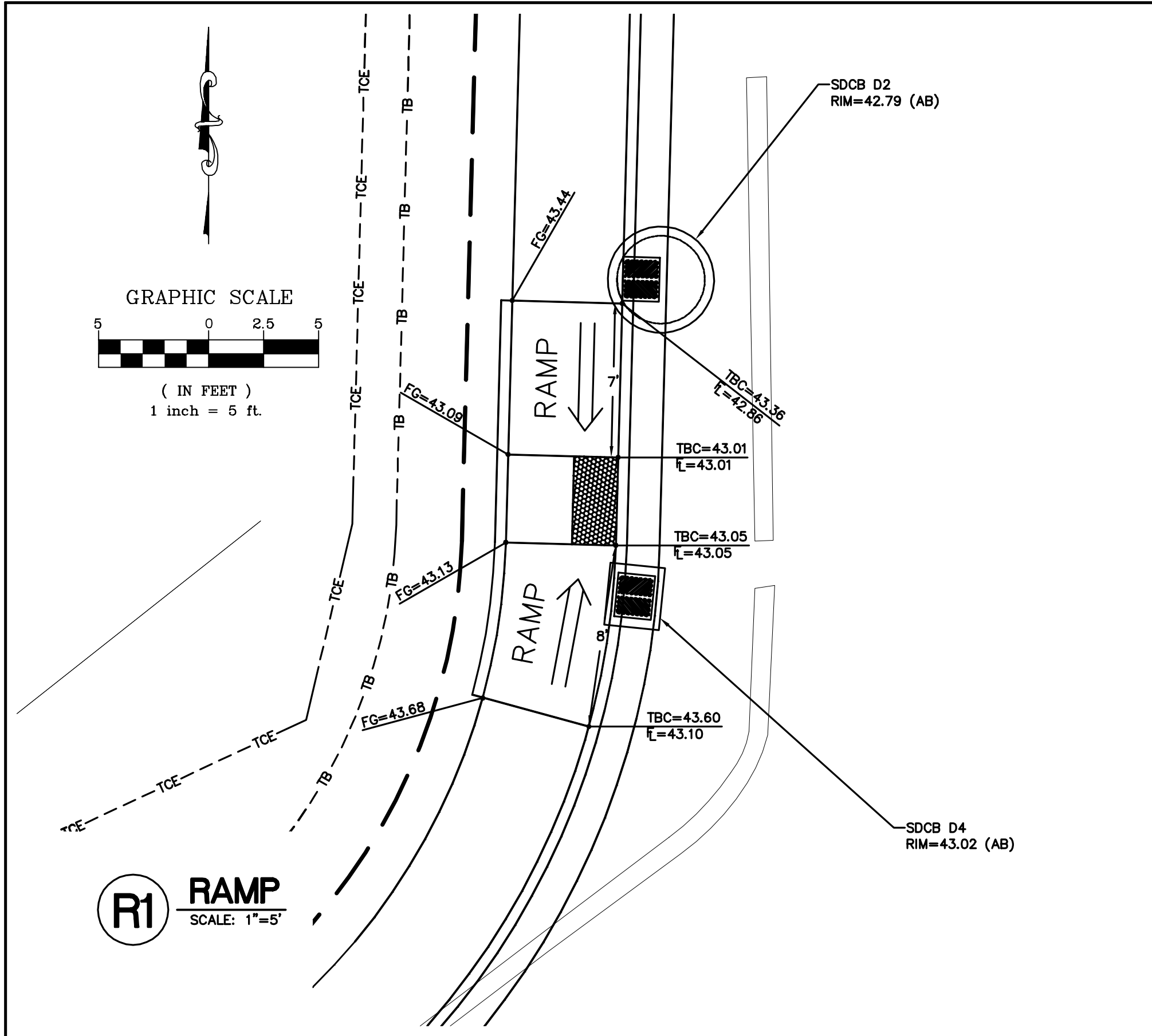


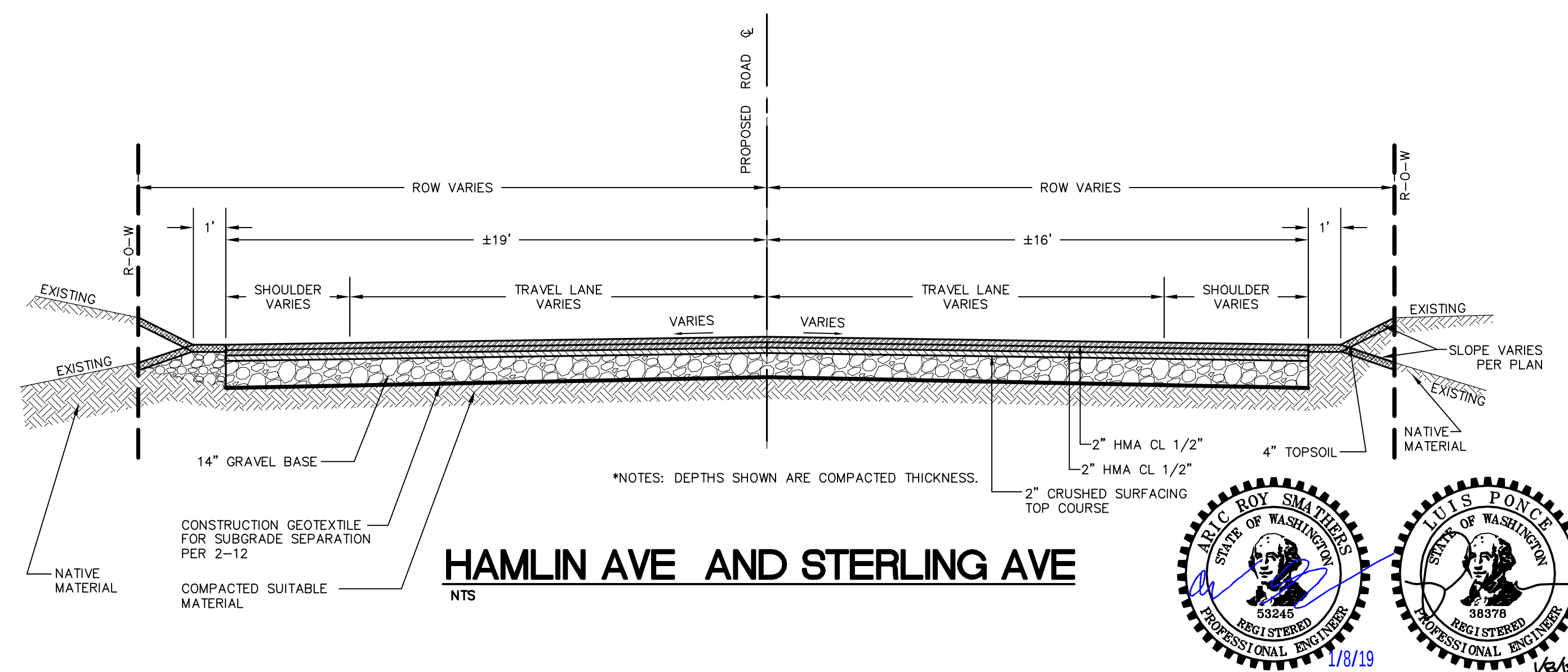
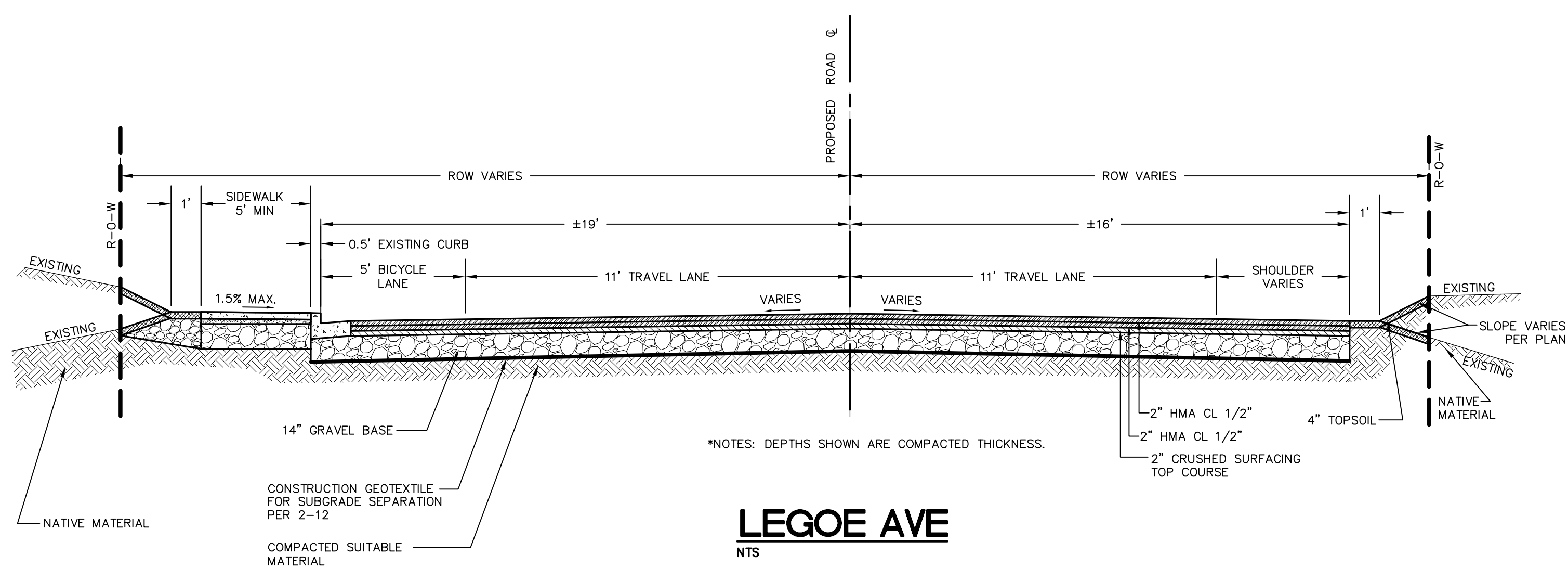
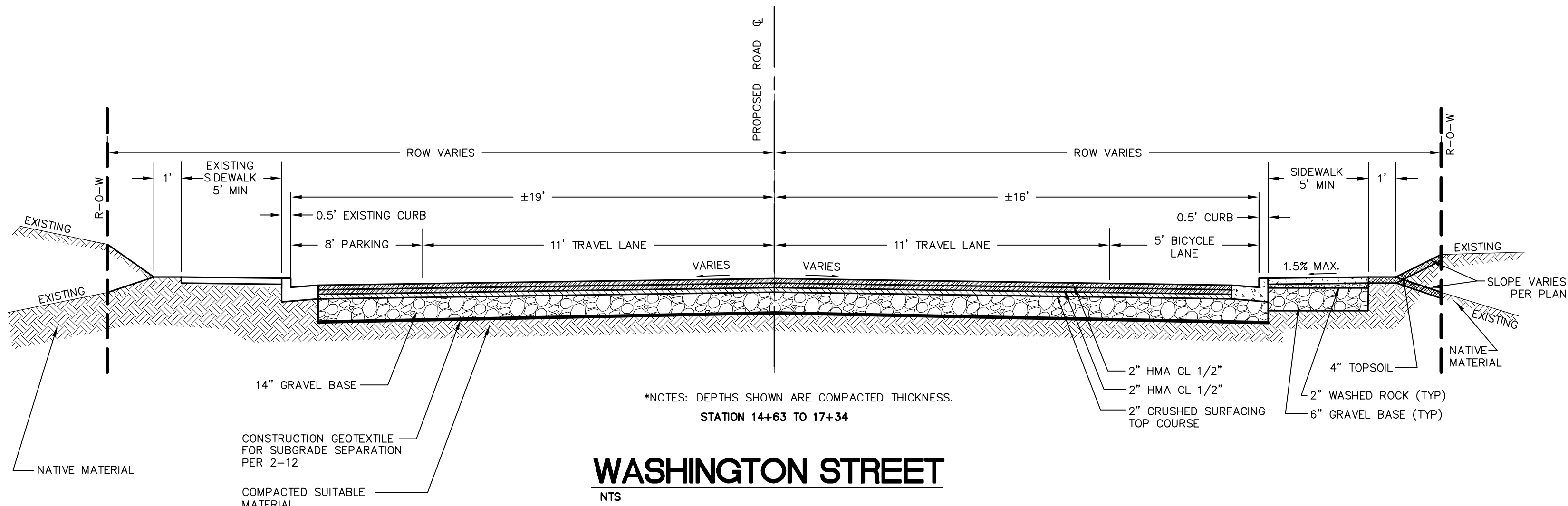
1/8/19	AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713						CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE GRADING PLAN STA 21+50 TO 24+50	DWG 16026 GRADING		DATE 1/8/2019	
		DRAWN BY PJC/LMH												
		CHECKED BY LP												
				NO.	DATE	DESCRIPTION	BY					JOB# 16026	SCALE H: 1"=10' V: N/A	SHEET 26 of 38



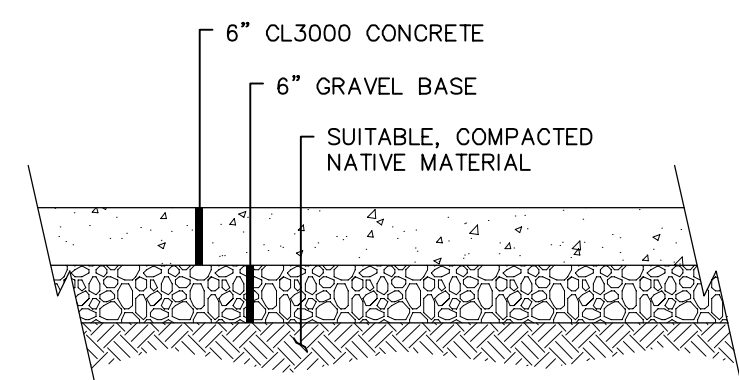
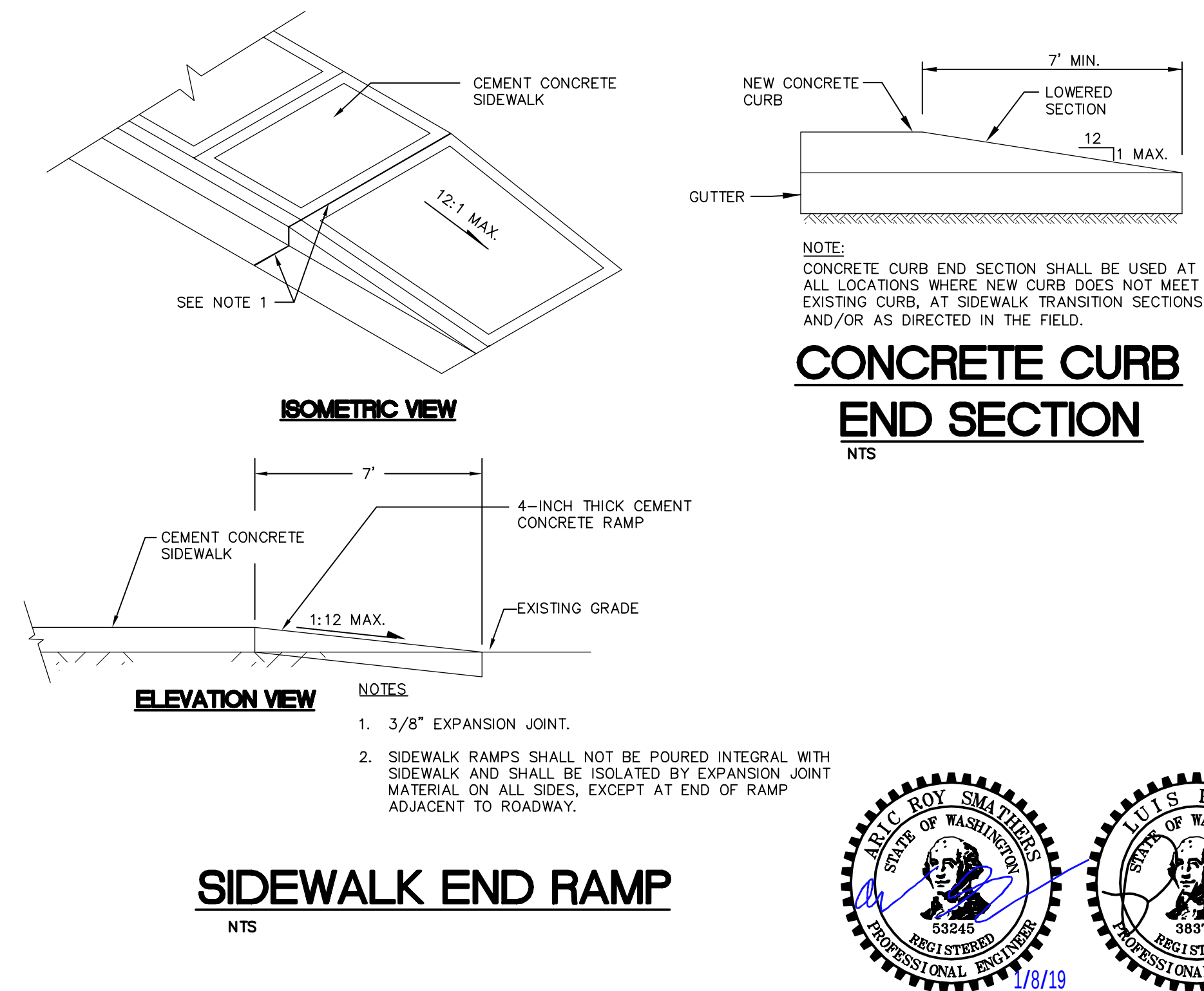
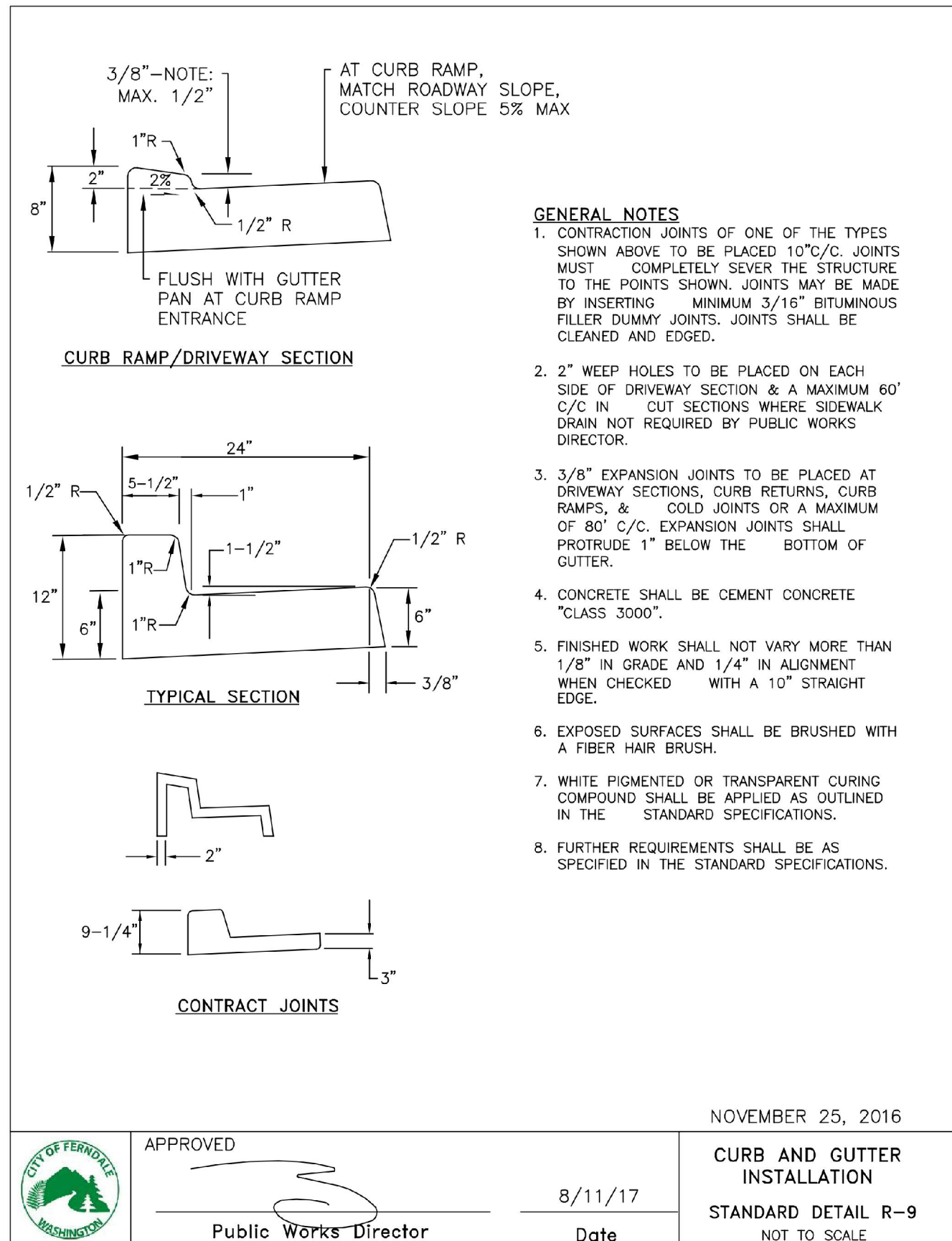


6/8/1	AS-BUILT	DESIGNED BY ARS	DRAWN BY PJC/LMH	CHECKED BY LP	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF FERDALE 2095 MAIN ST FERDALE, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE GRADING PLAN STA 24+50 TO 28+00	DWG 16026 GRADING		DATE 1/8/2019	
												JOB# 16026	SCALE H: 1"=10' V: N/A	SHEET 27 of 38	

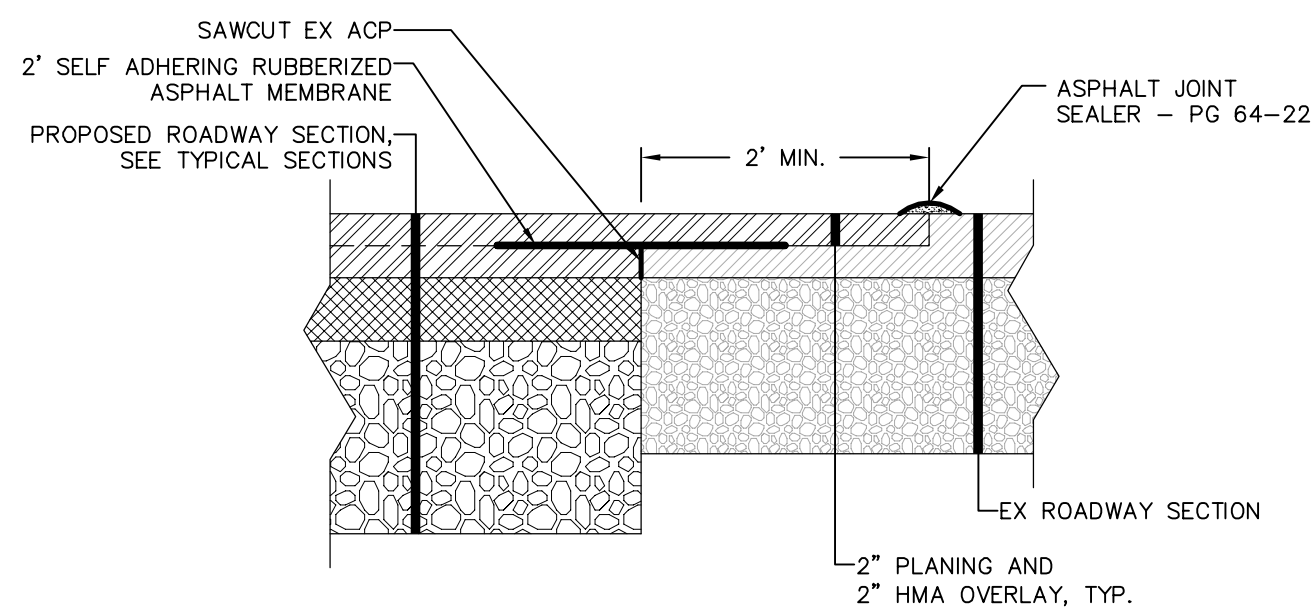




SHEET 29 of 38



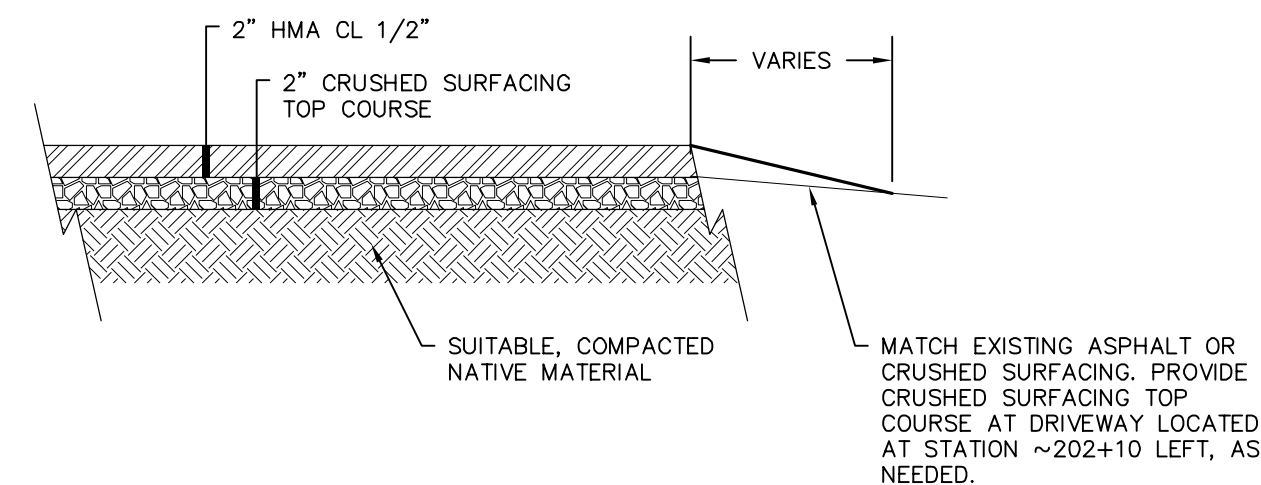
TYPICAL CONCRETE DRIVEWAY SECTION



ROADWAY PAVEMENT

MATCH SECTION

NTS



HMA MATCH DETAIL AND HMA DRIVEWAY SECTION

11/8/19 AS-BUILT

DESIGNED BY	ARS
DRAWN BY	PJC
CHECKED BY	LP

R&E Reichhardt & Ebe
ENGINEERING INC

P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN ST
FERNDALE, WA 98248

WASHINGTON STREET IMPROVEMENTS

MAIN STREET TO VISTA DRIVE

ROADWAY DETAILS

DWG 16026 DETAILS

JOB#

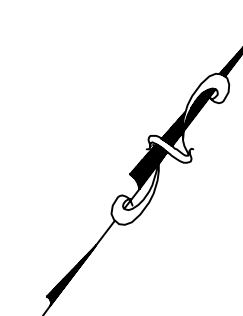
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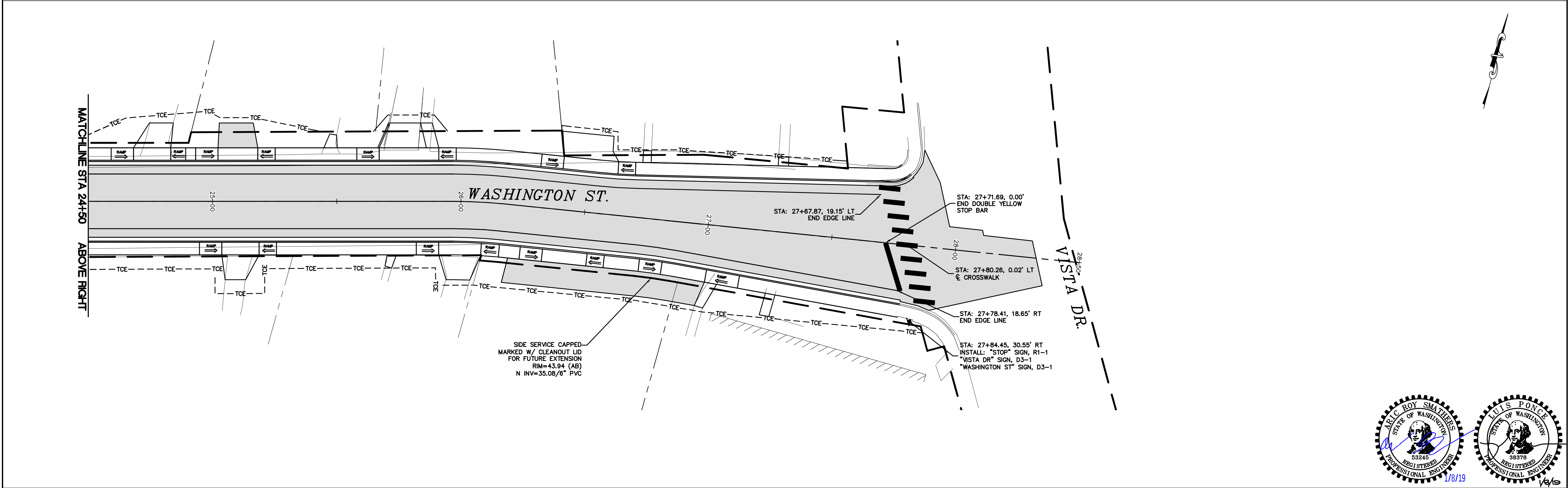
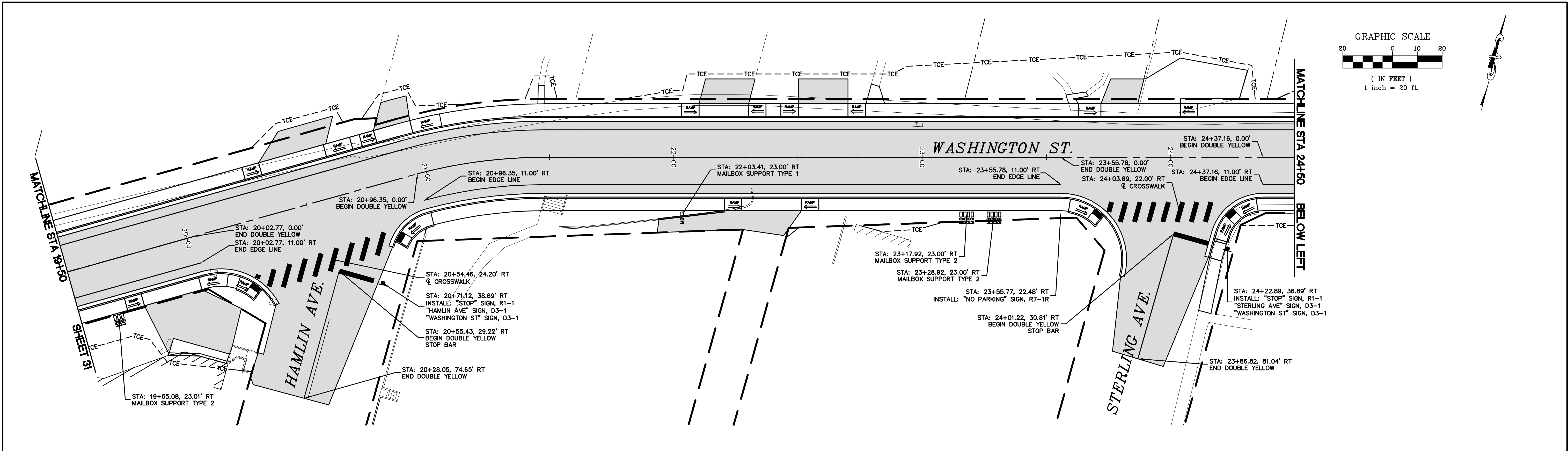
v: N/A

DATE

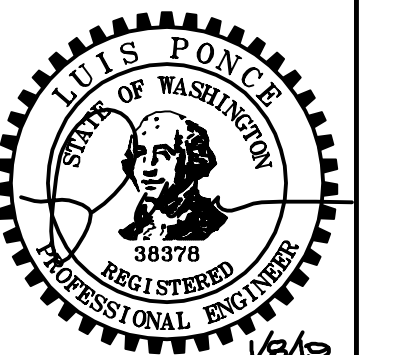
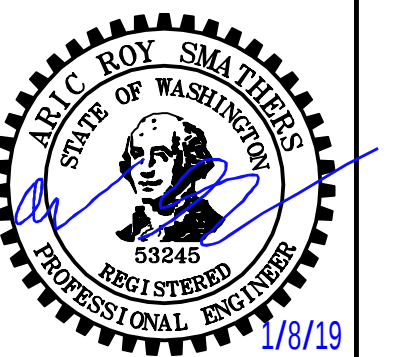
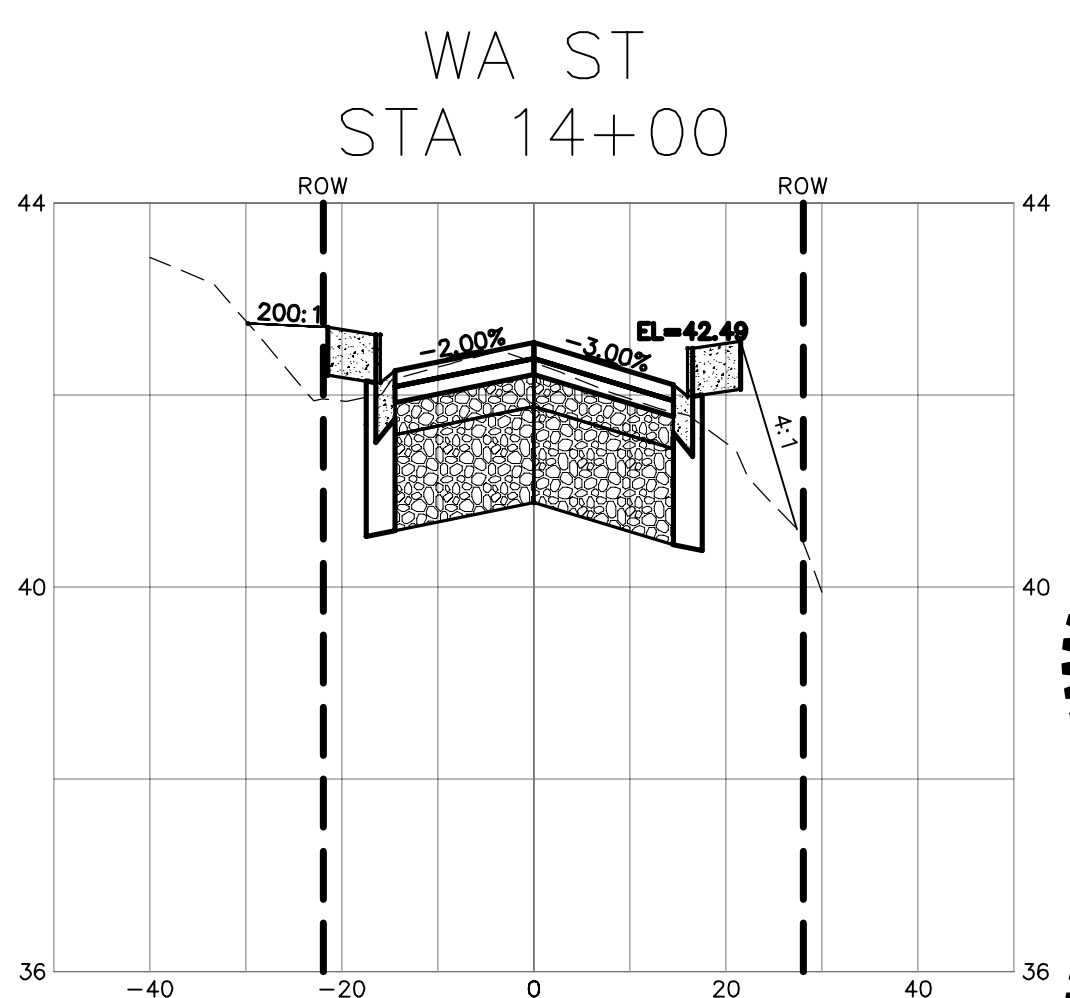
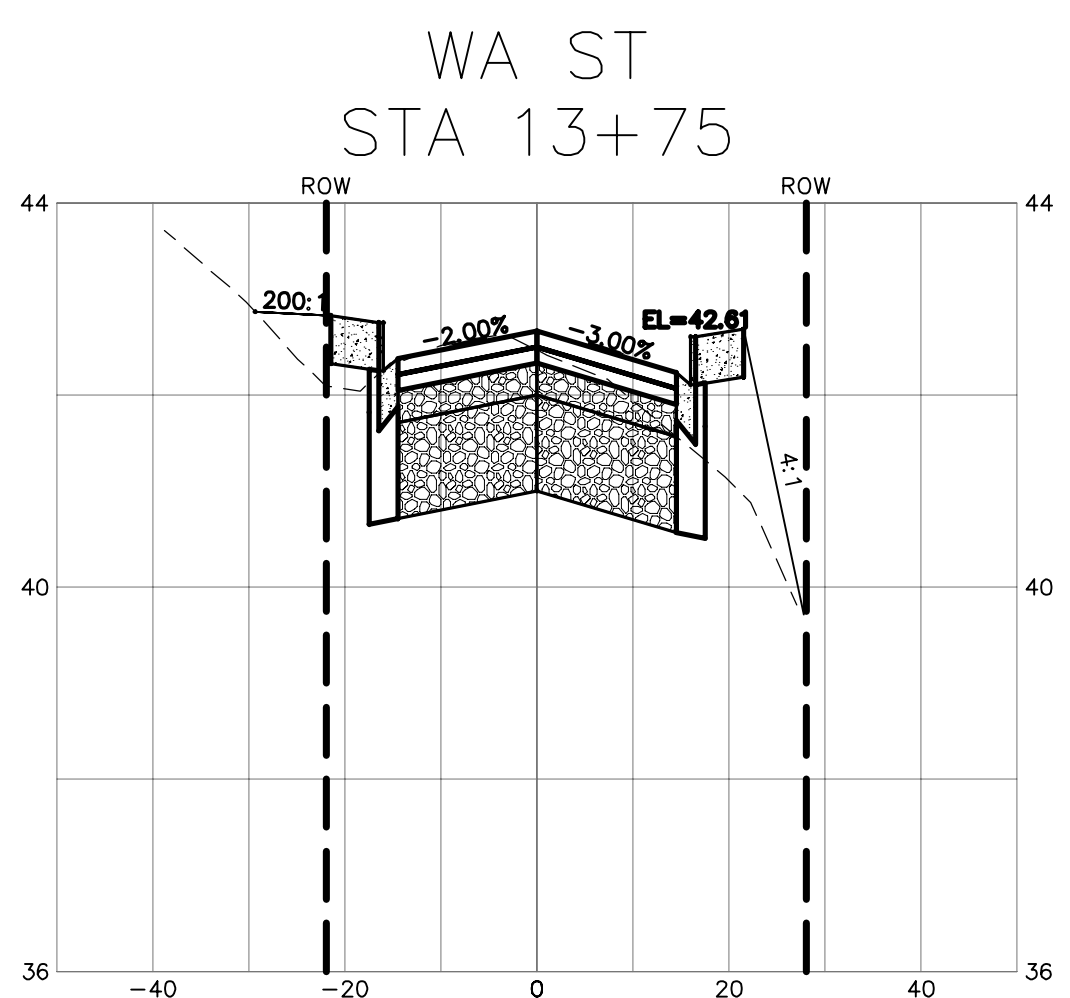
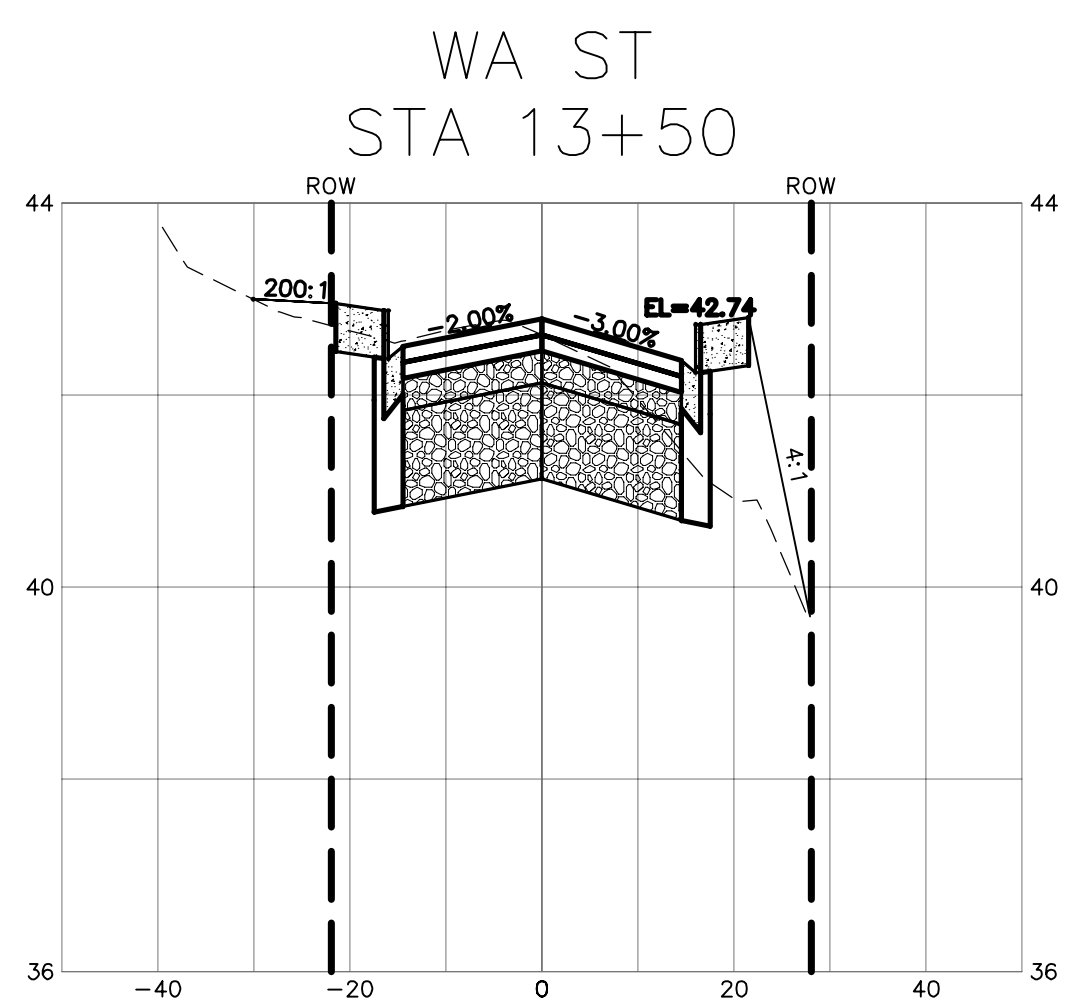
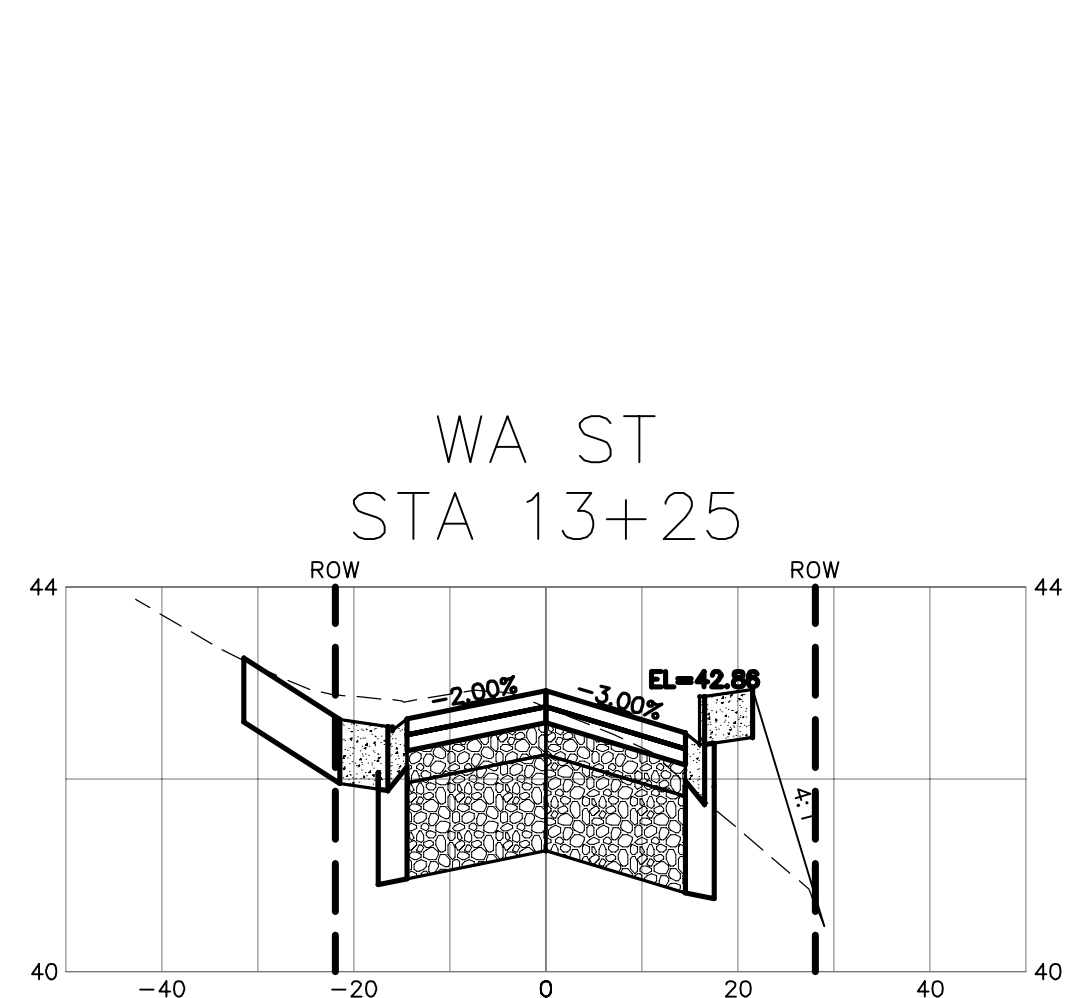
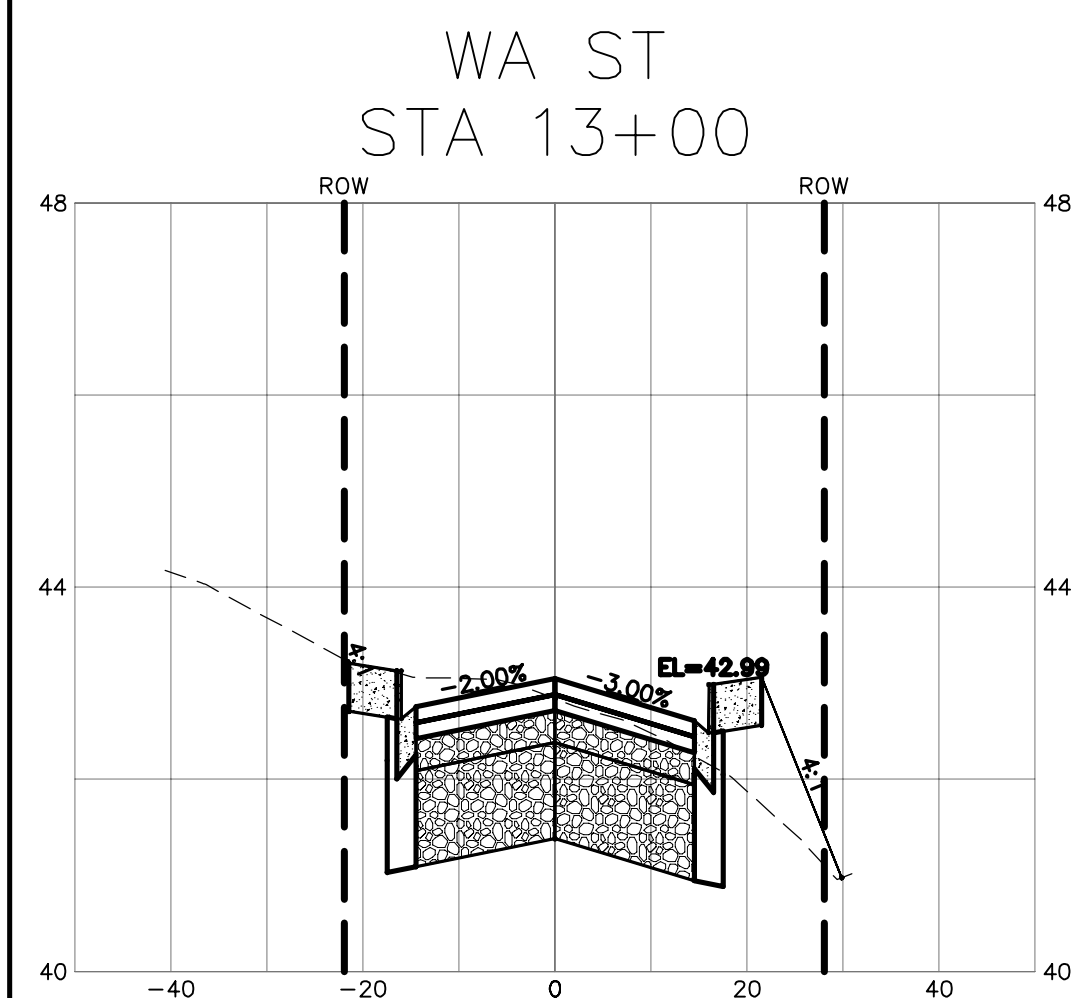
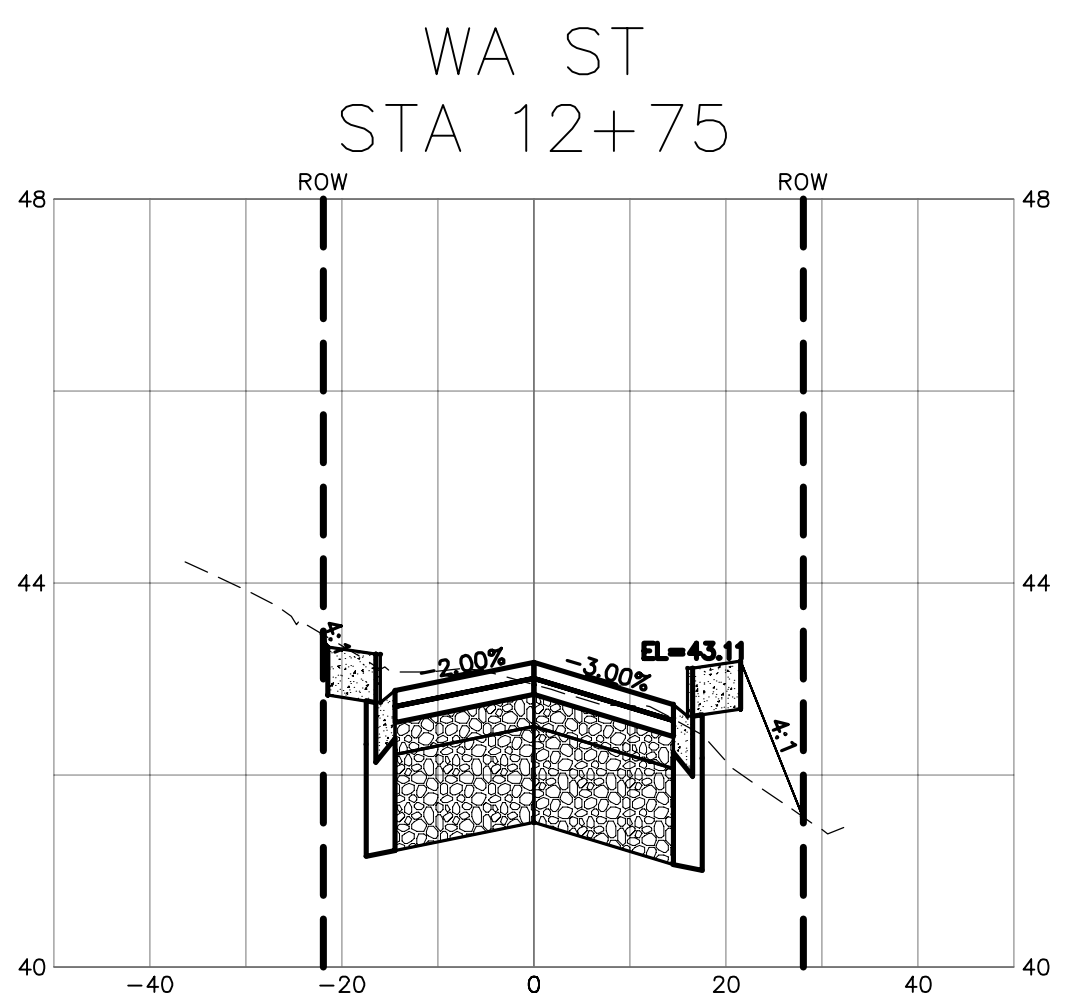
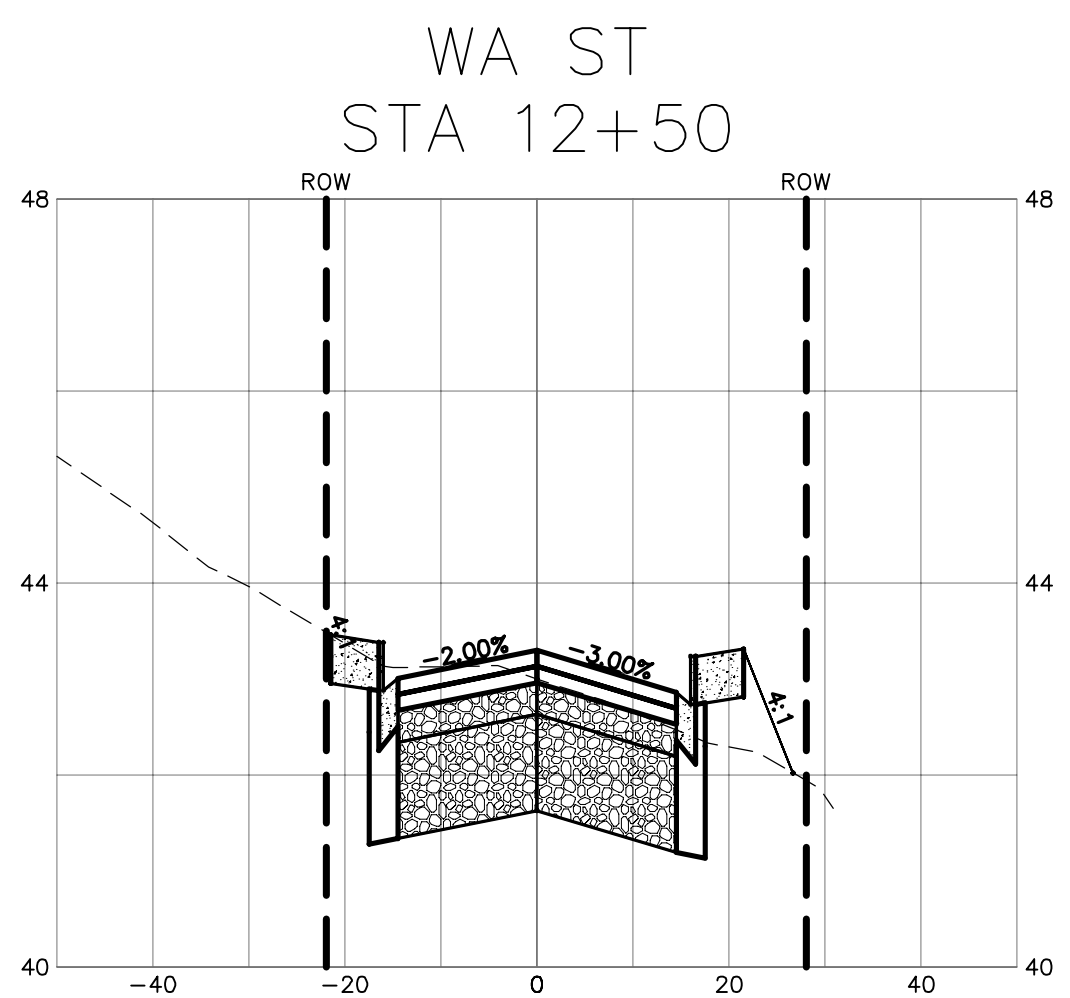
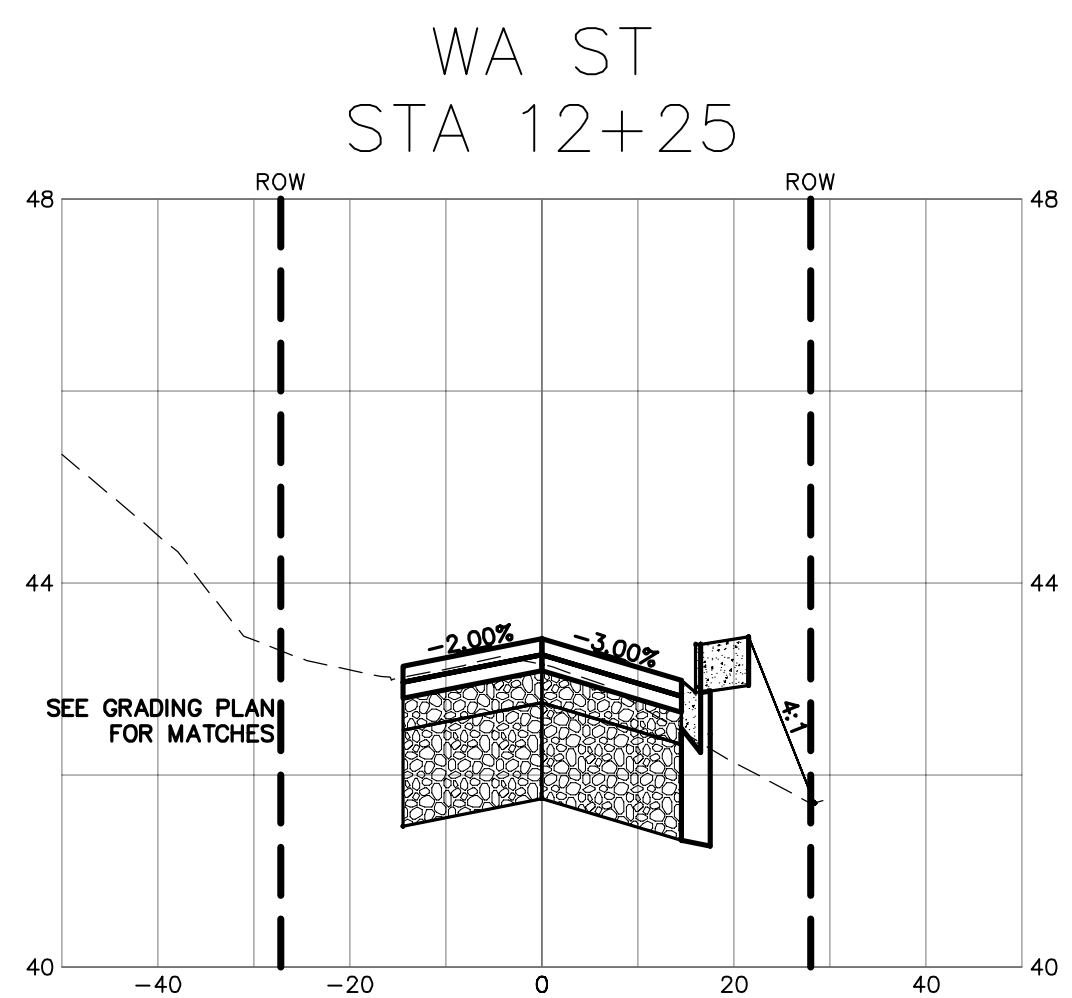
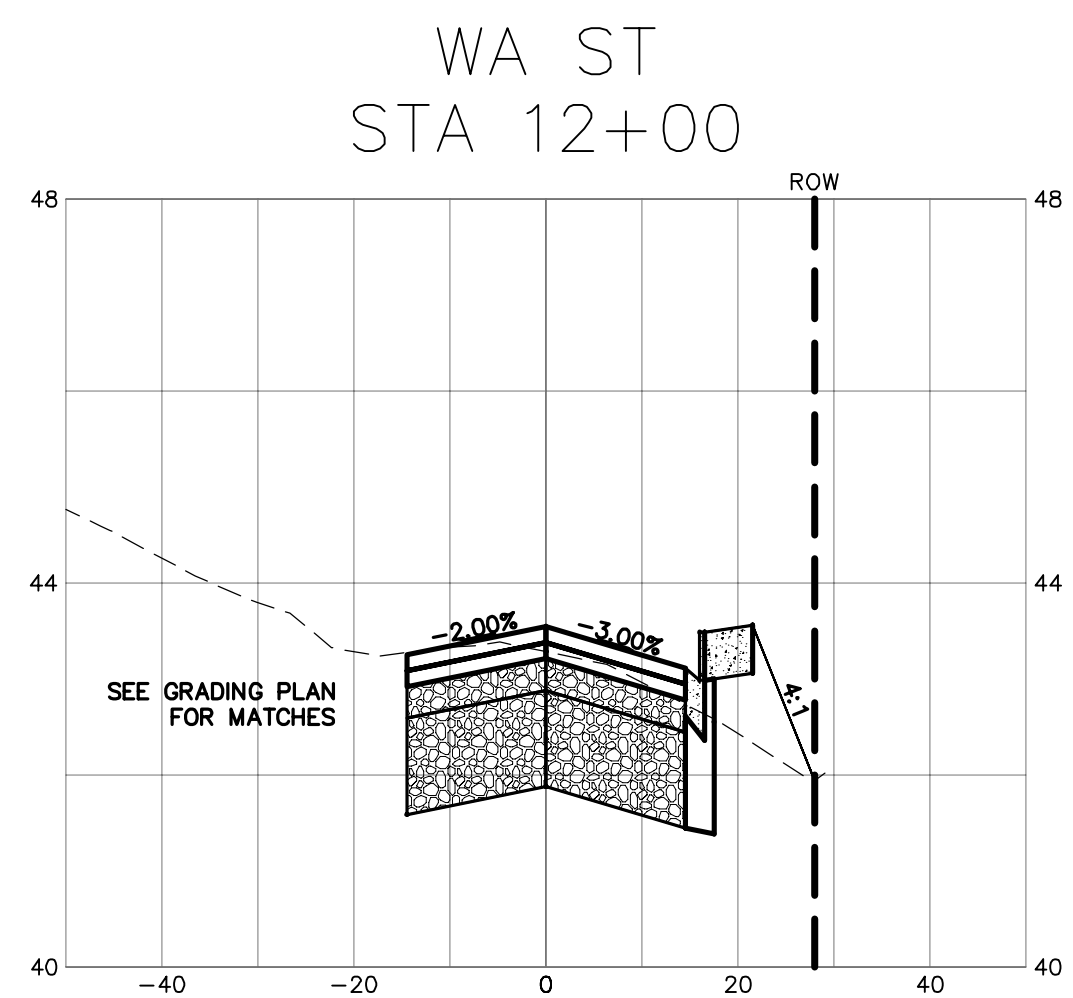
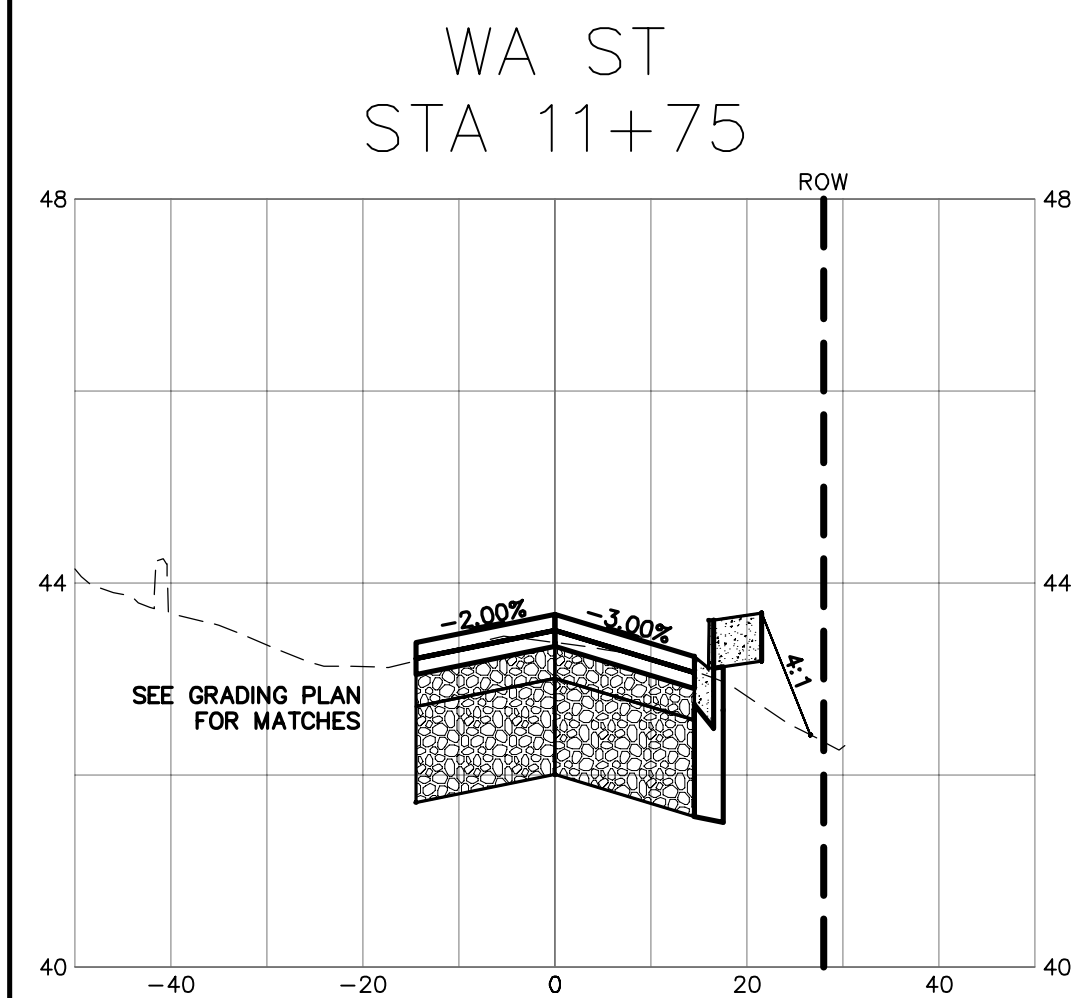
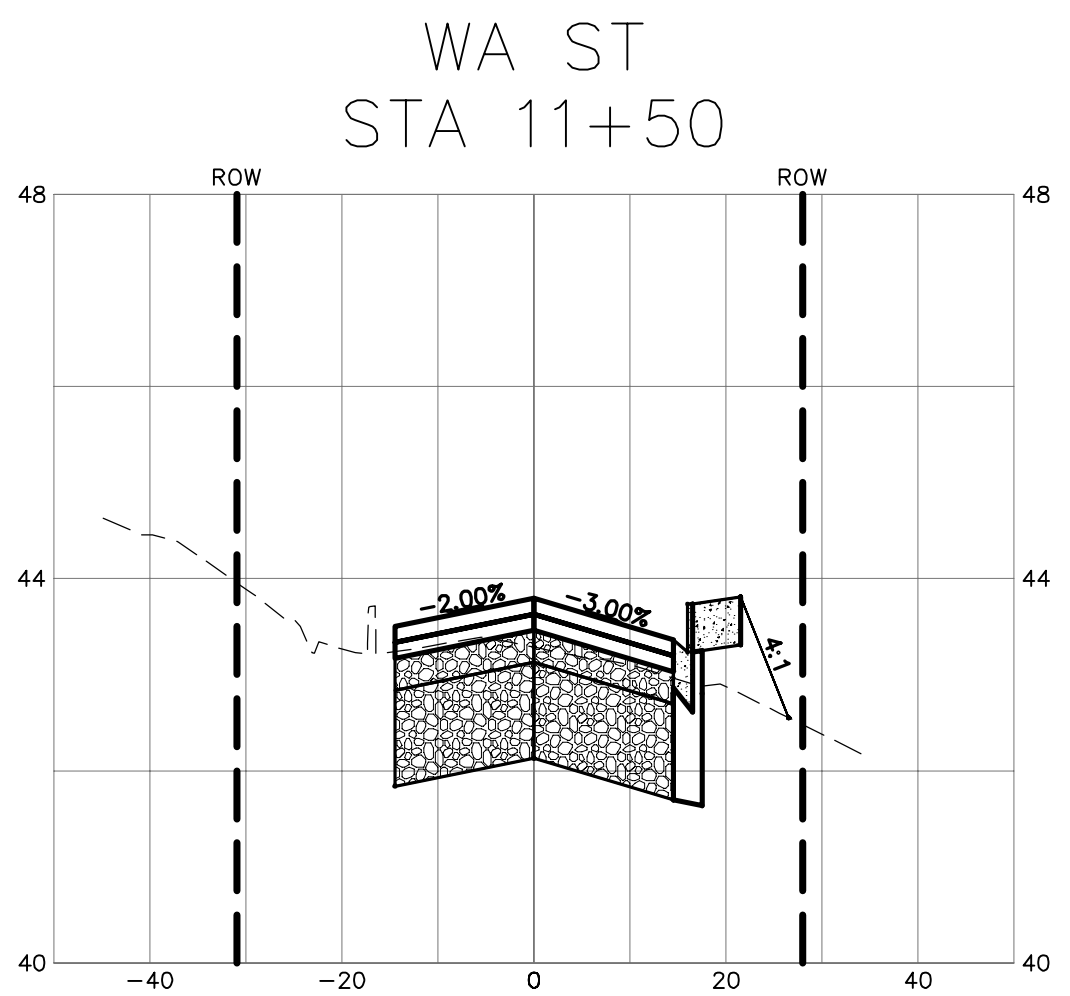
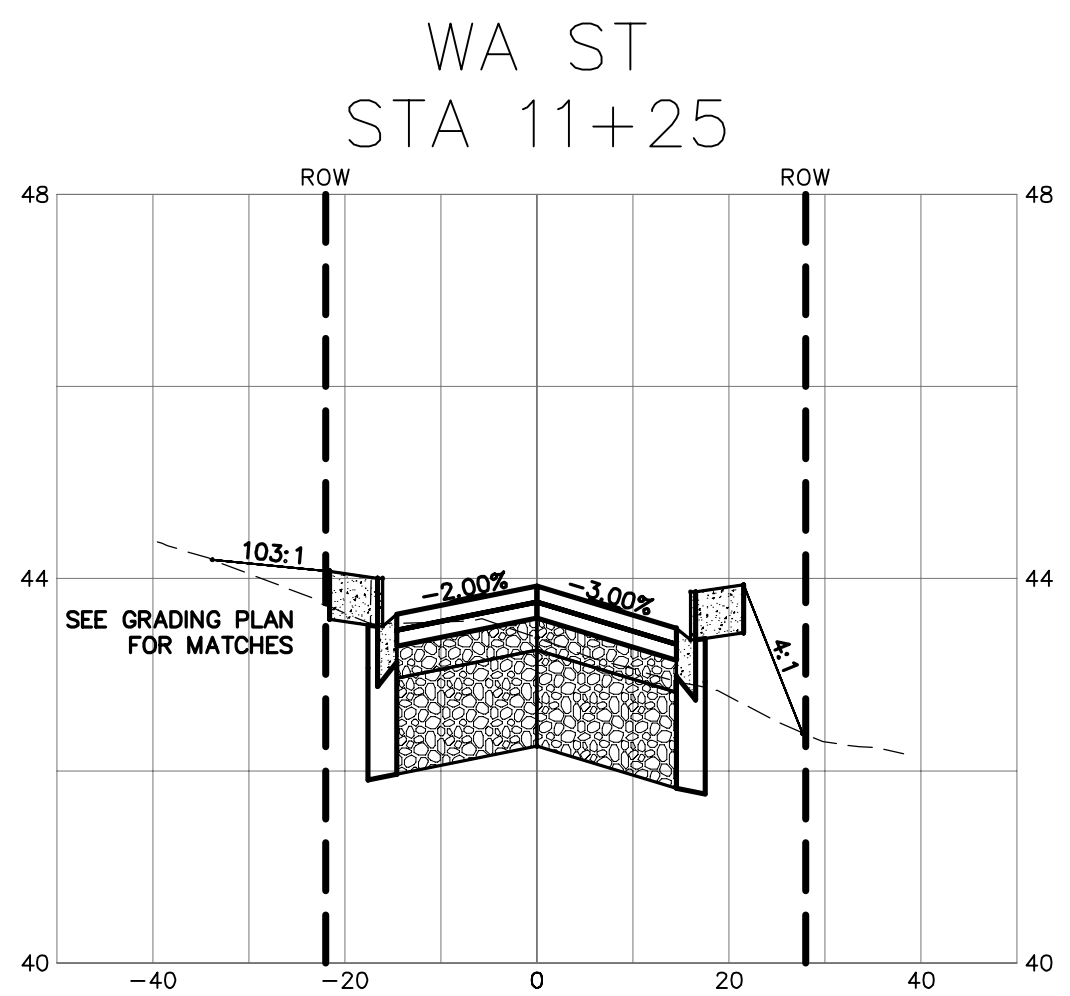
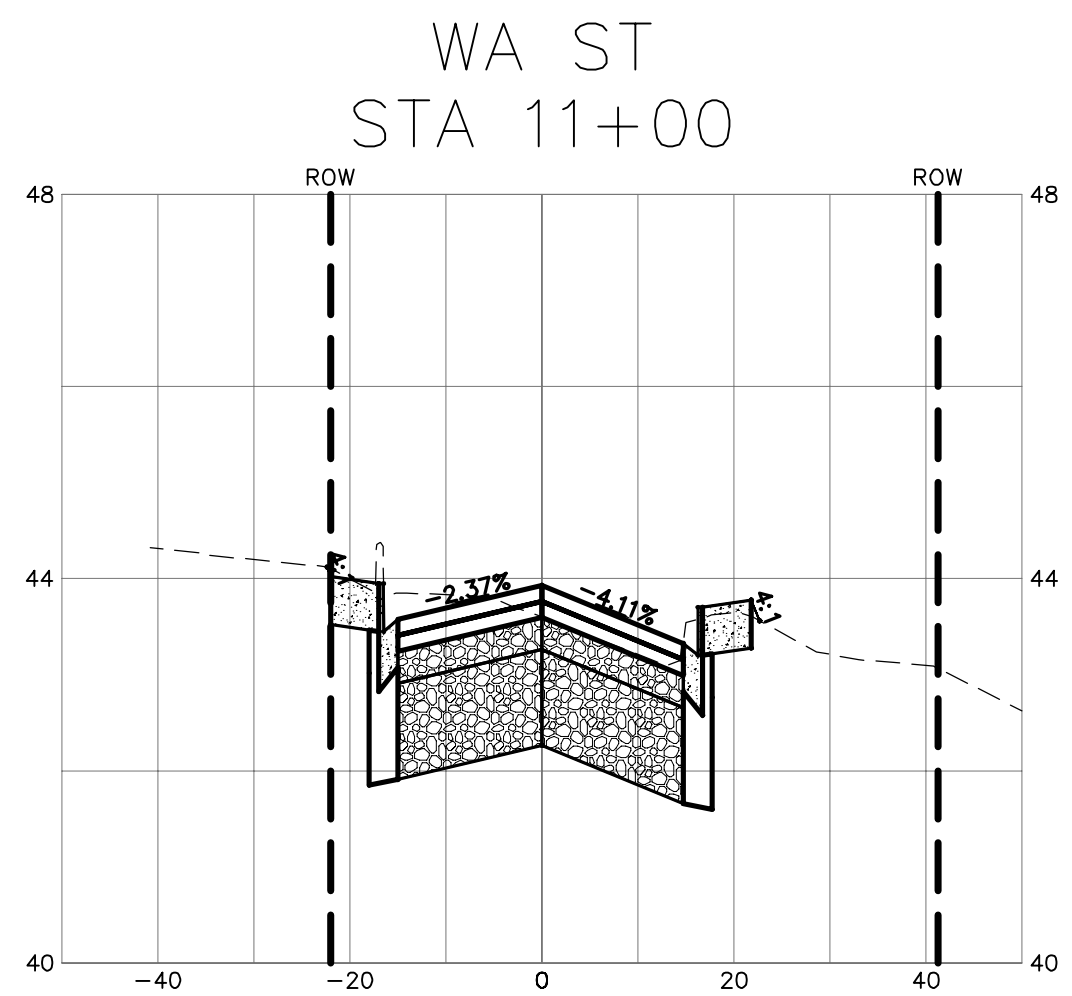
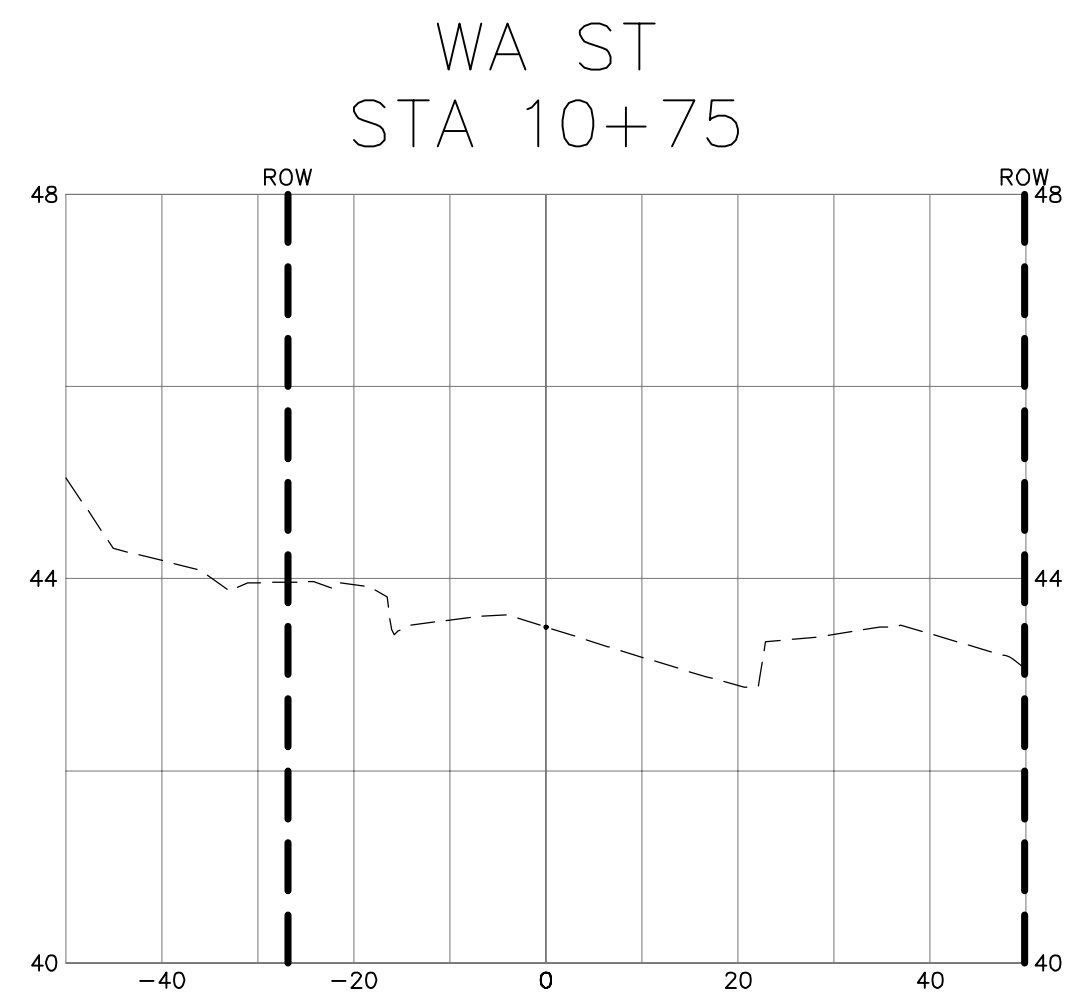
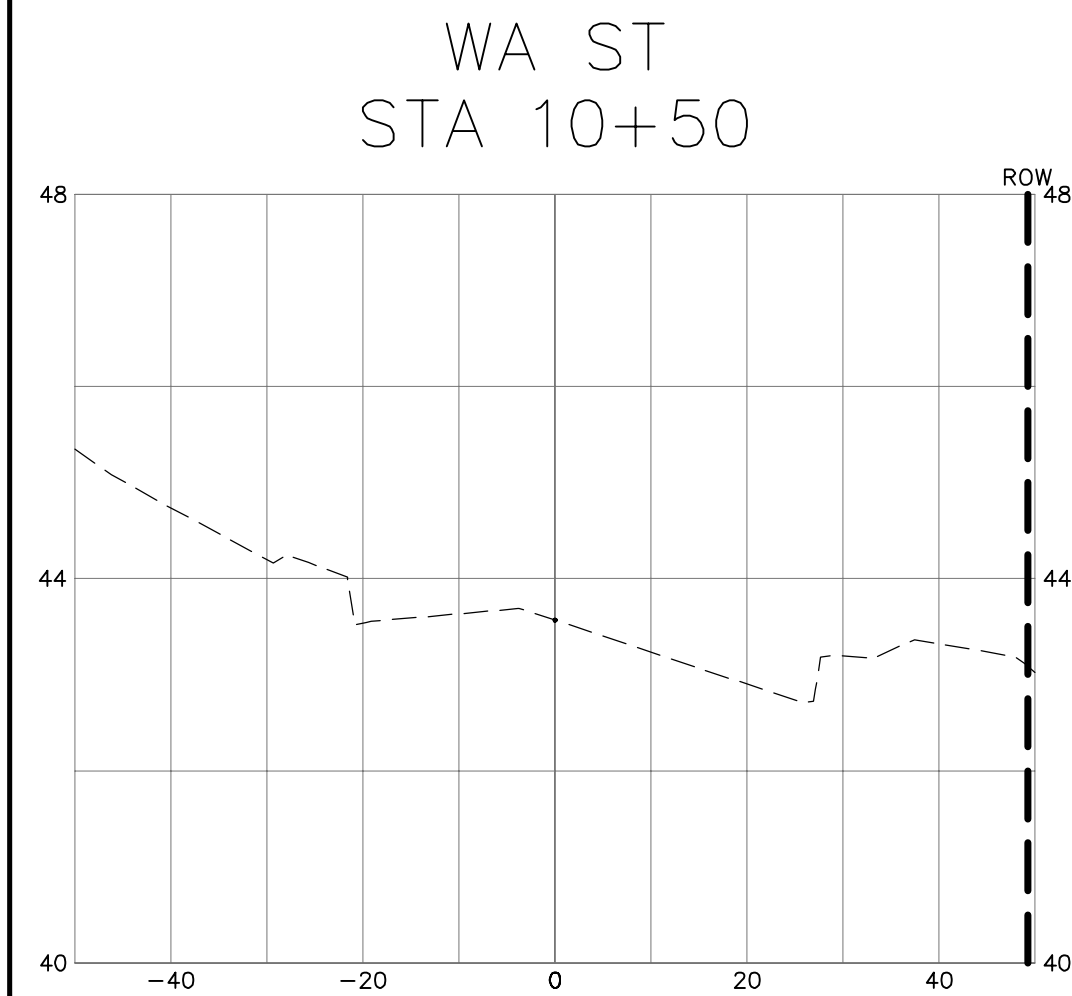
SHEET	20
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of 38





SUBMITTED WITH DESIGN PLAN	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713						CITY OF FERNDALE 2095 MAIN ST FERNDALE, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE CHANNELIZATION PLAN STA 19+50 TO 28+50	DWG 16026 CHAN		DATE 1/8/2019	
	DRAWN BY PJC												
	CHECKED BY LP												
			NO.	DATE	DESCRIPTION	BY				JOB# 16026	SCALE H: 1"=20' V: N/A	SHEET 32 of 38	



SUBMITTED WITH
DESIGN PLAN

DESIGNED BY
ARS
DRAWN BY
PJC
CHECKED BY
LP



Reichhardt & Ebe
ENGINEERING INC

P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
CROSS SECTIONS

DWG 16026 SEWER STORM PP

JOB#

16026

SCALE

H: 1"=20'

V: 1"=2'

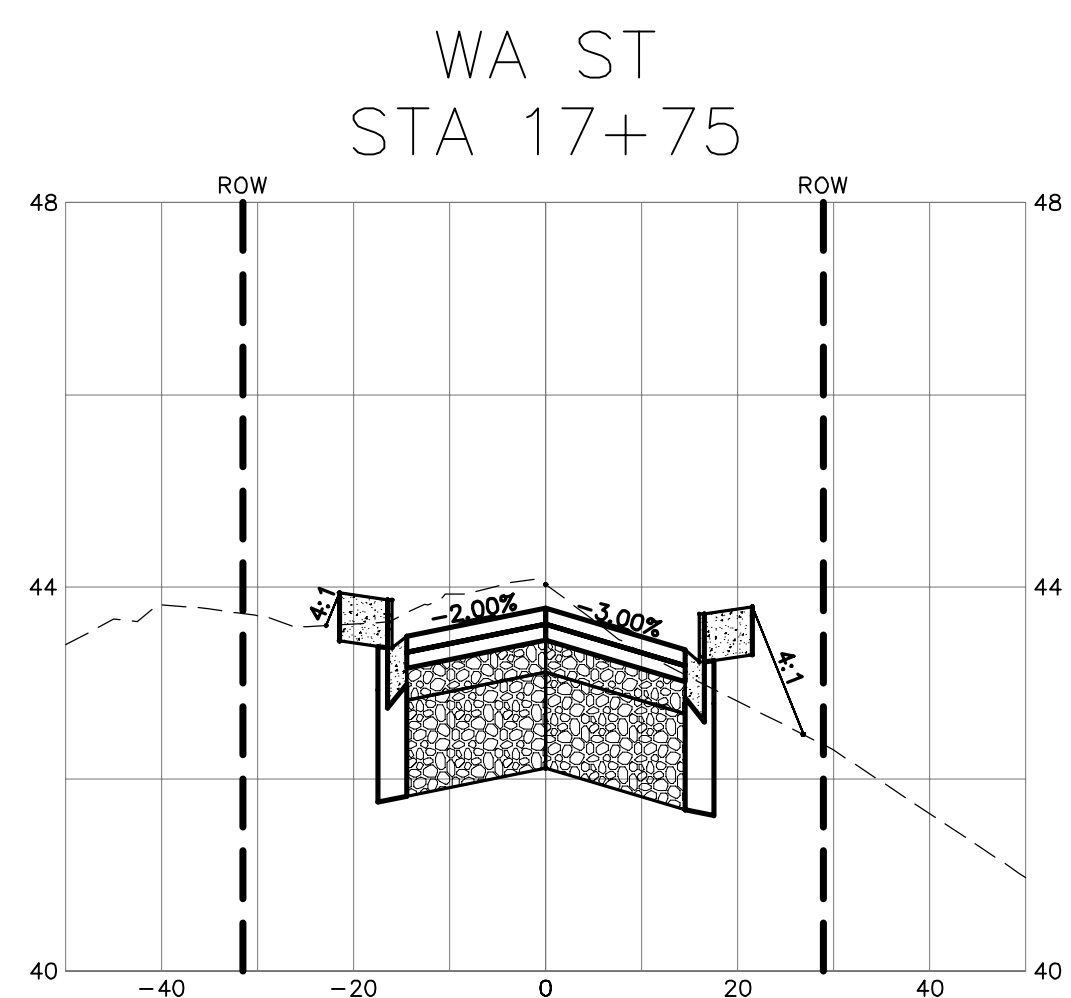
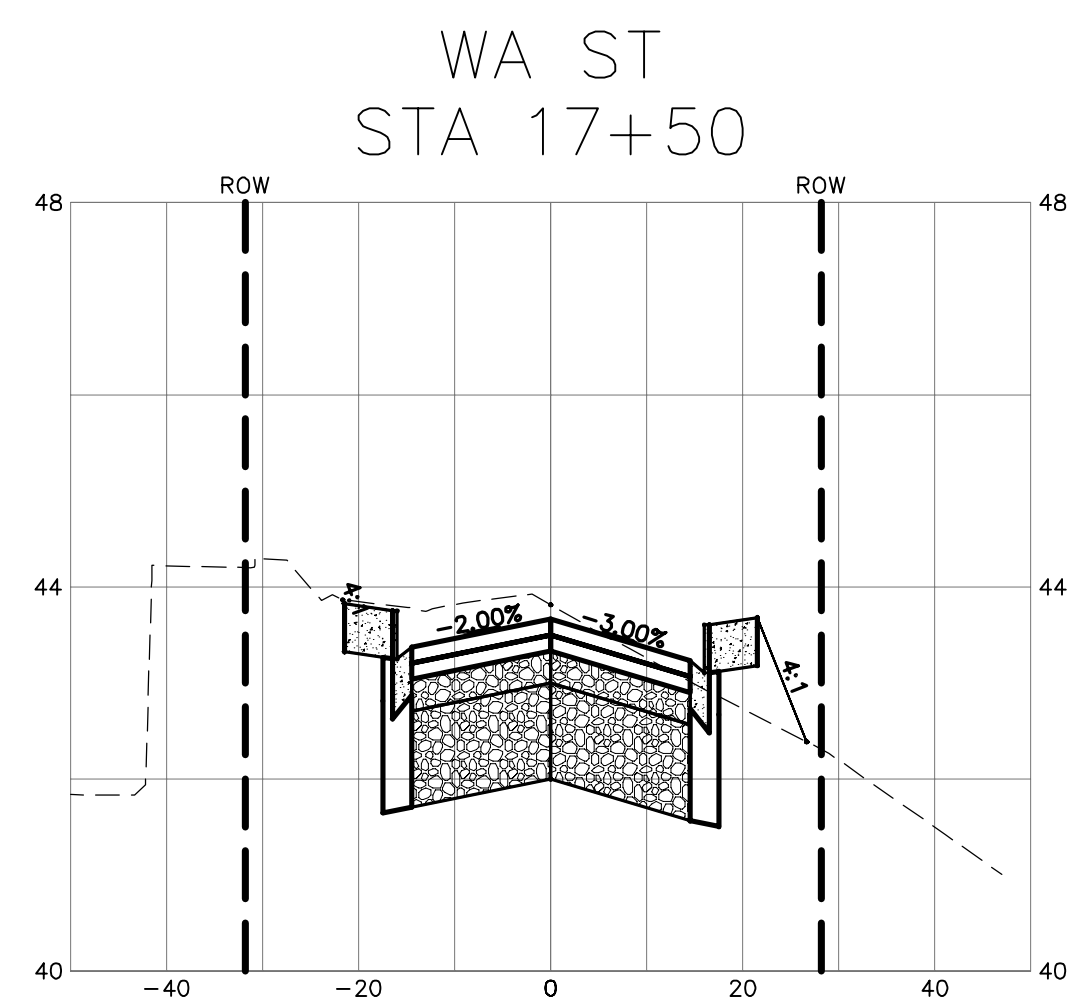
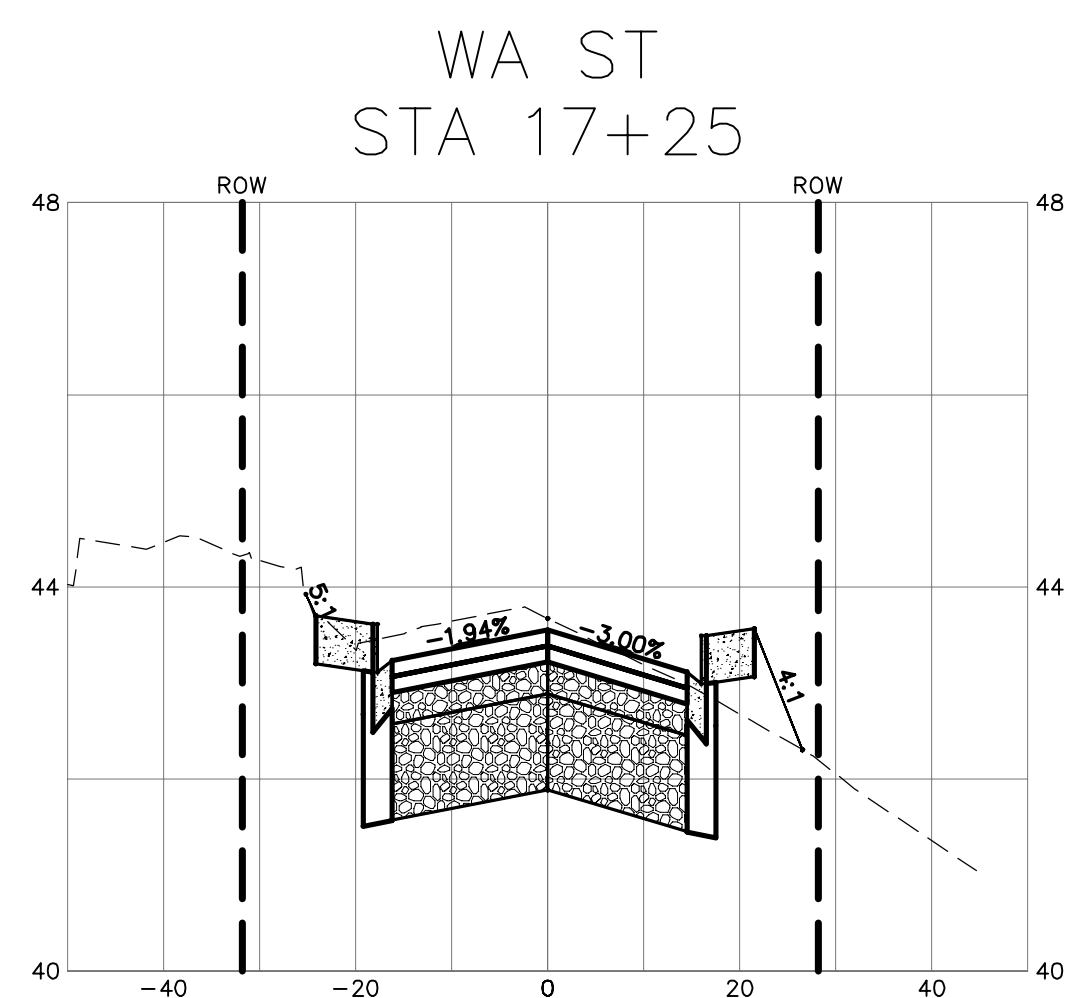
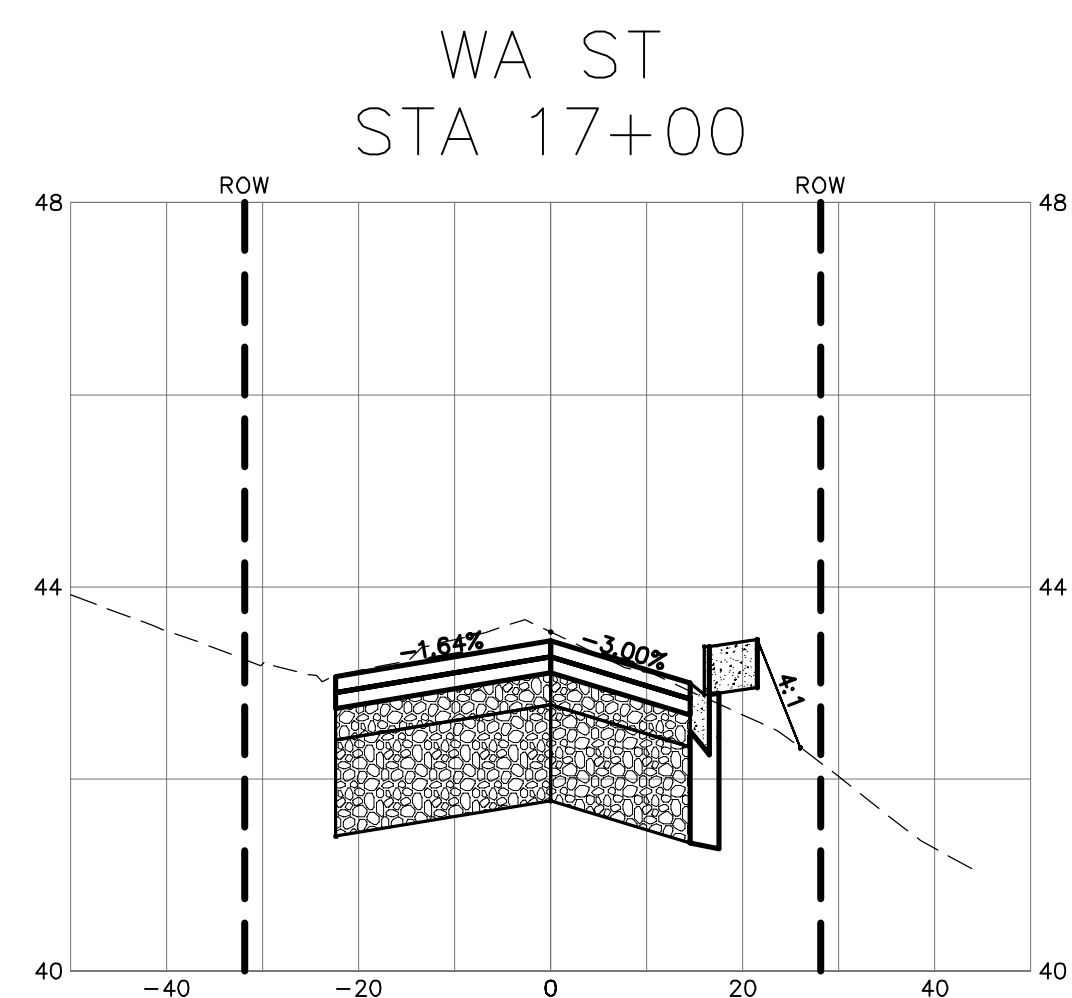
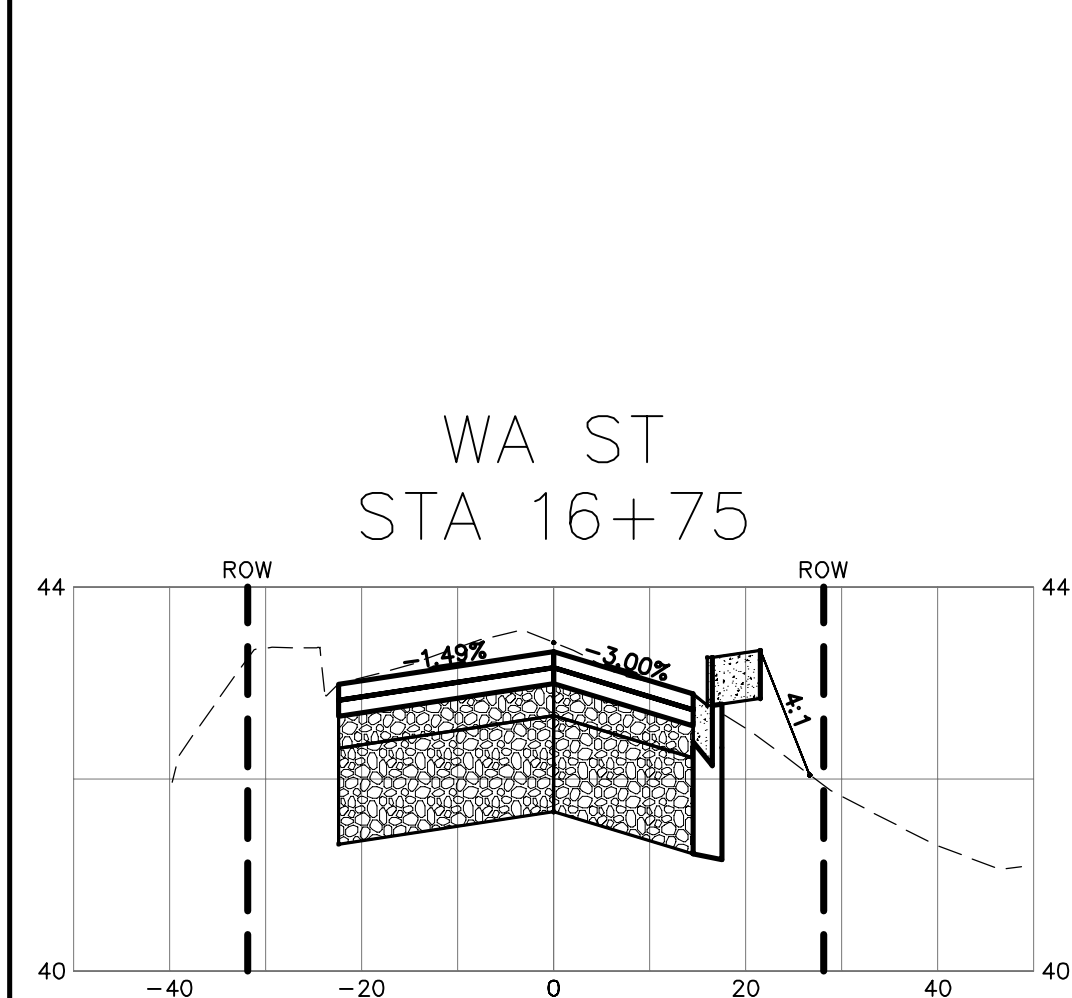
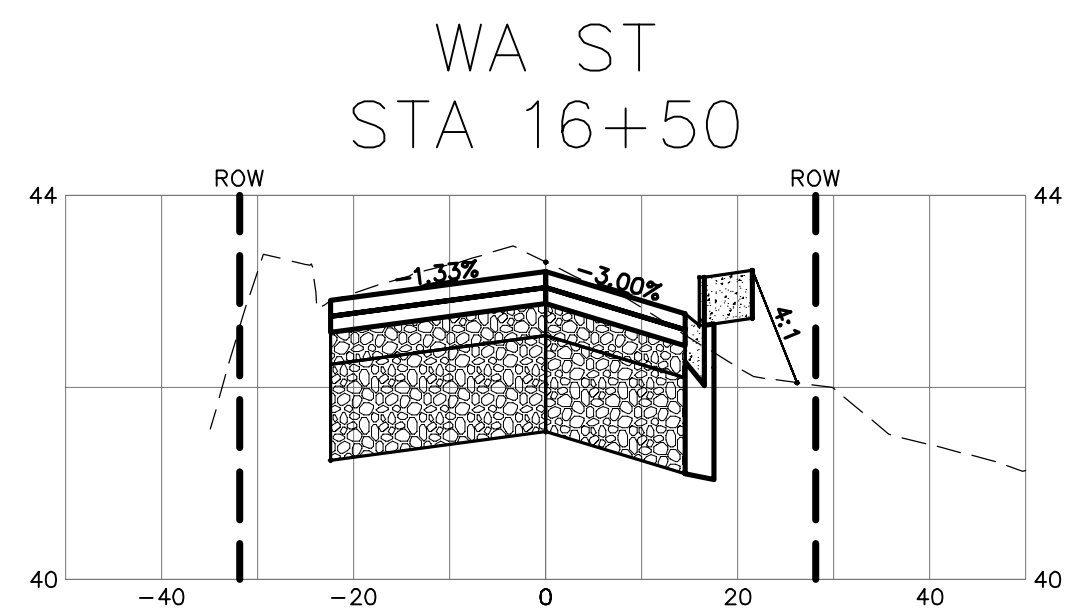
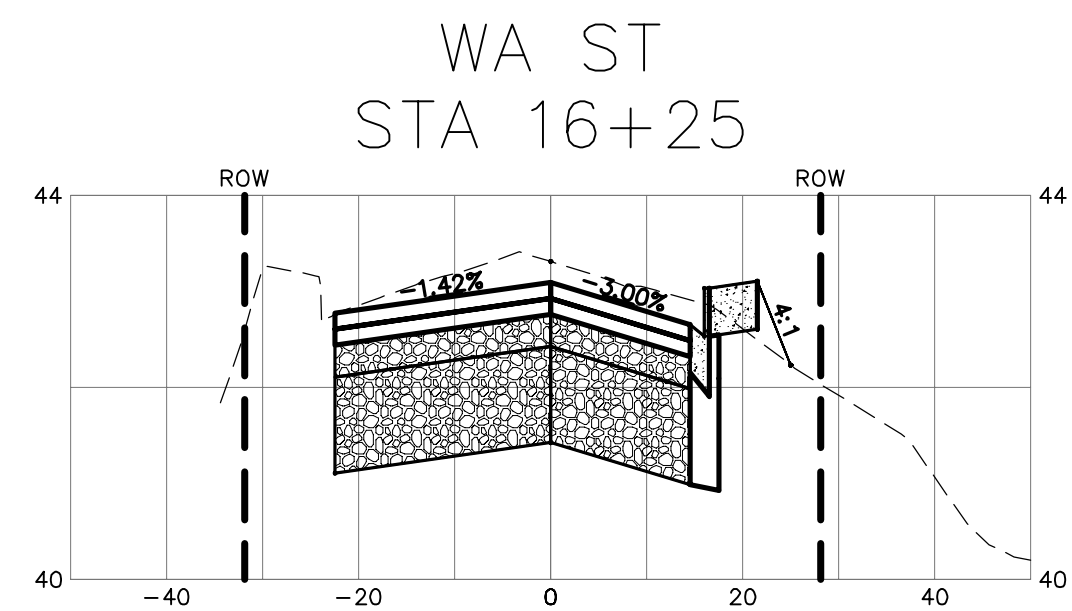
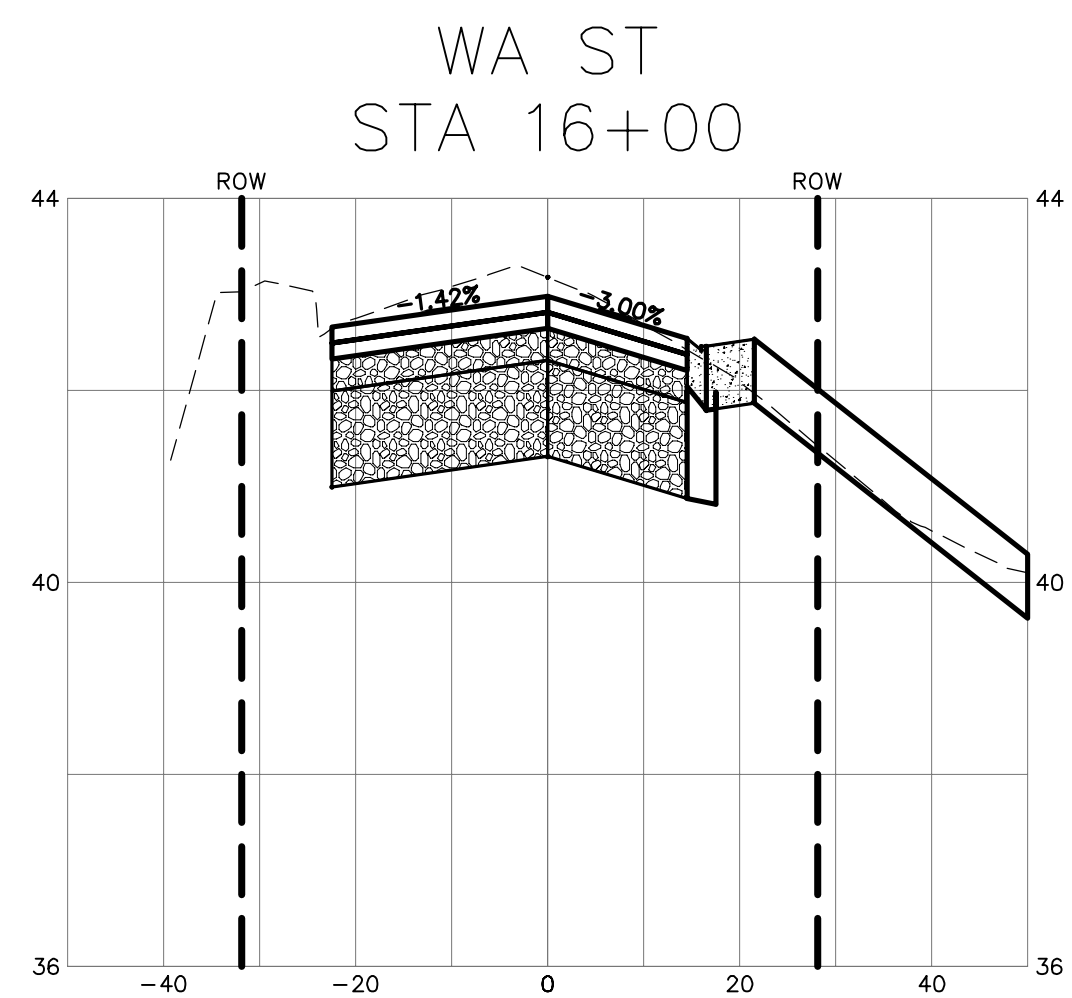
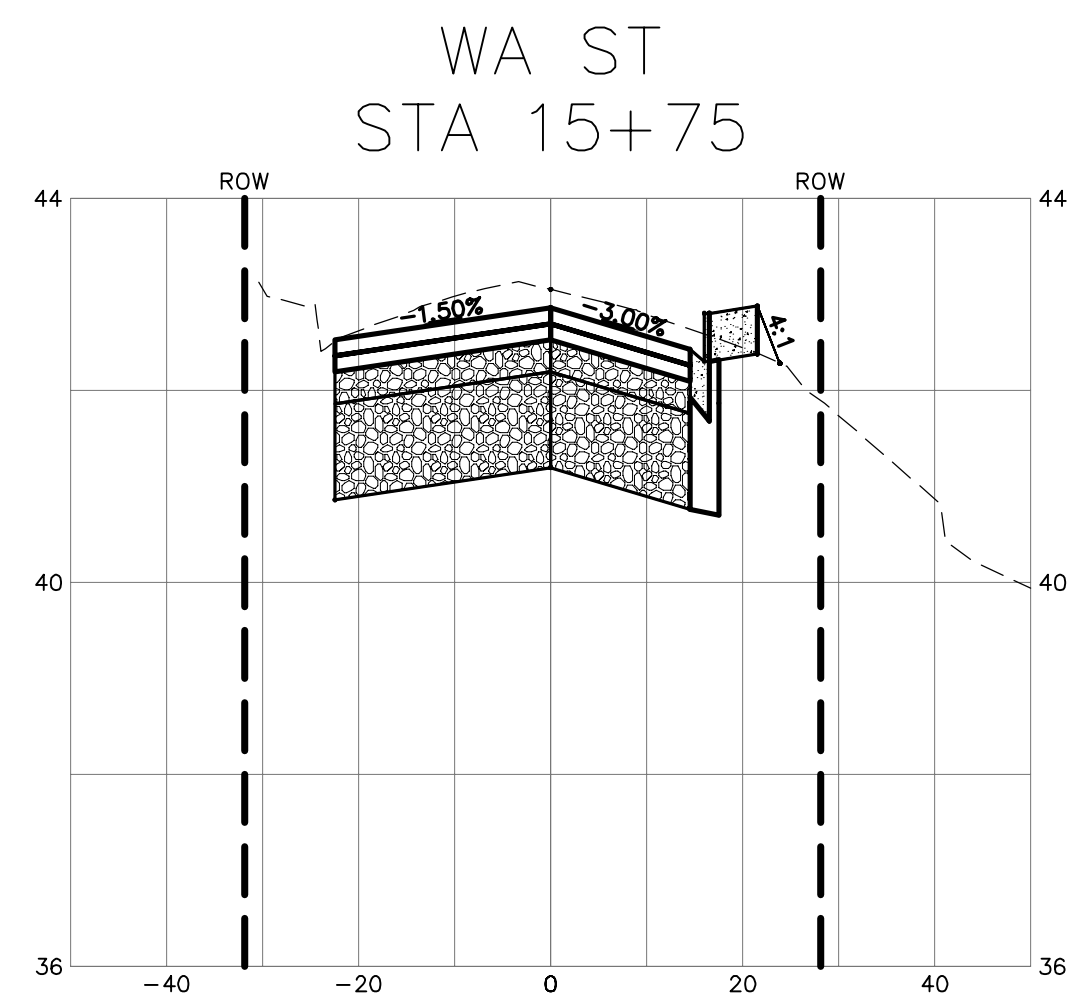
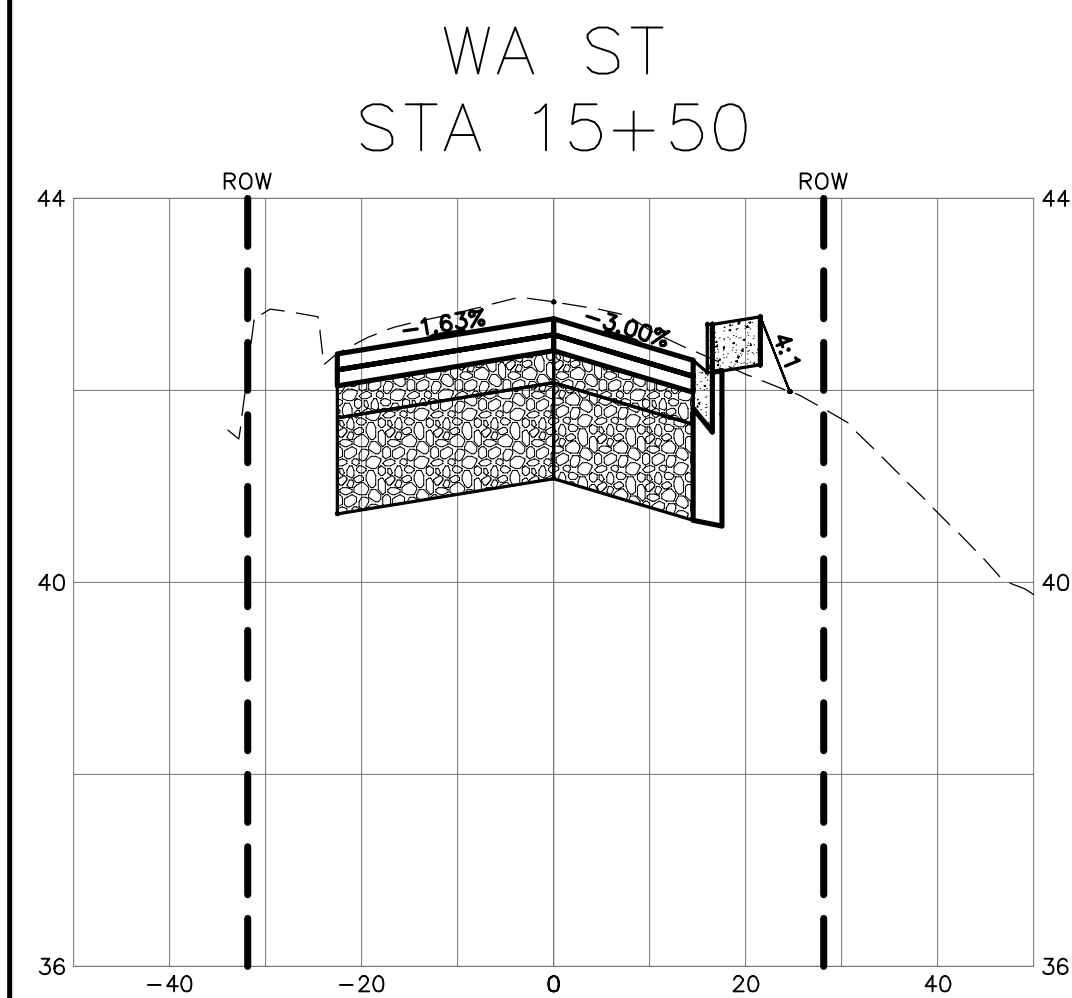
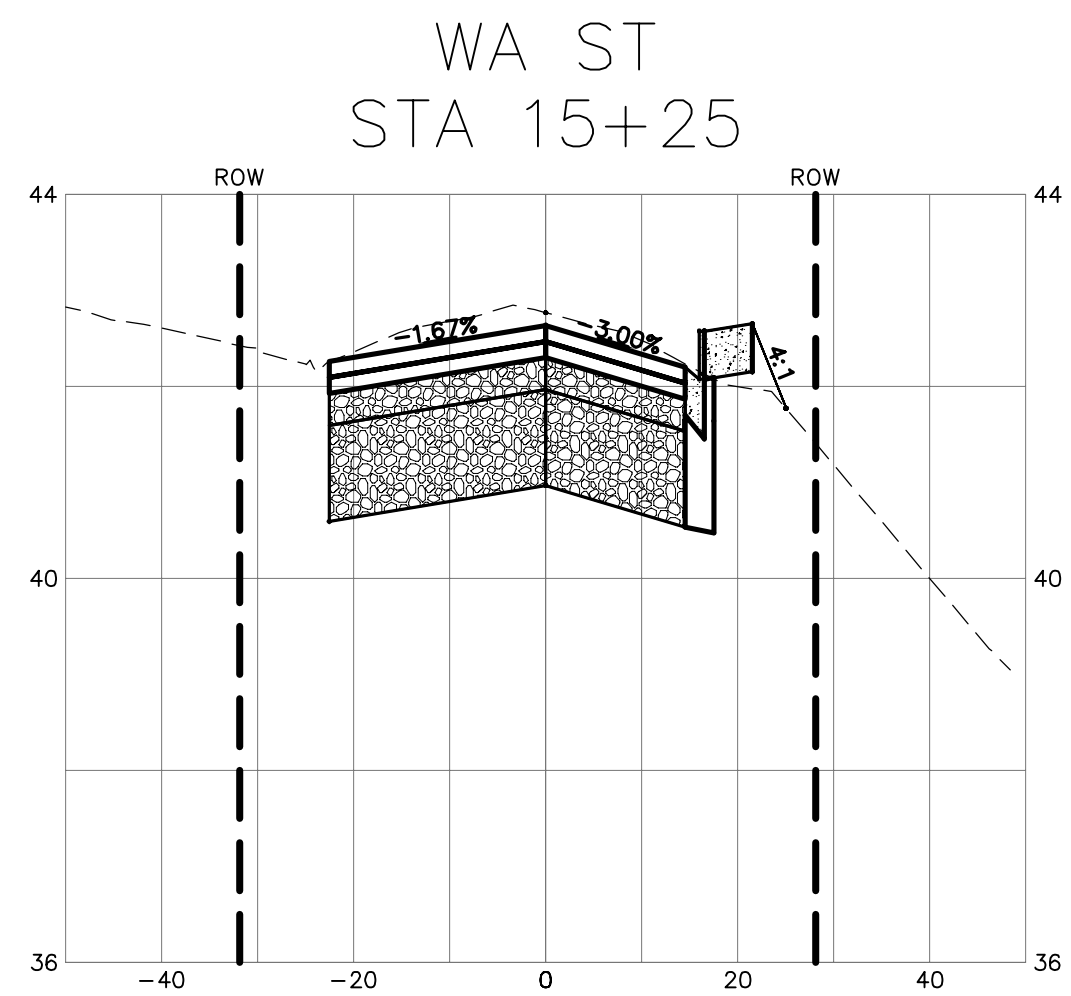
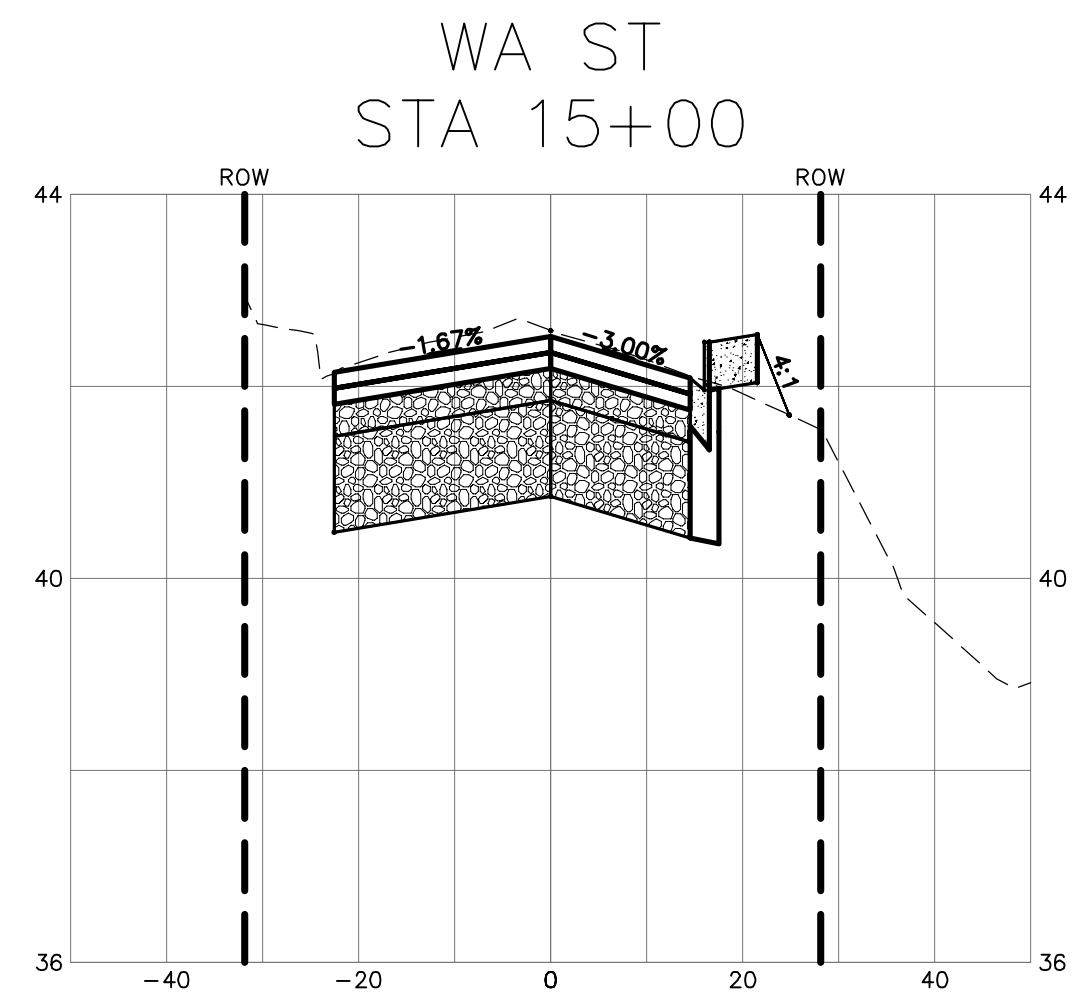
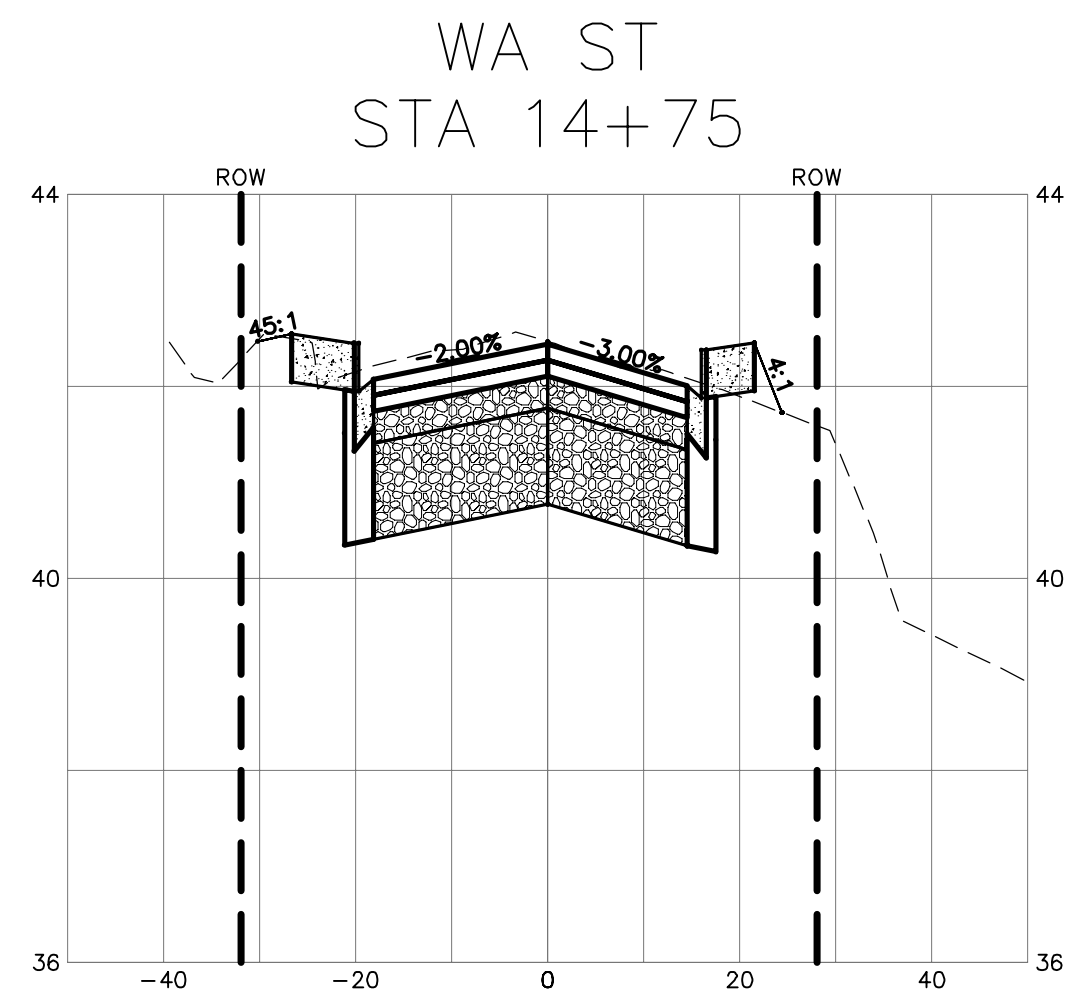
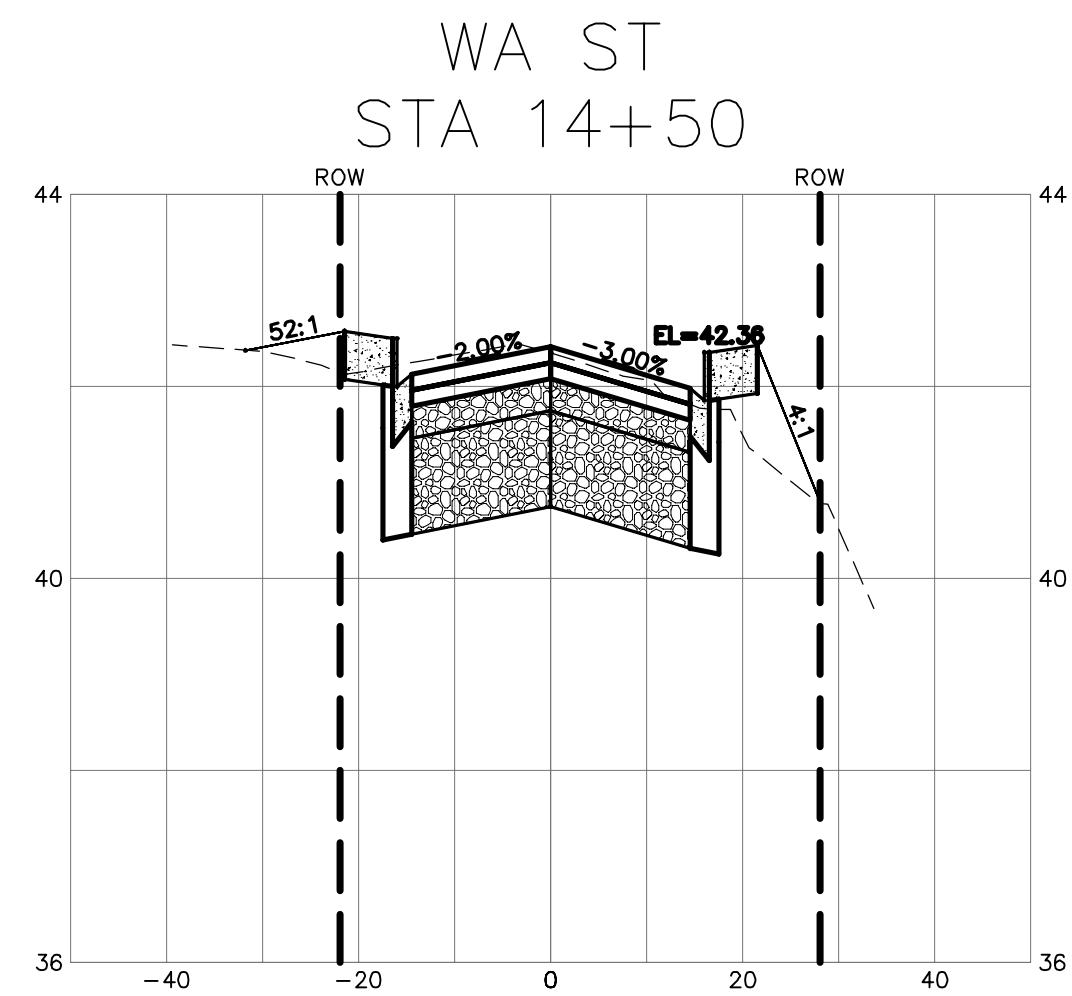
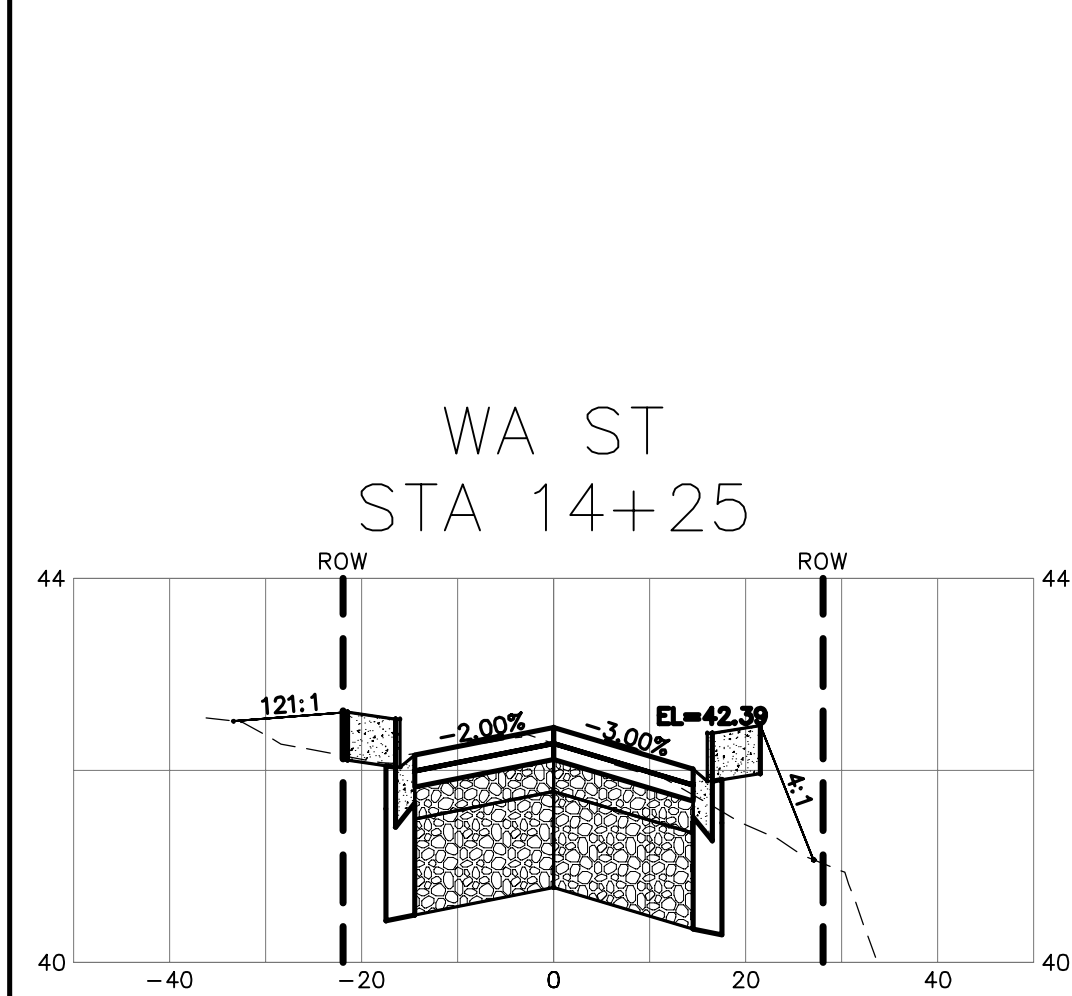
DATE

1/8/2019

SHEET

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of 38



SUBMITTED WITH
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ARS
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**Reichhardt & Ebe
ENGINEERING INC**
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF FERDALE
2095 MAIN ST
FERDALE, WA 98248

WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
CROSS SECTIONS

DWG 16026 SEWER STORM PP

JOB#

16026

SCALE

H: 1"=20'

V: 1"=2'

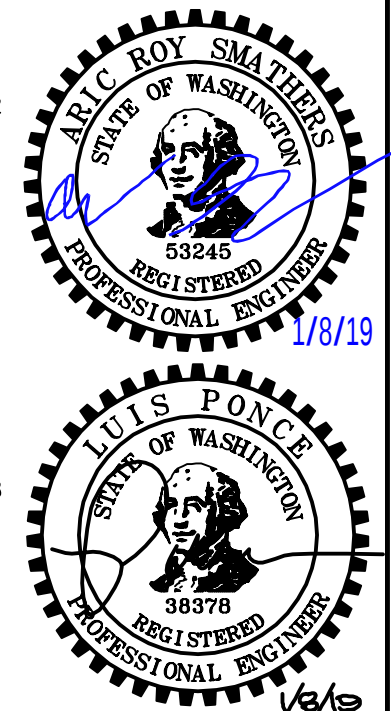
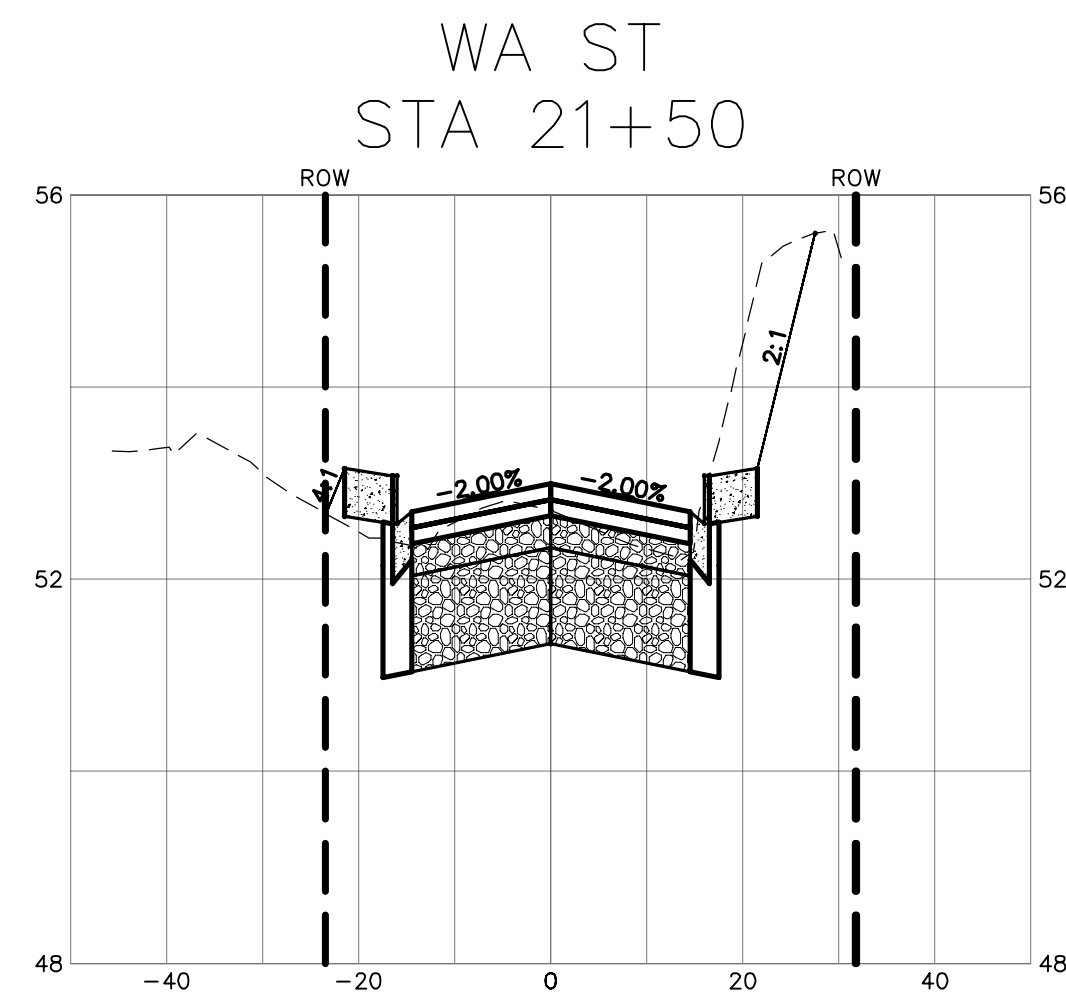
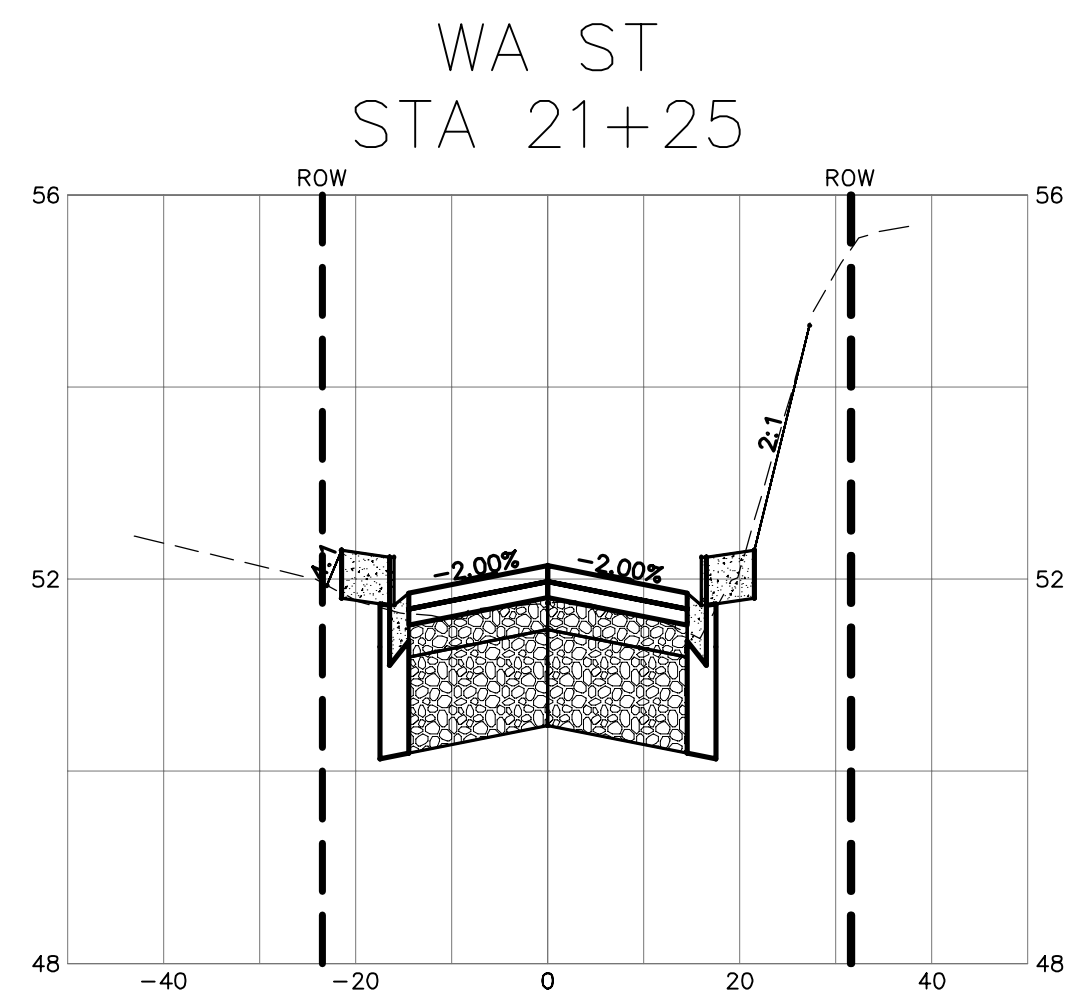
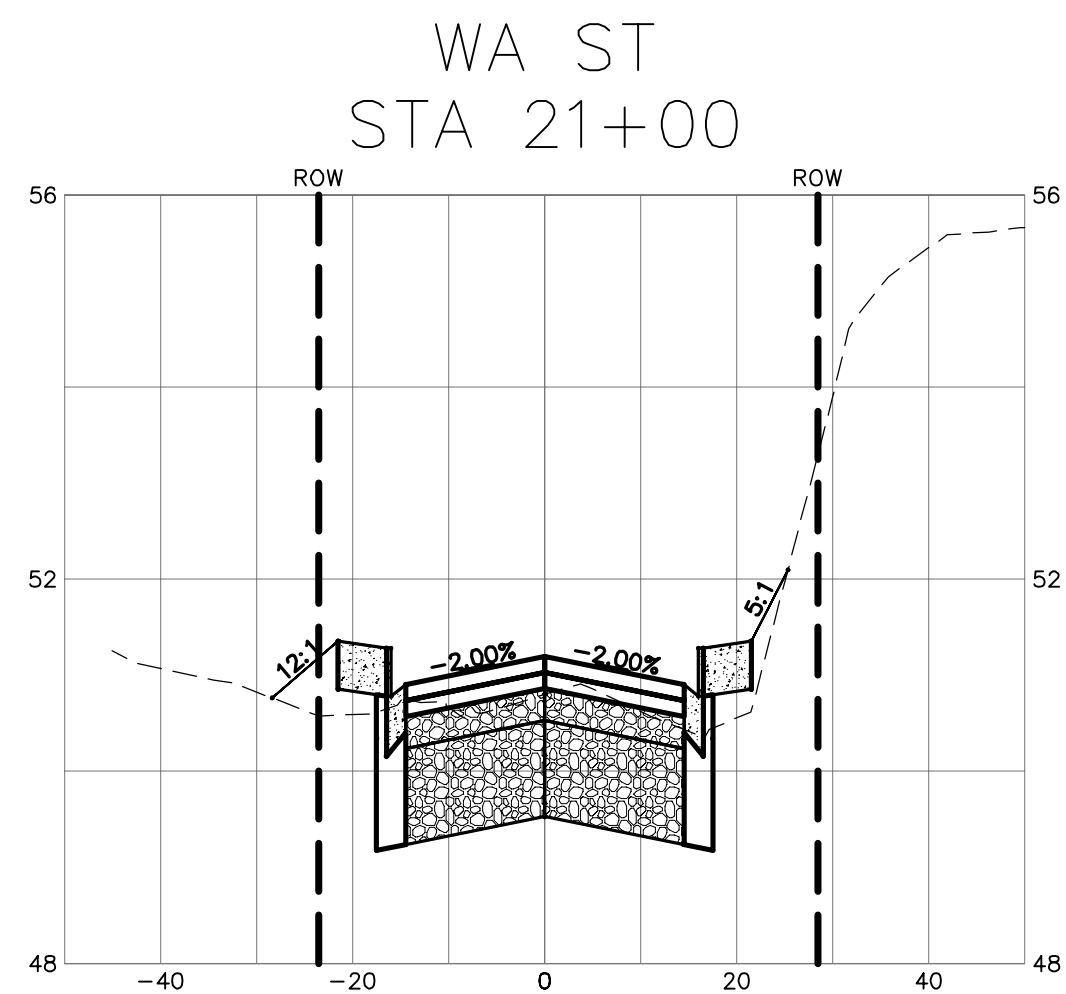
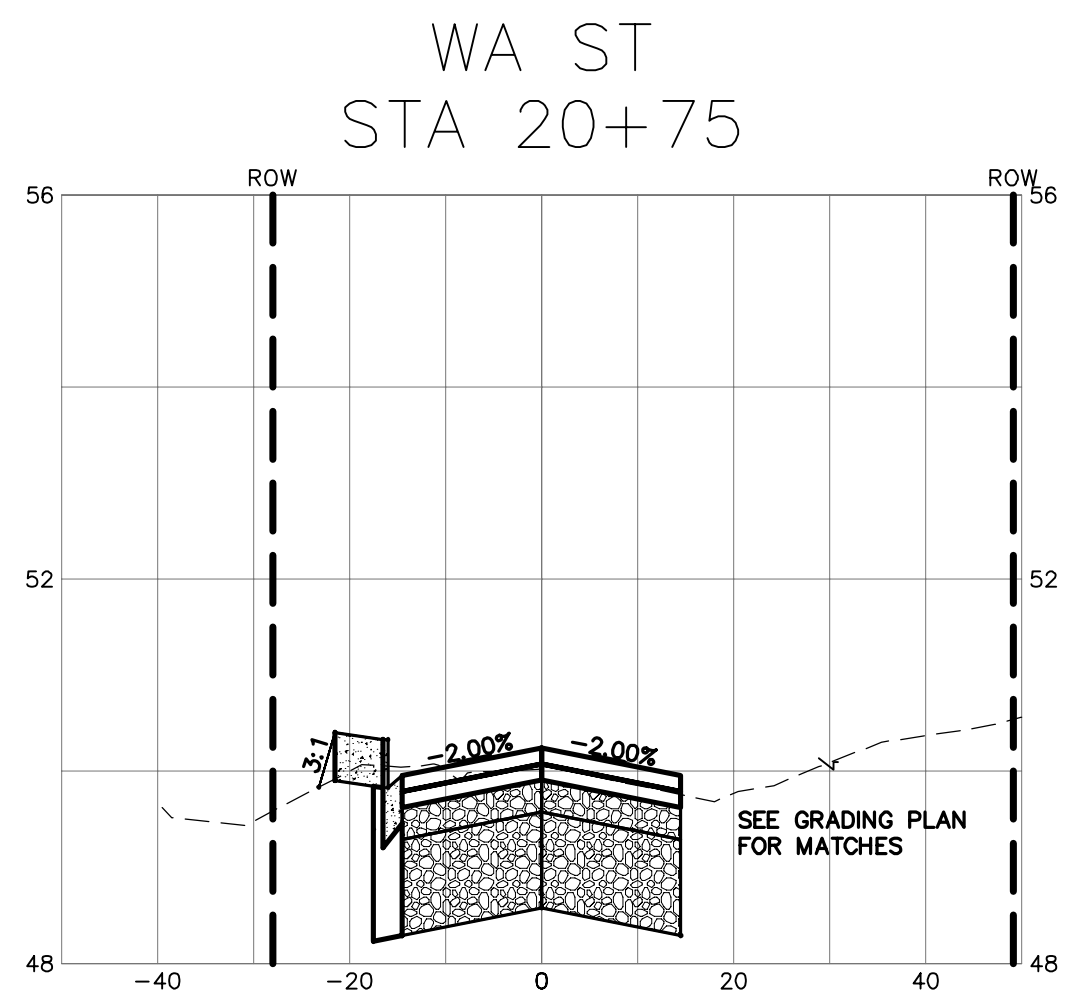
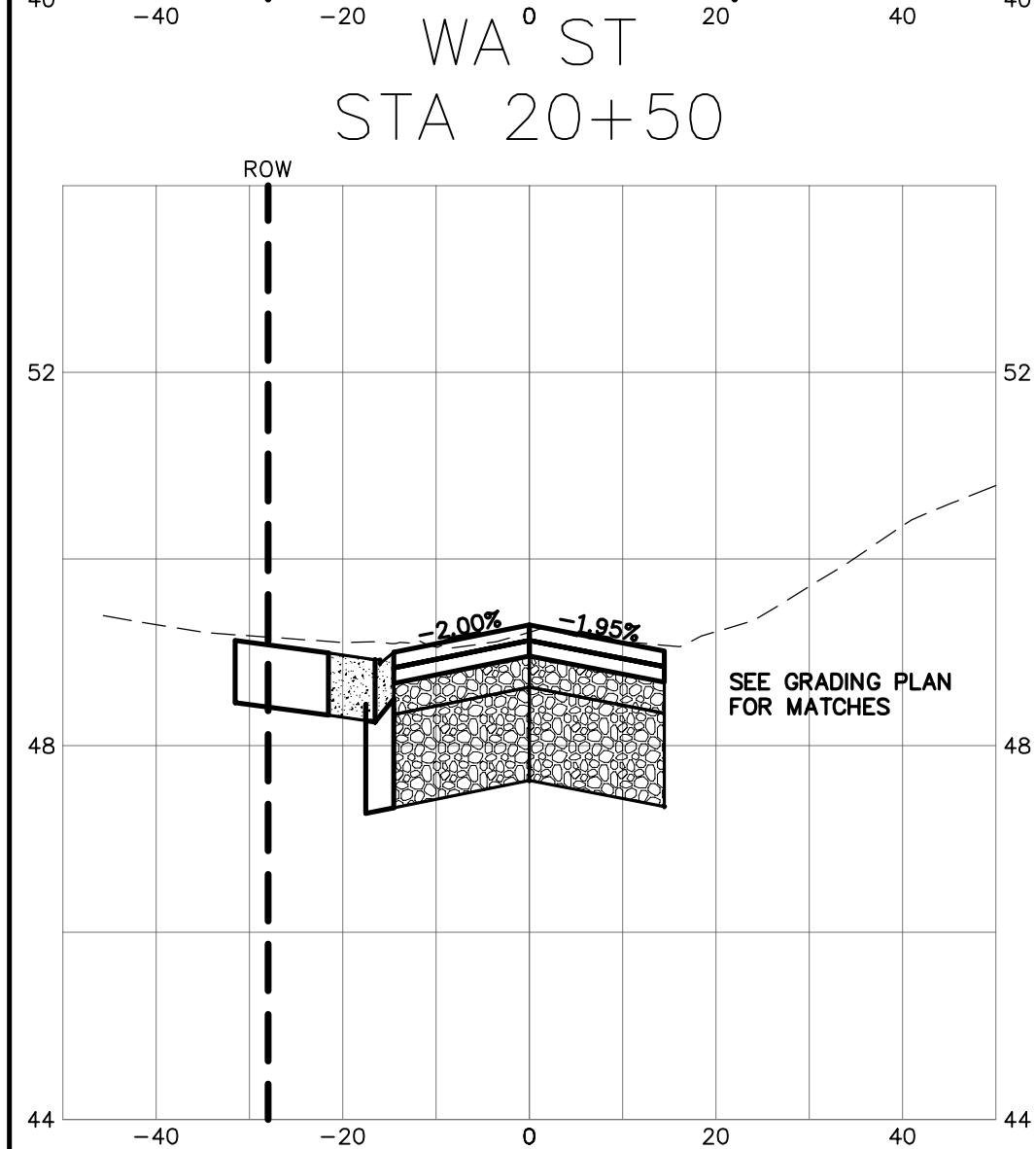
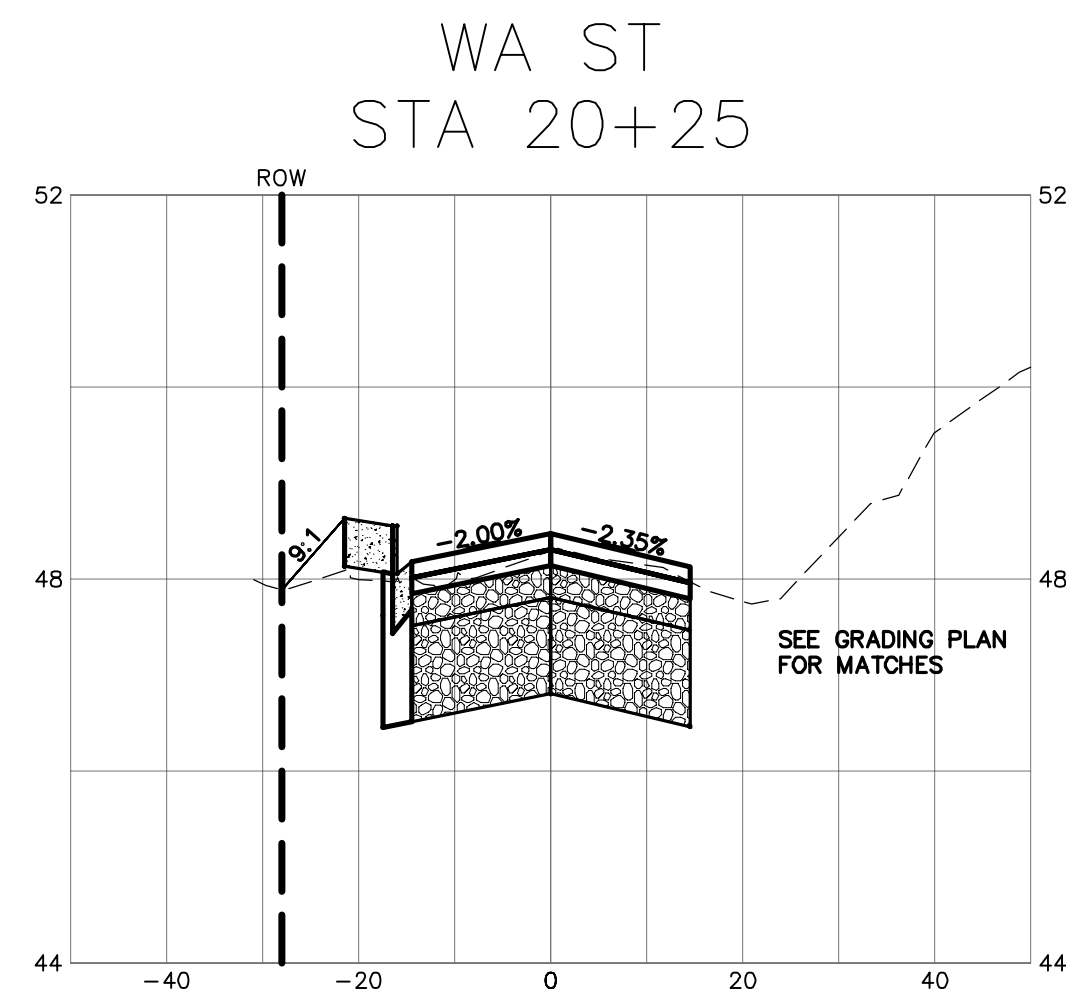
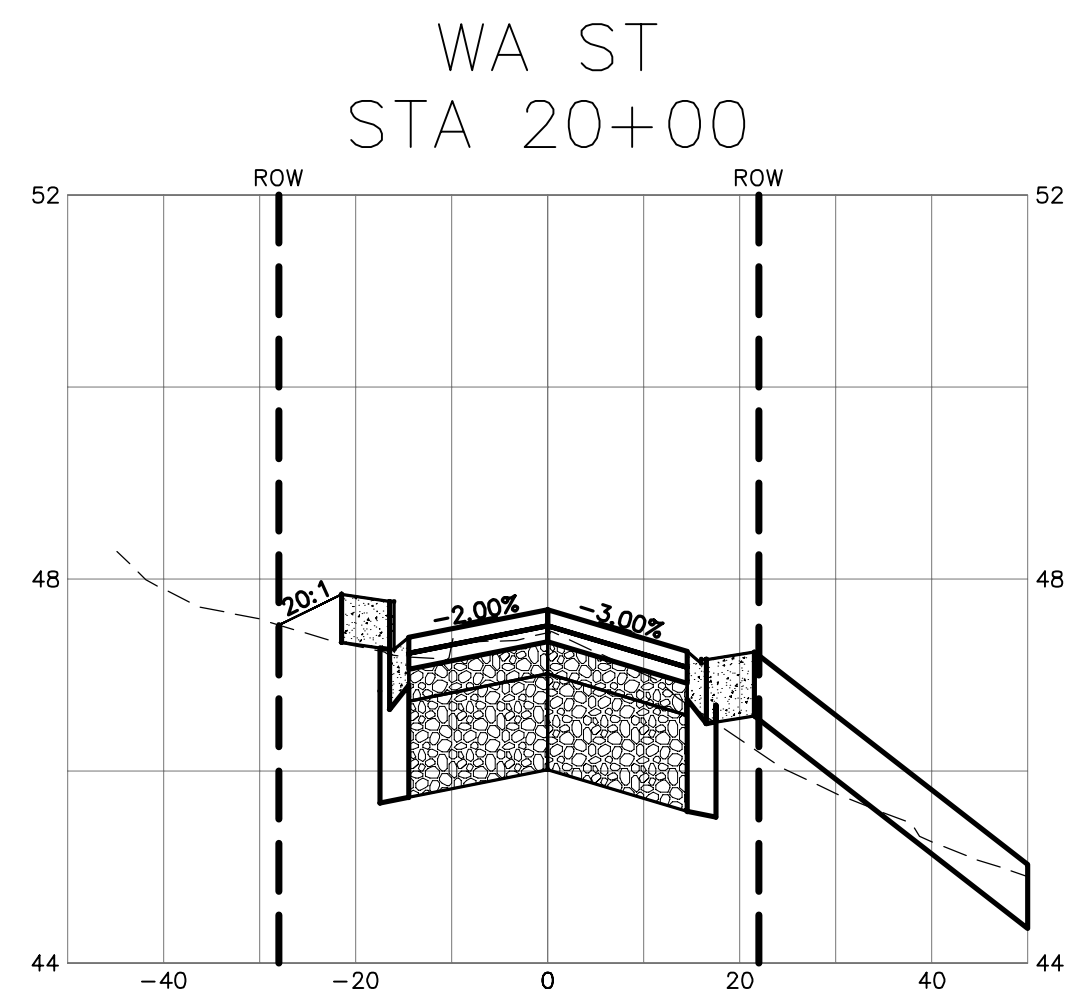
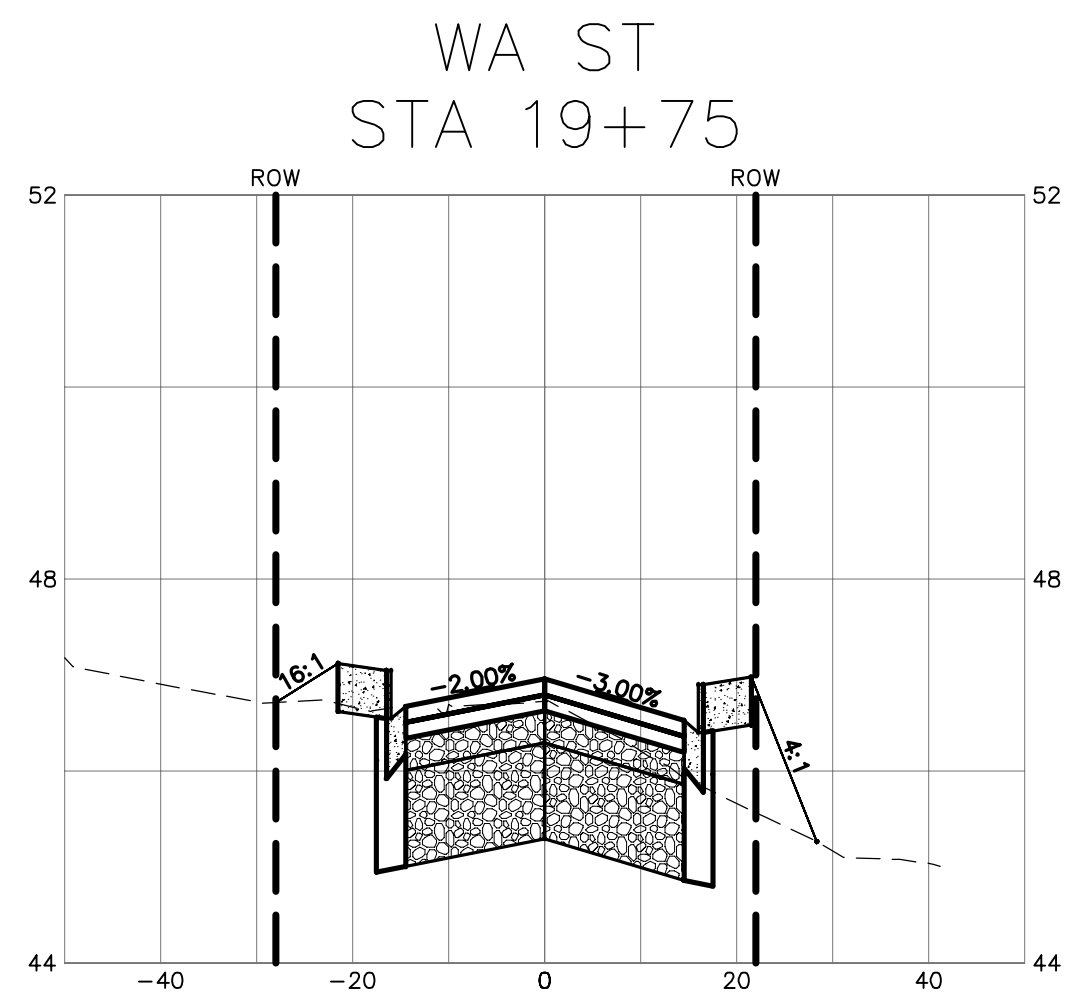
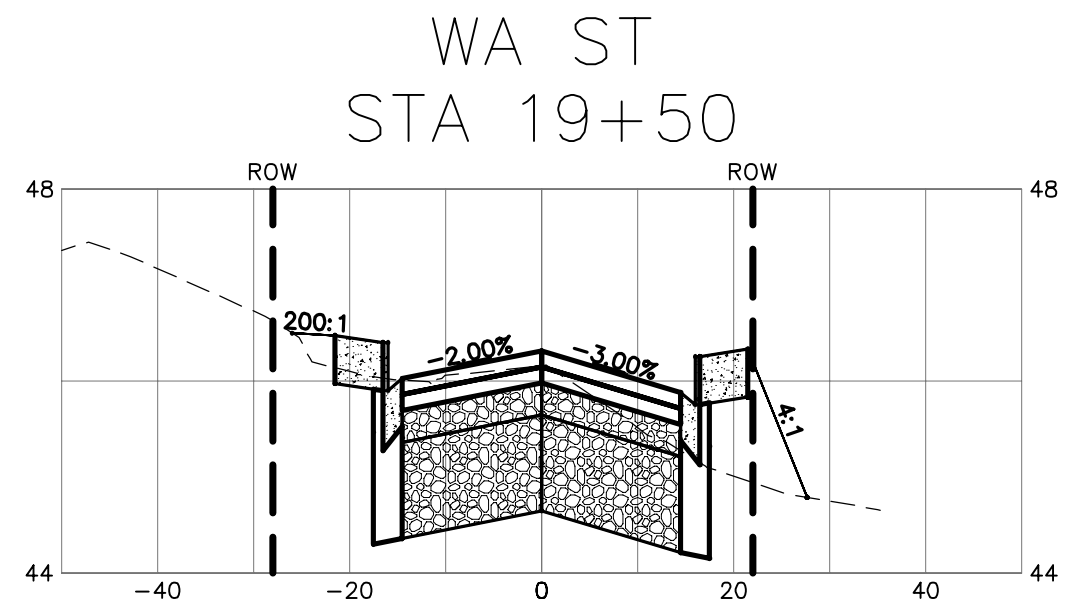
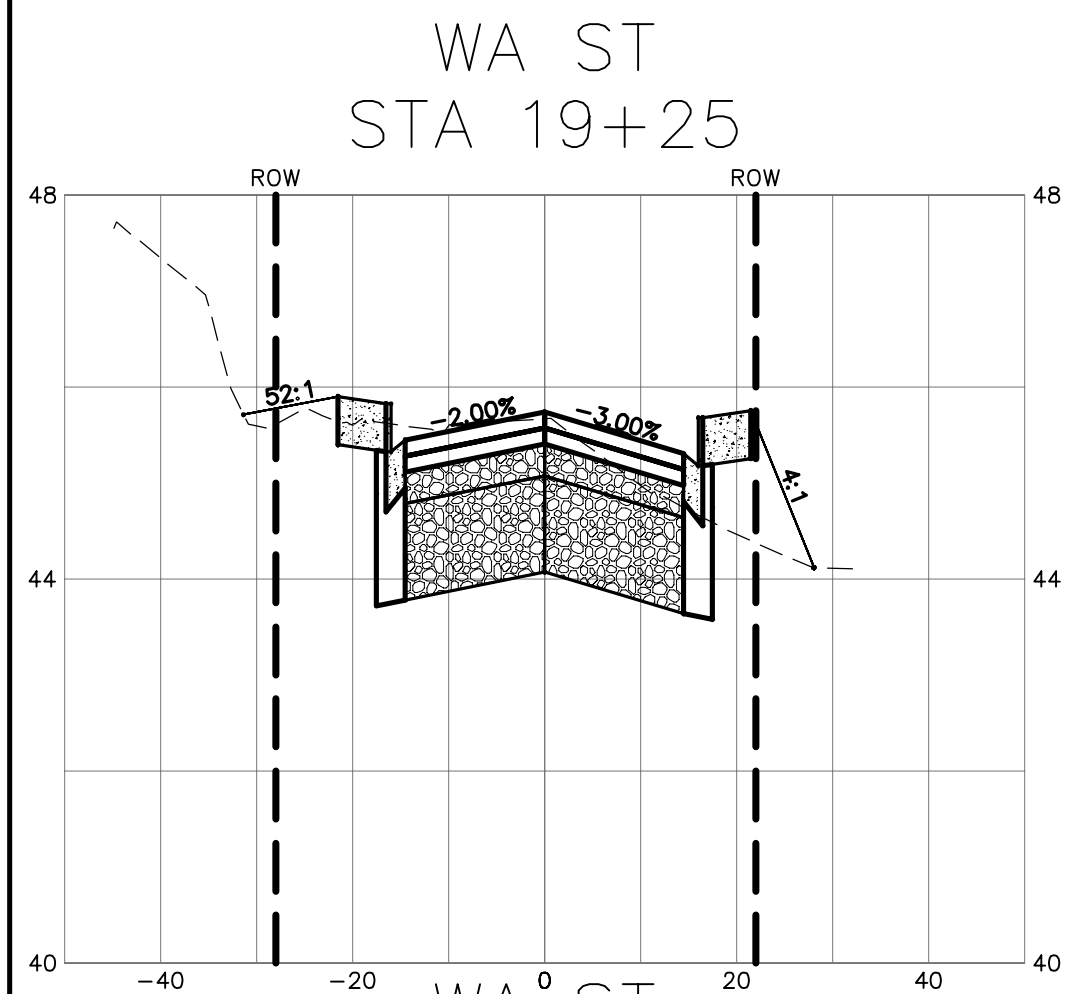
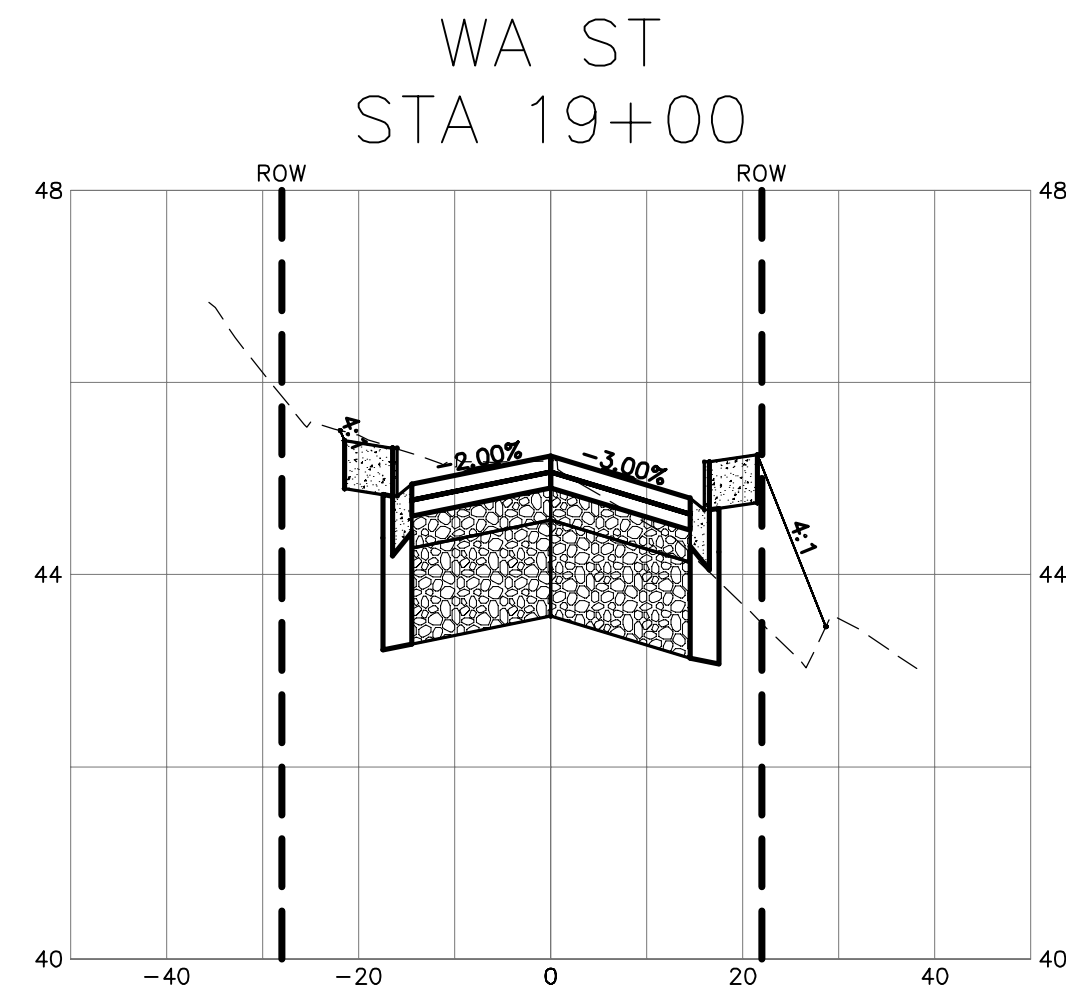
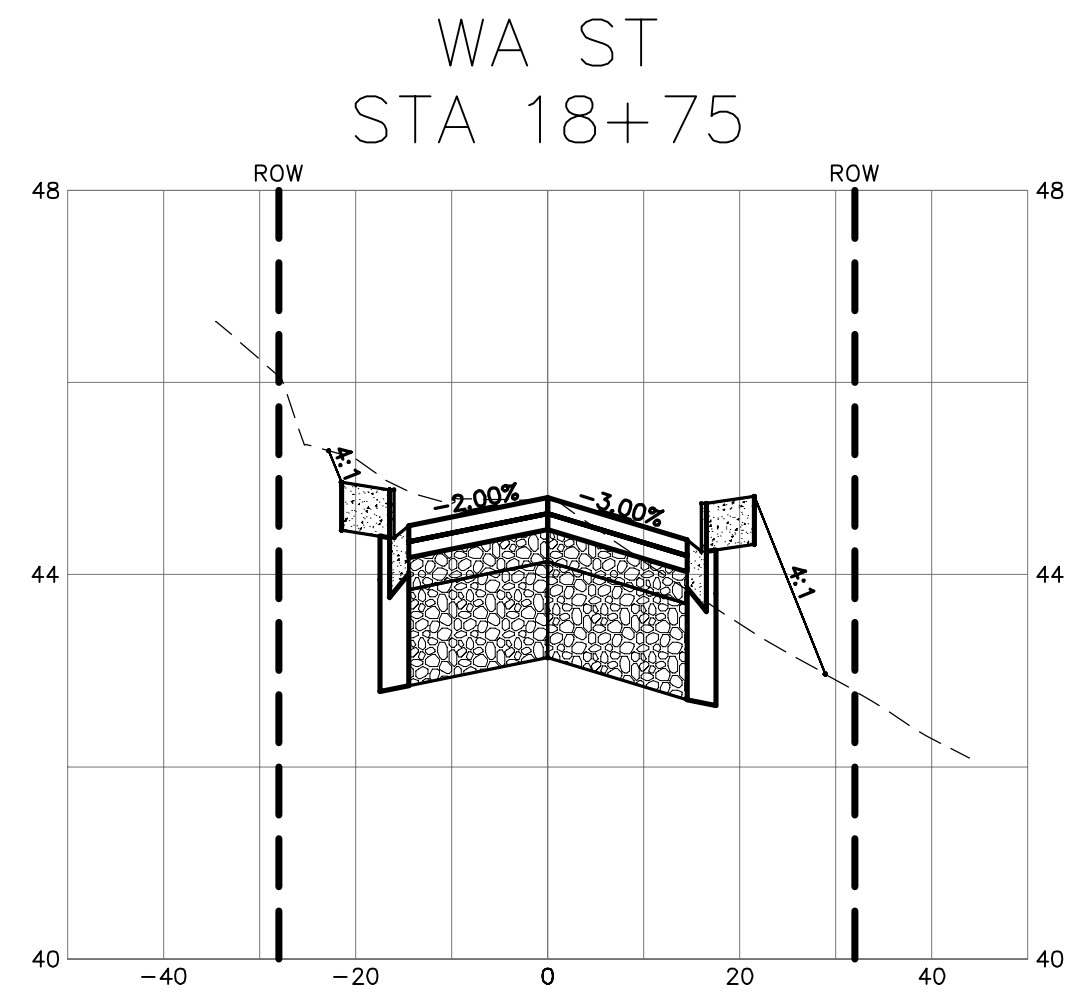
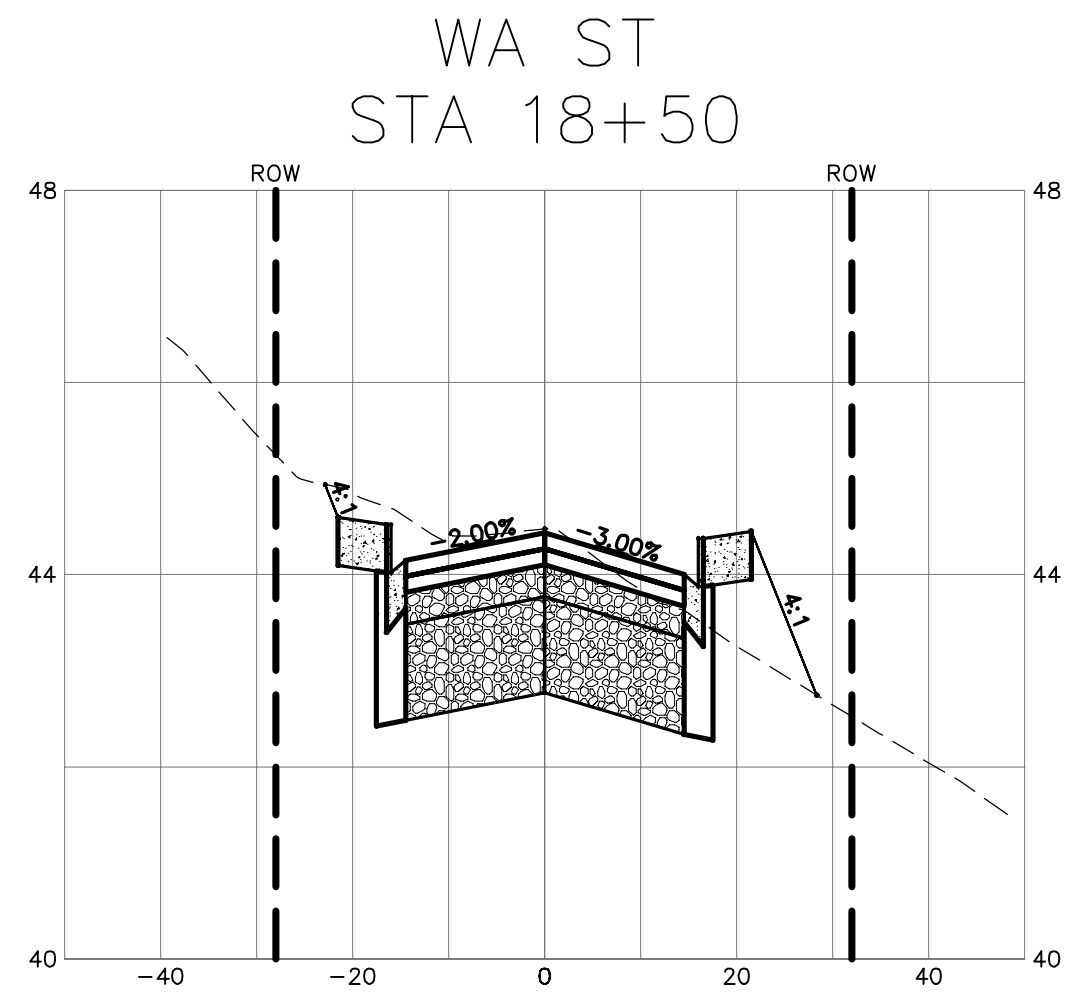
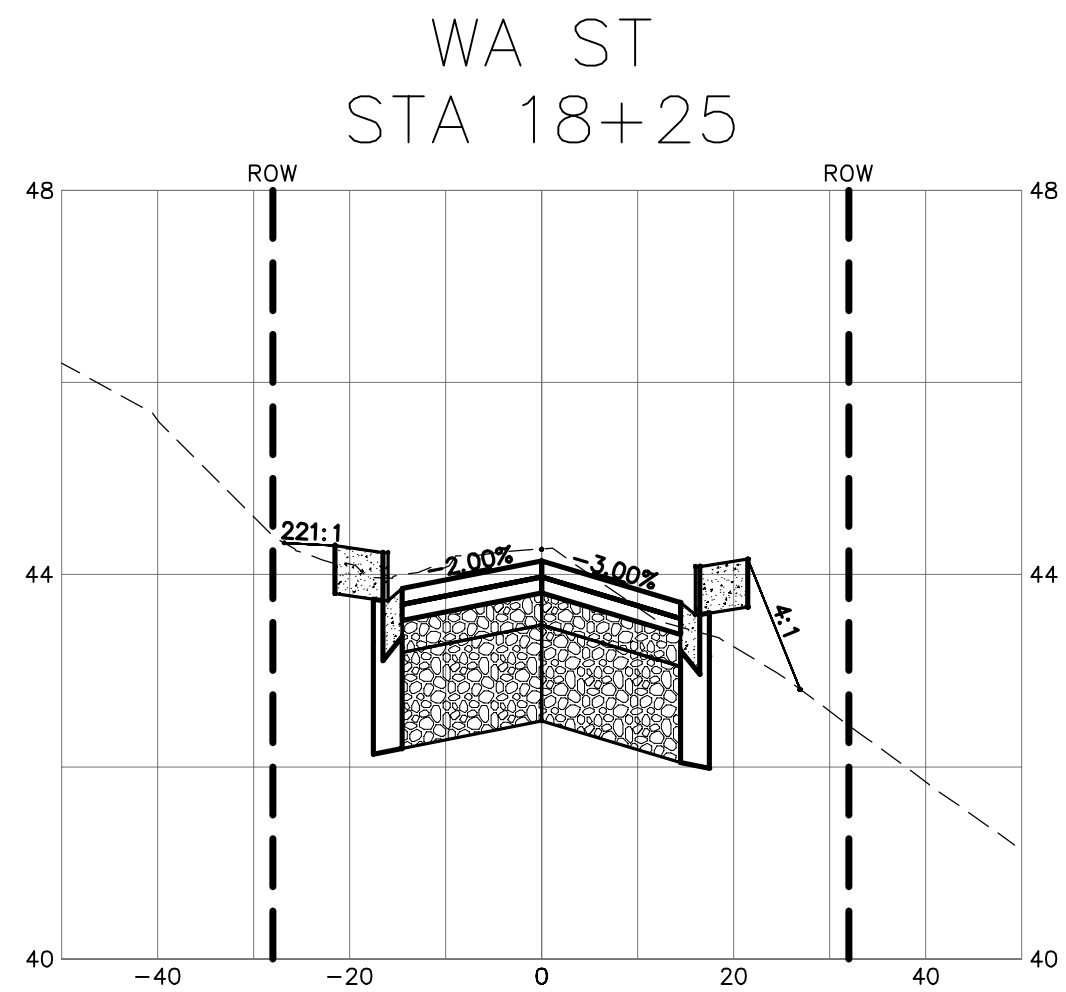
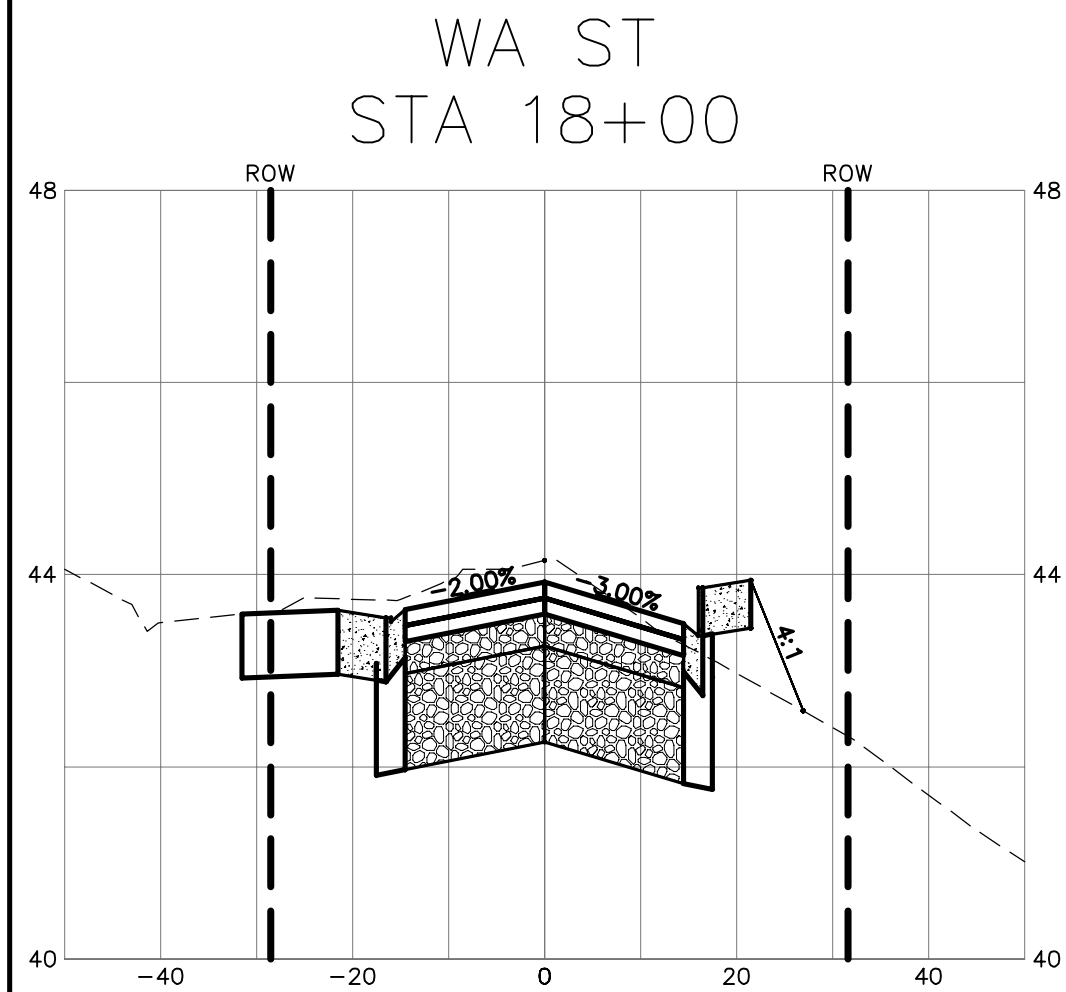
DATE

1/8/2019

SHEET

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of 38



1/8/19 AS-BUILT

DESIGNED BY
ARS
DRAWN BY
PJC
CHECKED BY
LP

R&E Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

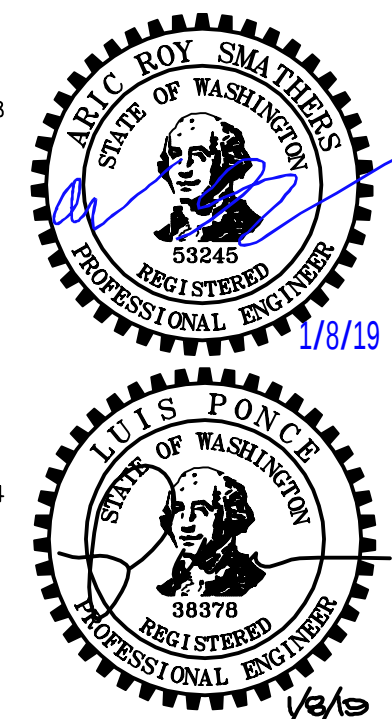
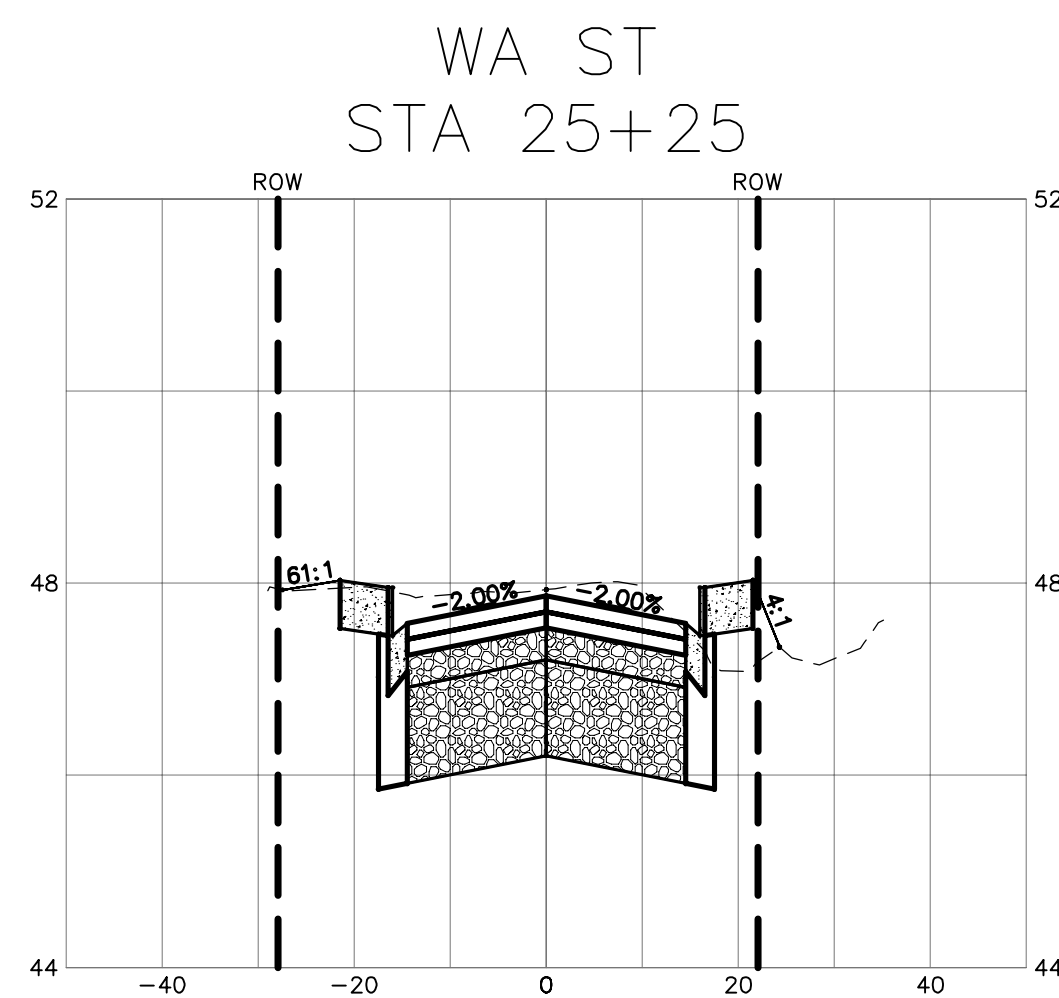
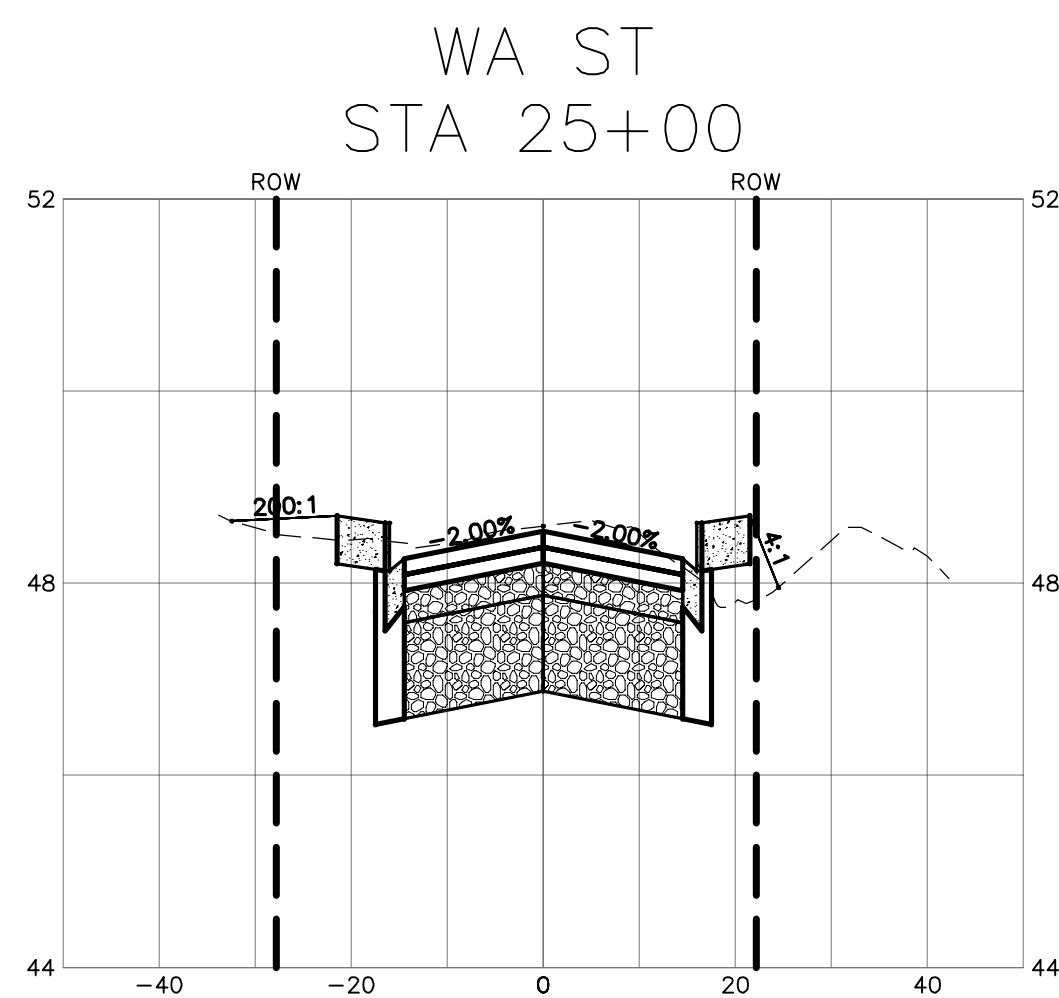
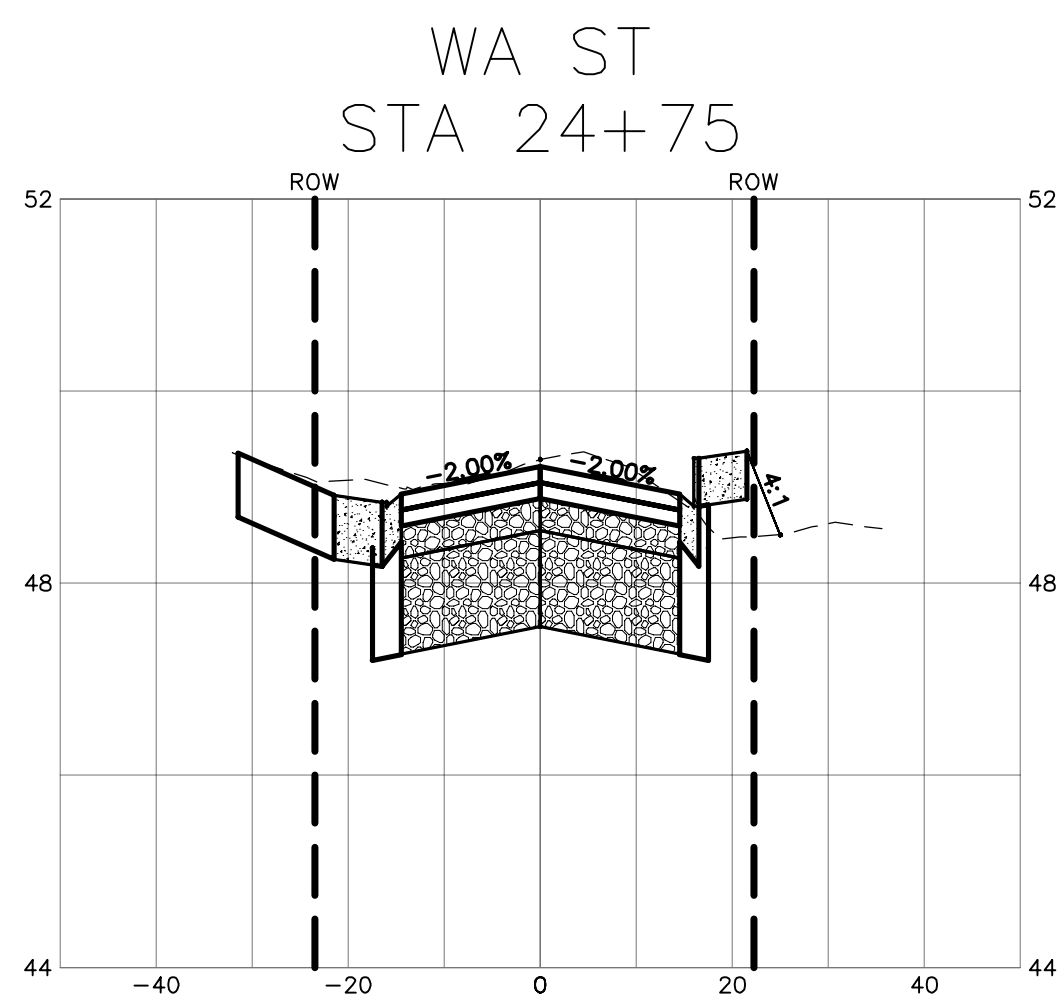
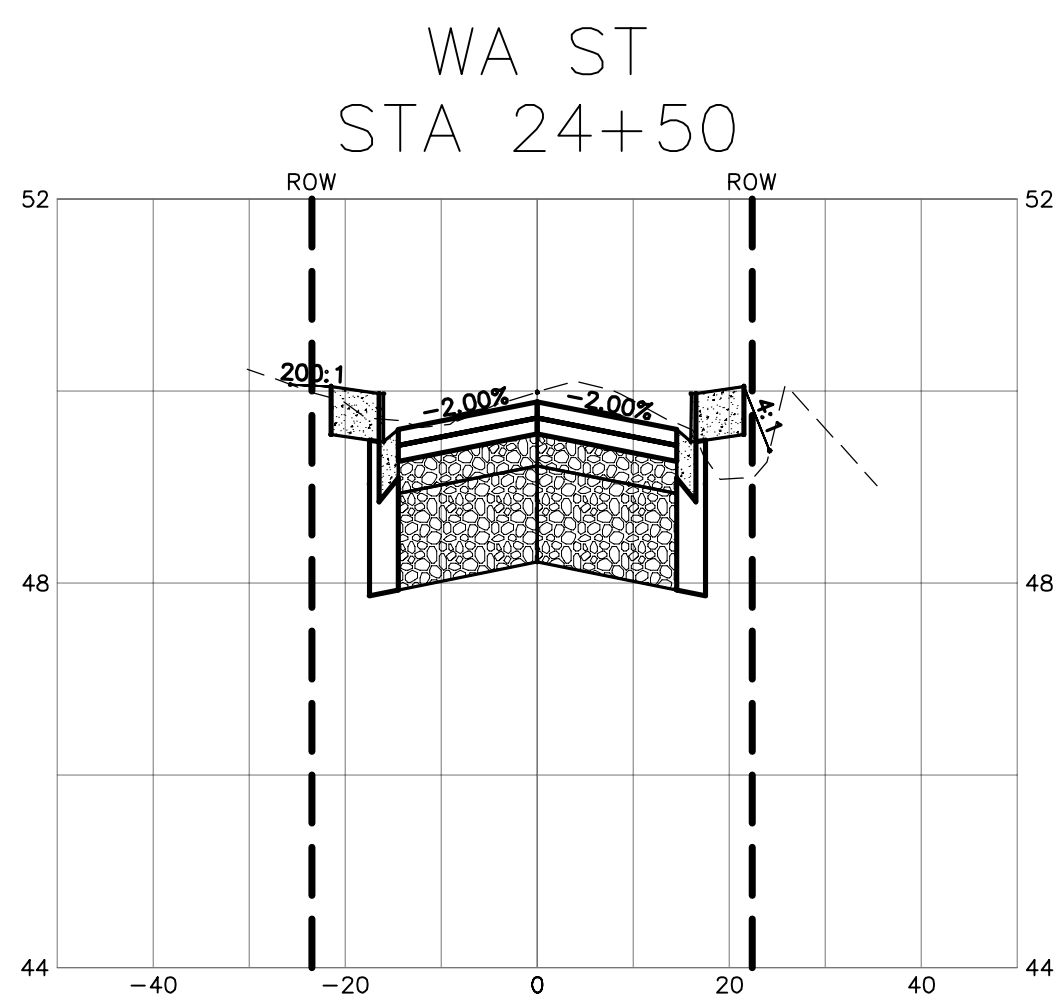
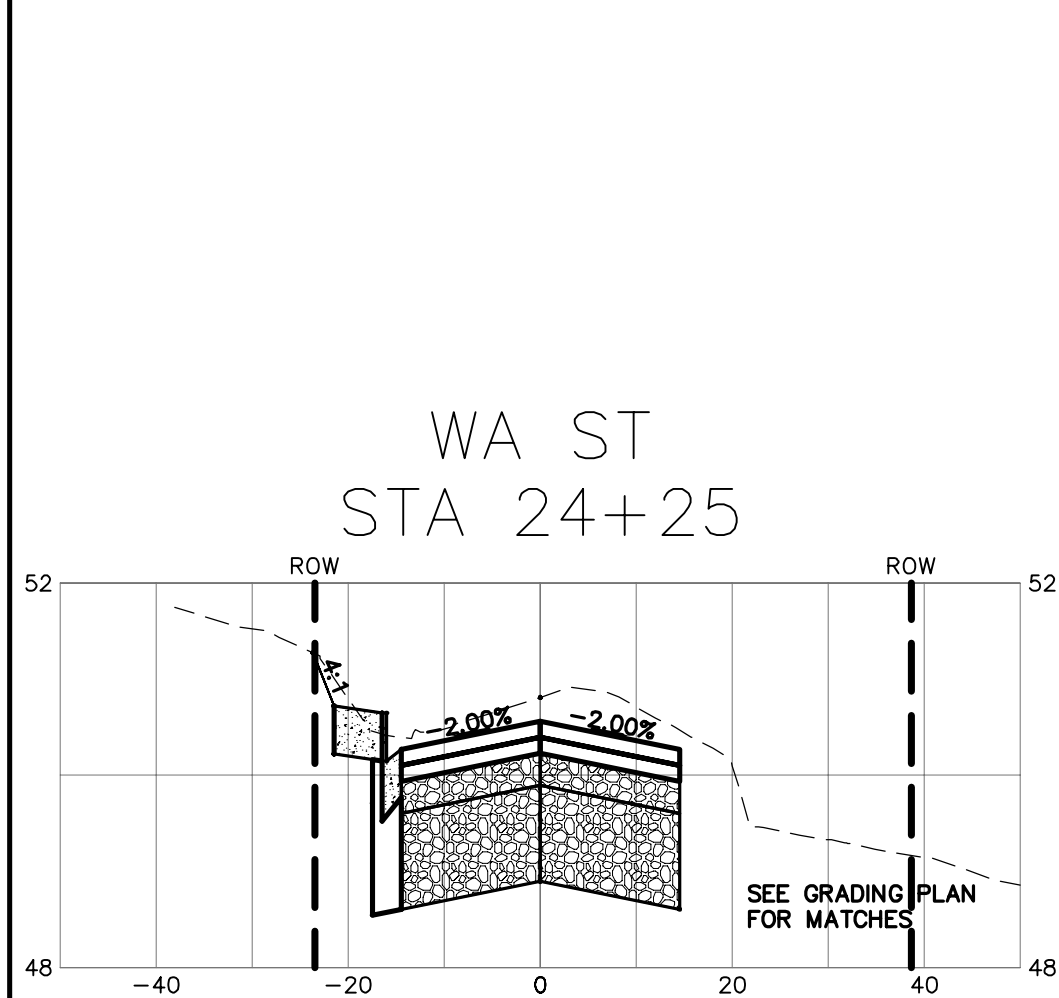
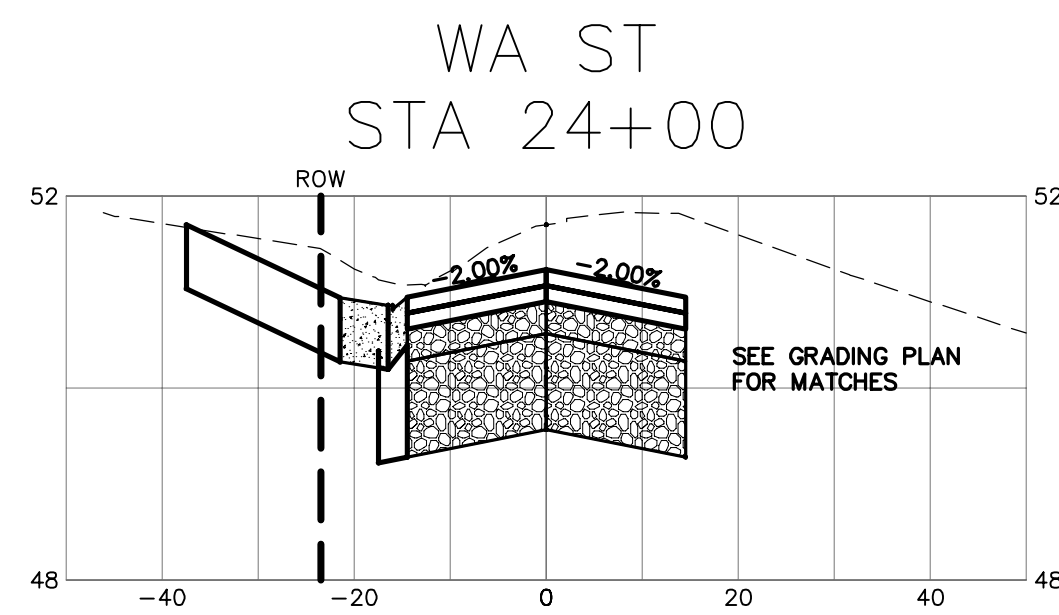
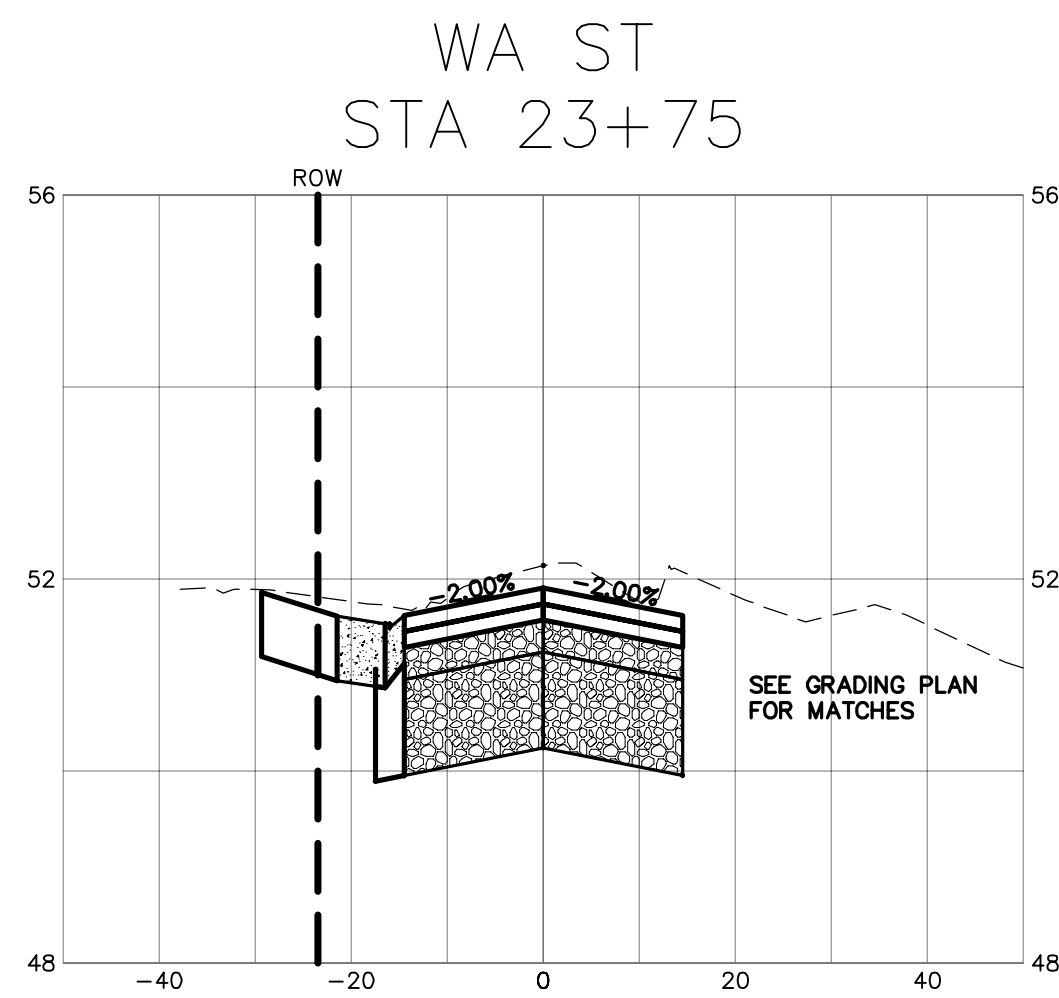
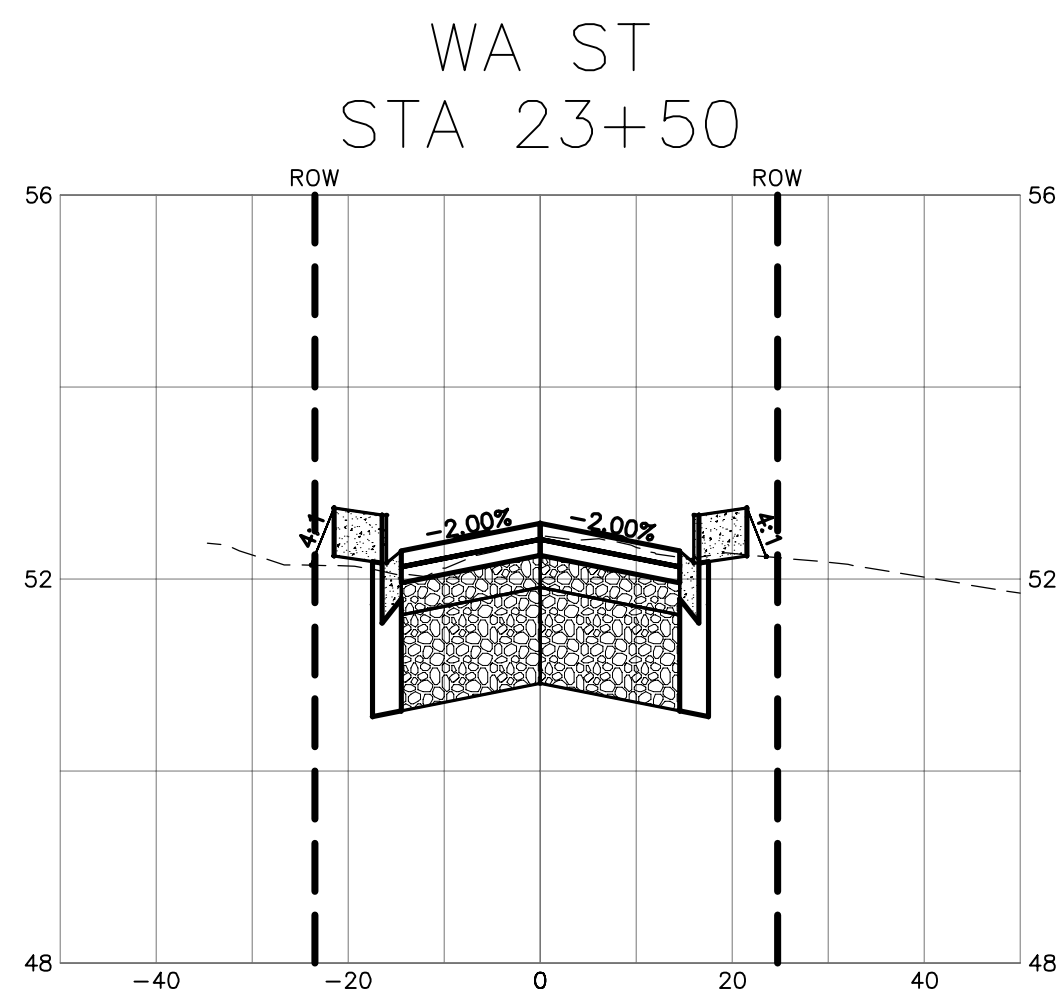
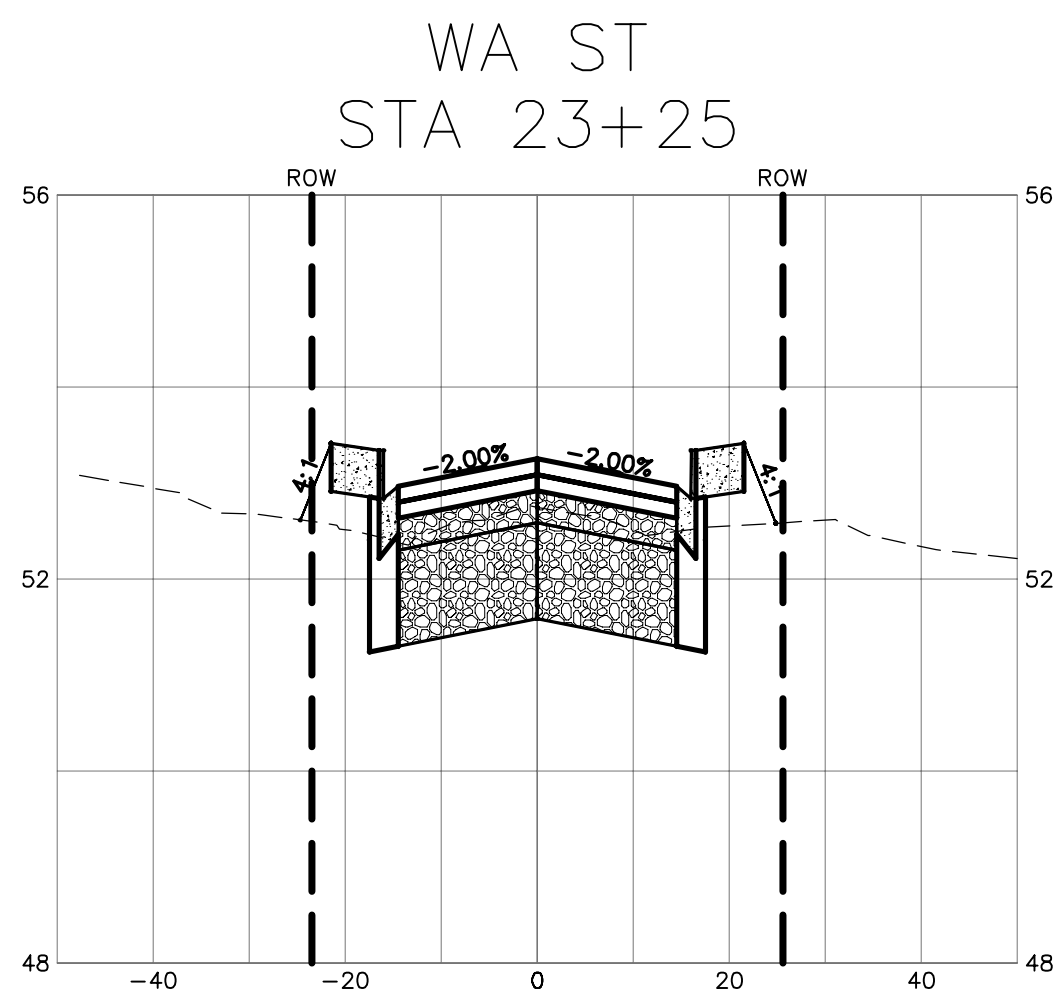
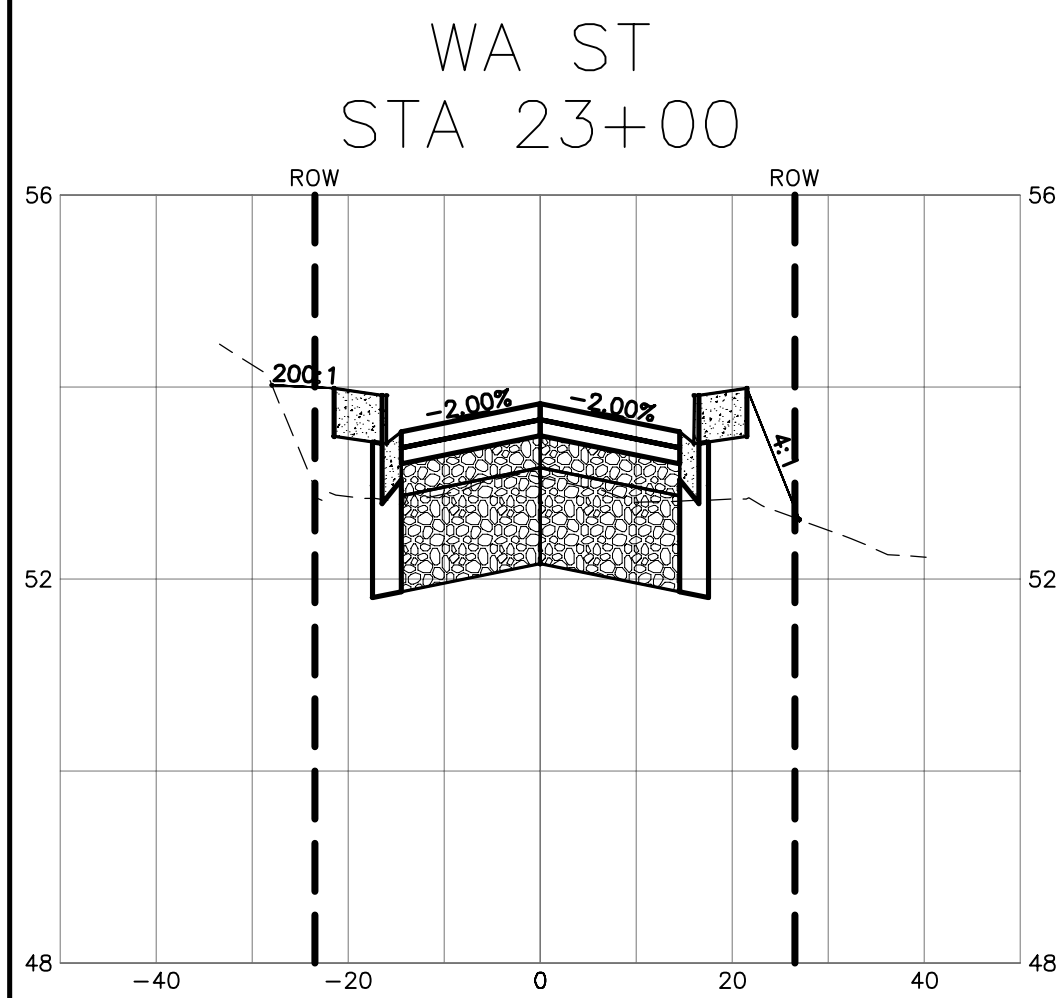
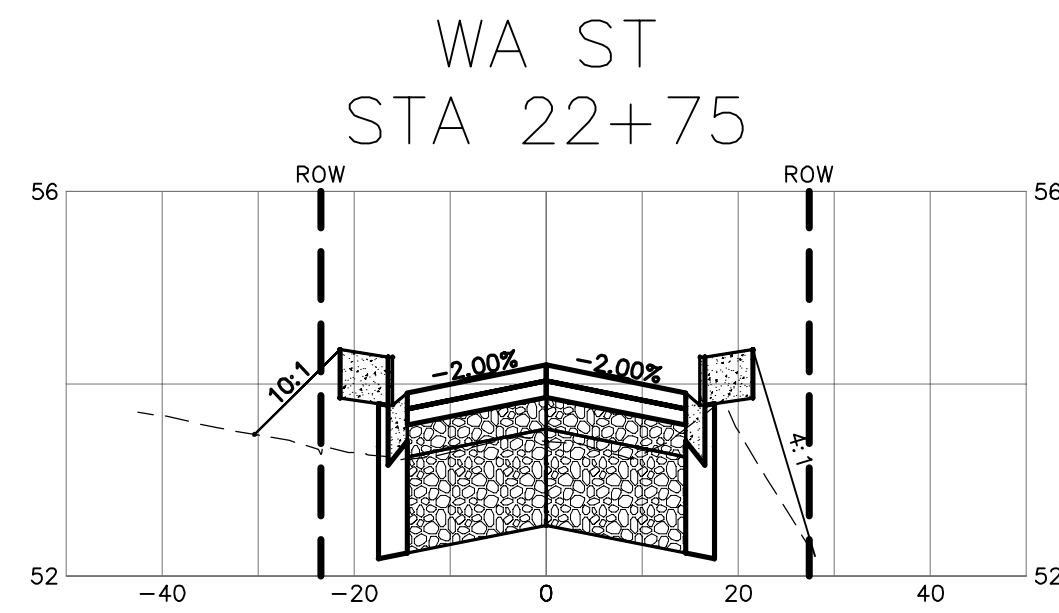
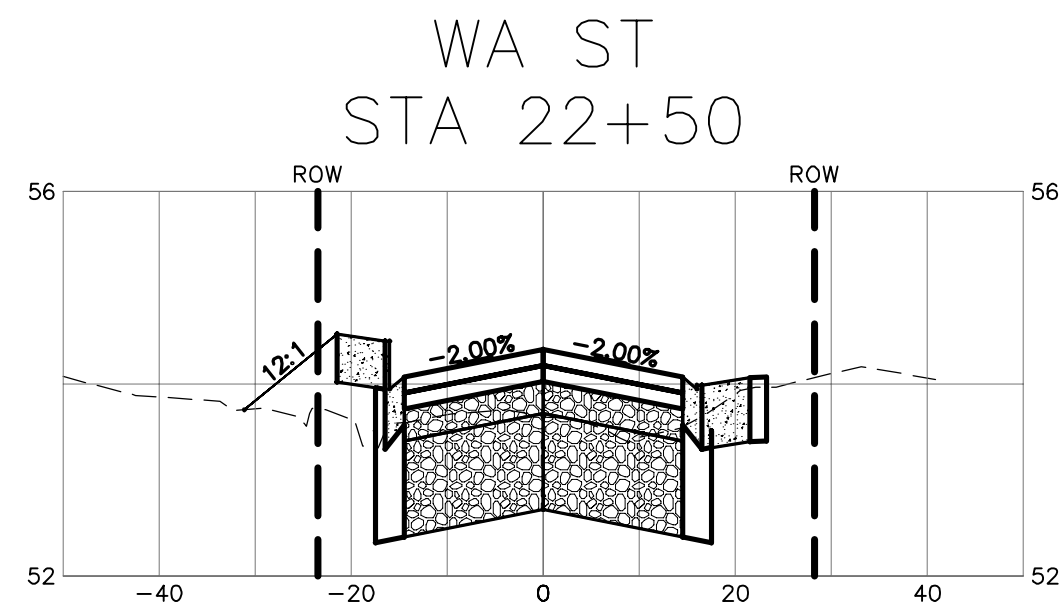
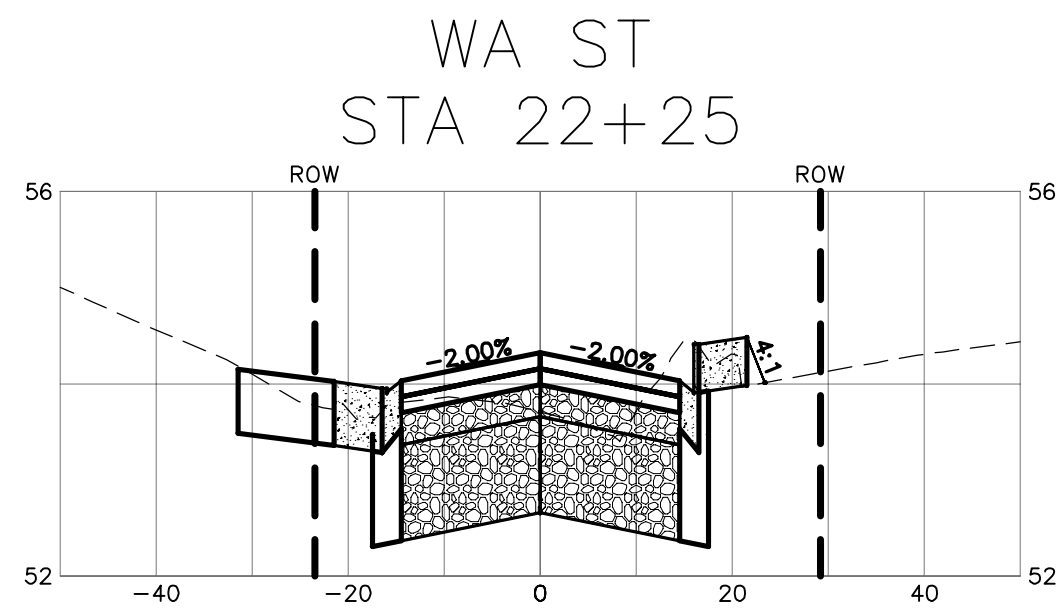
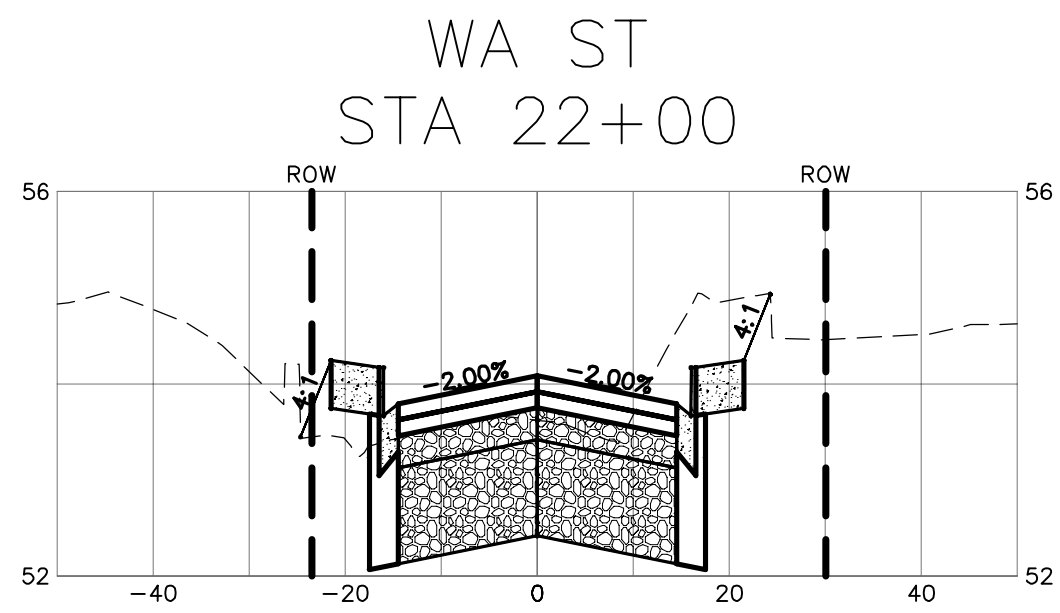
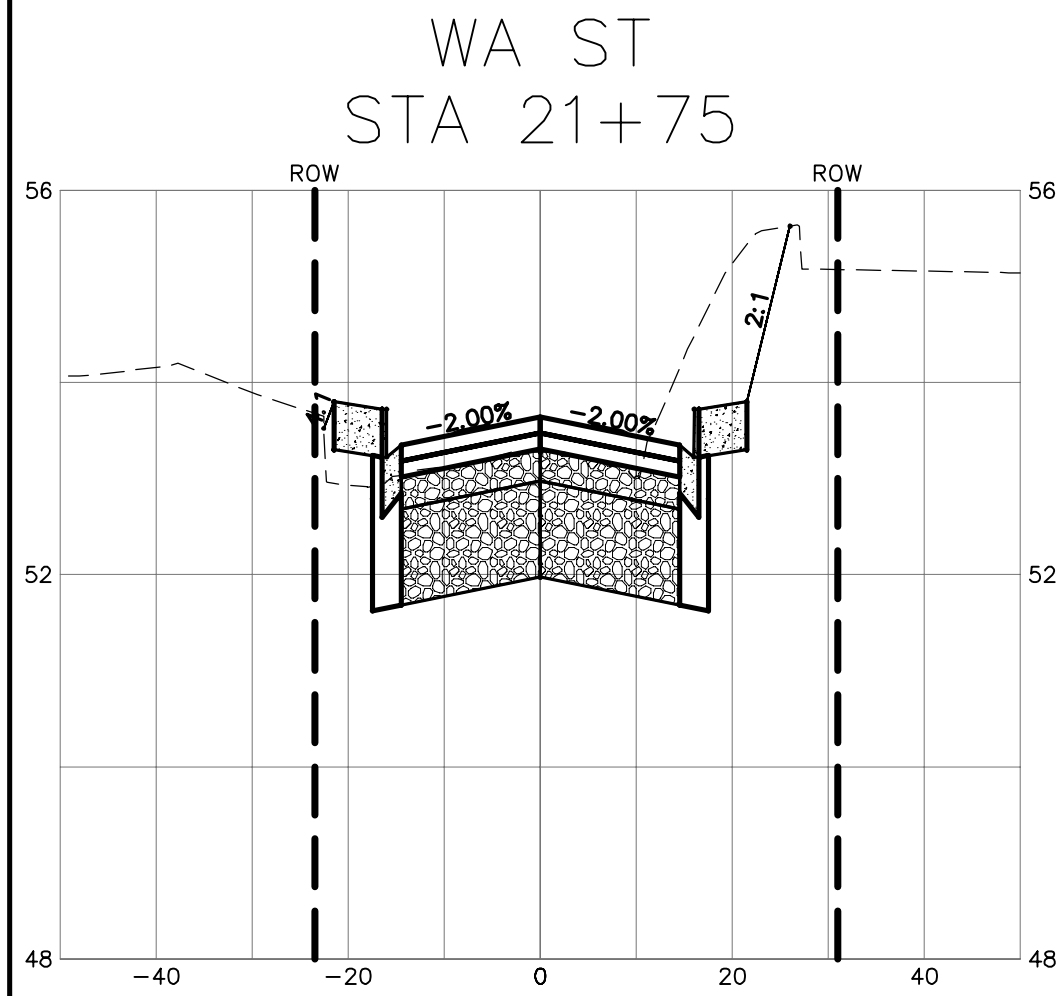
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

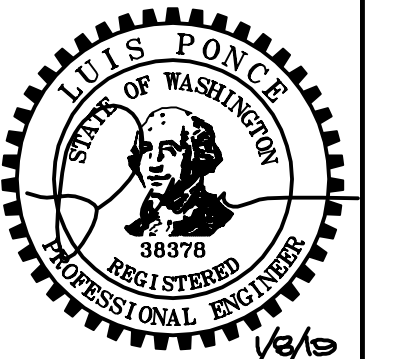
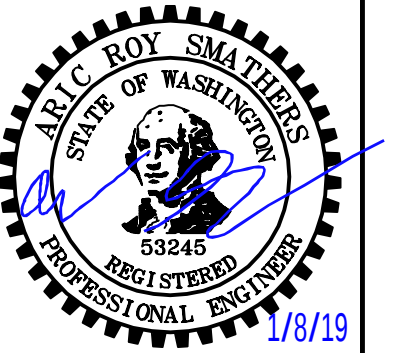
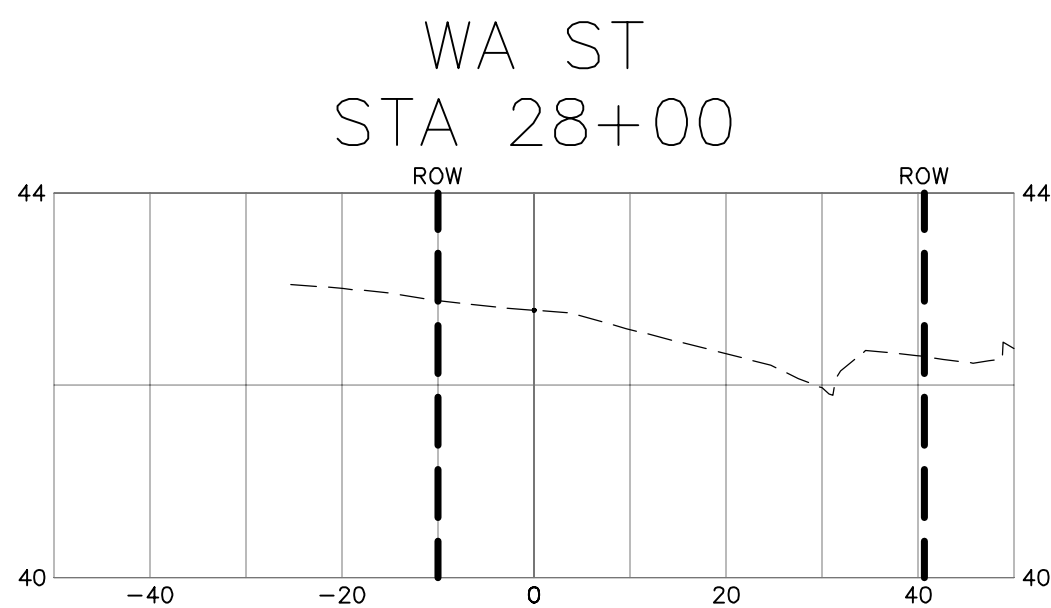
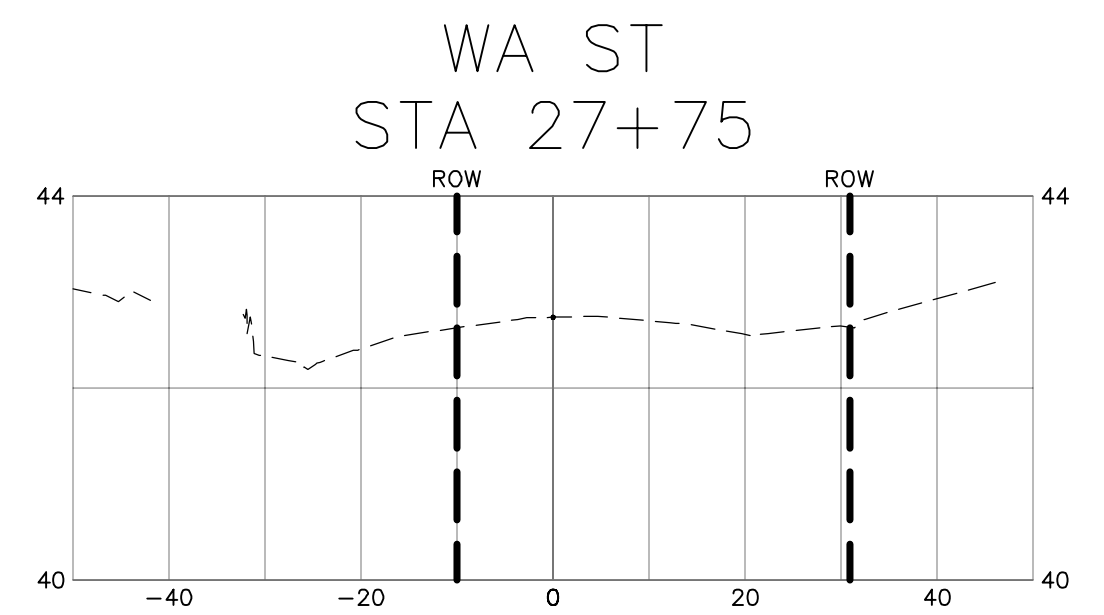
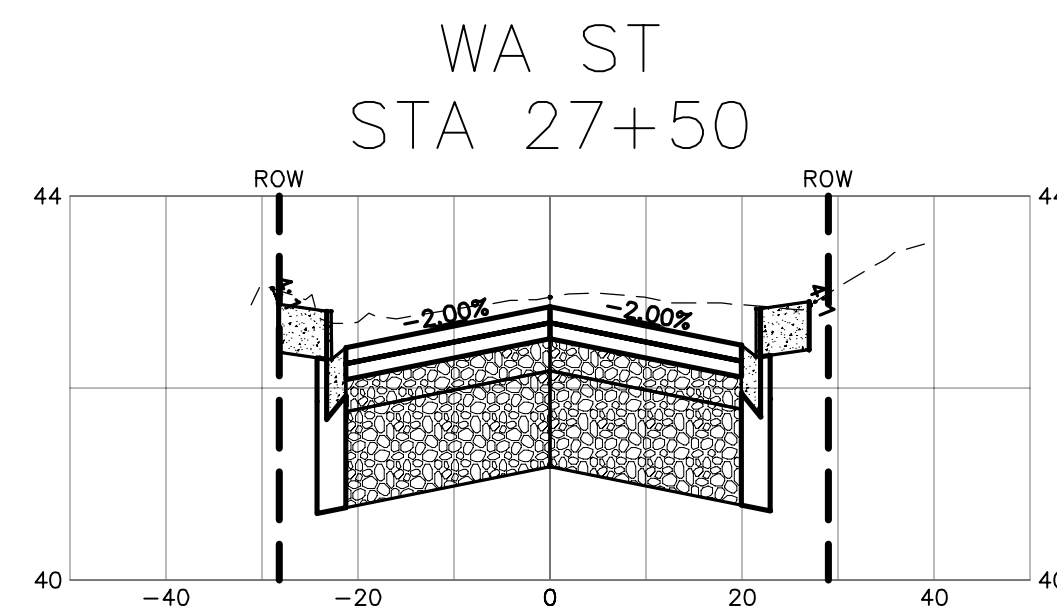
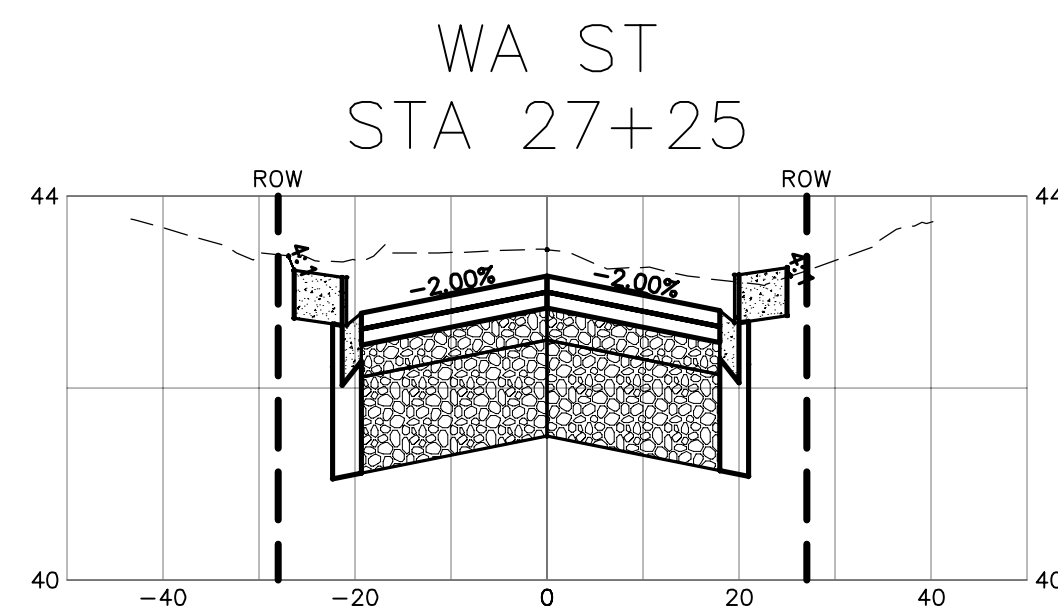
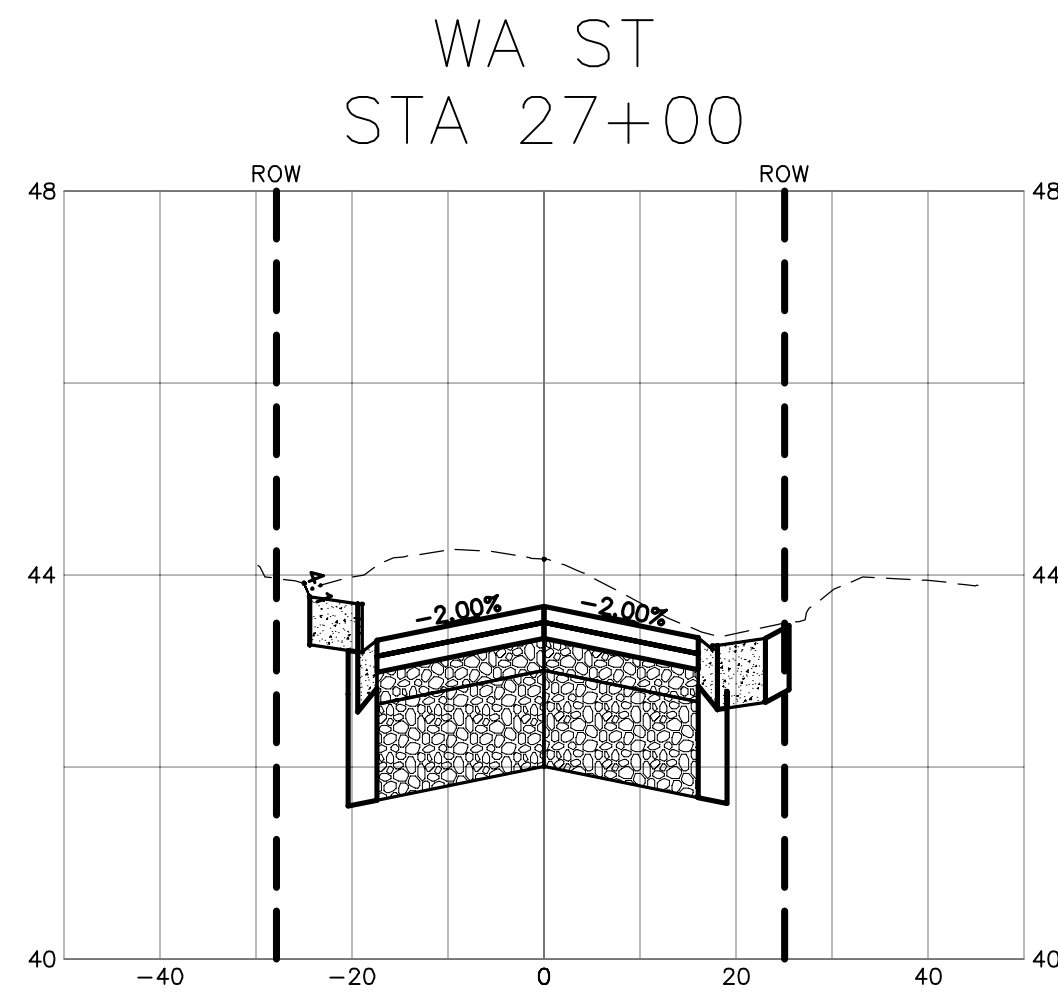
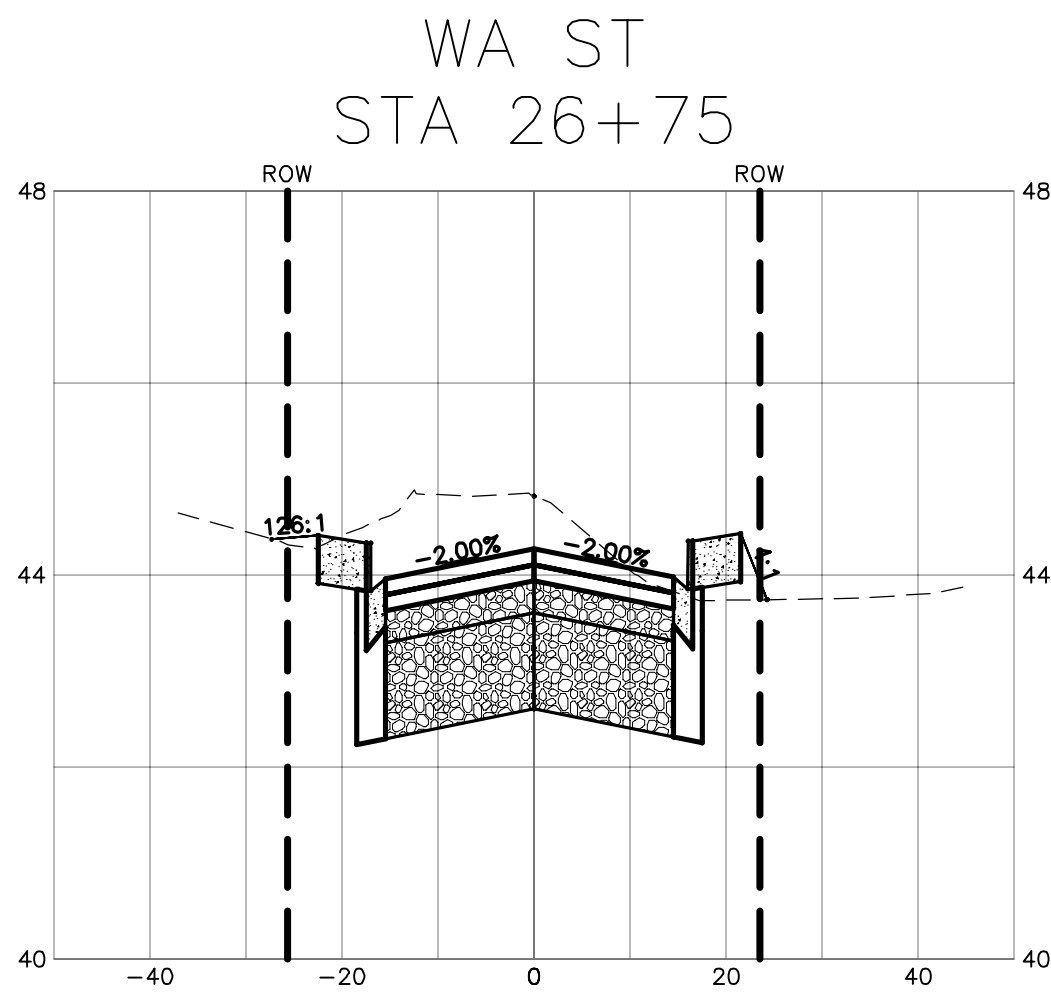
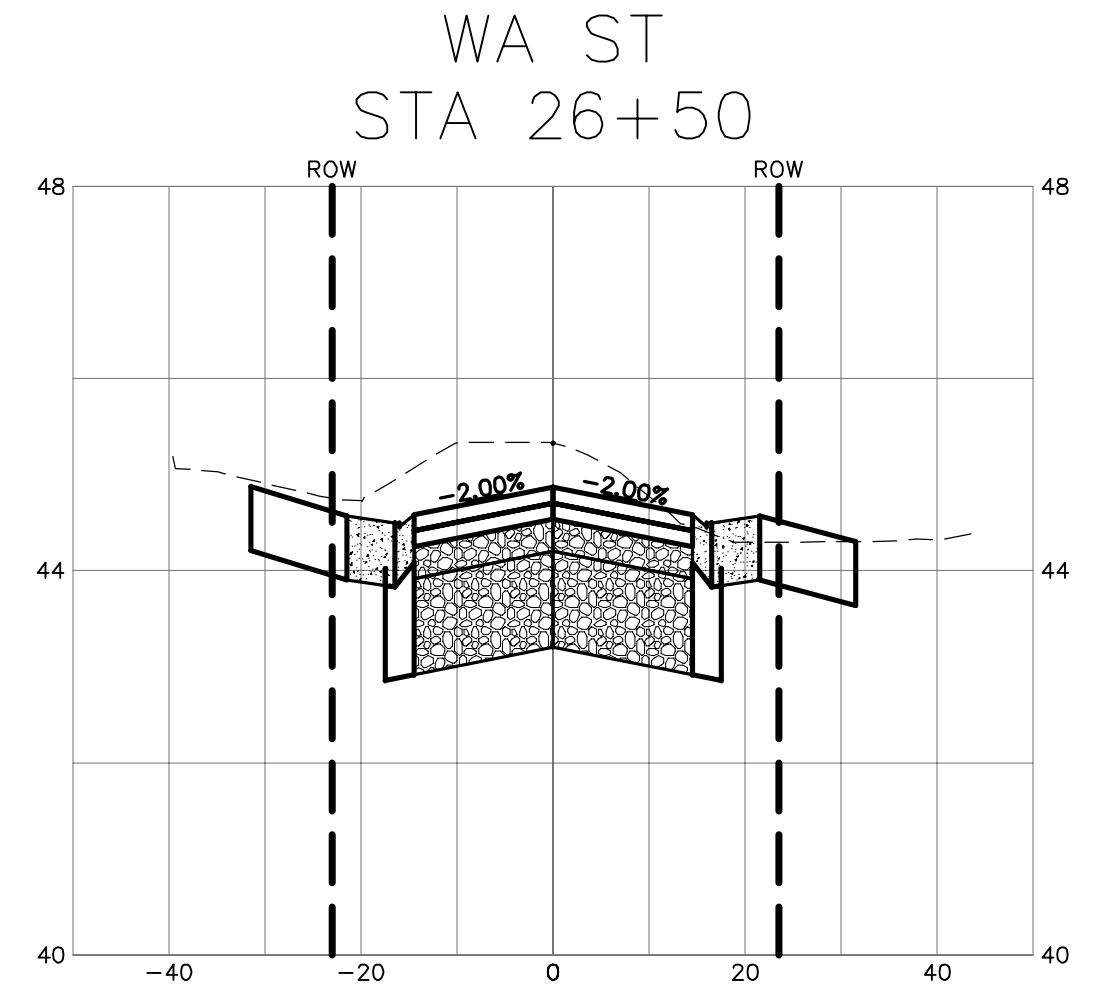
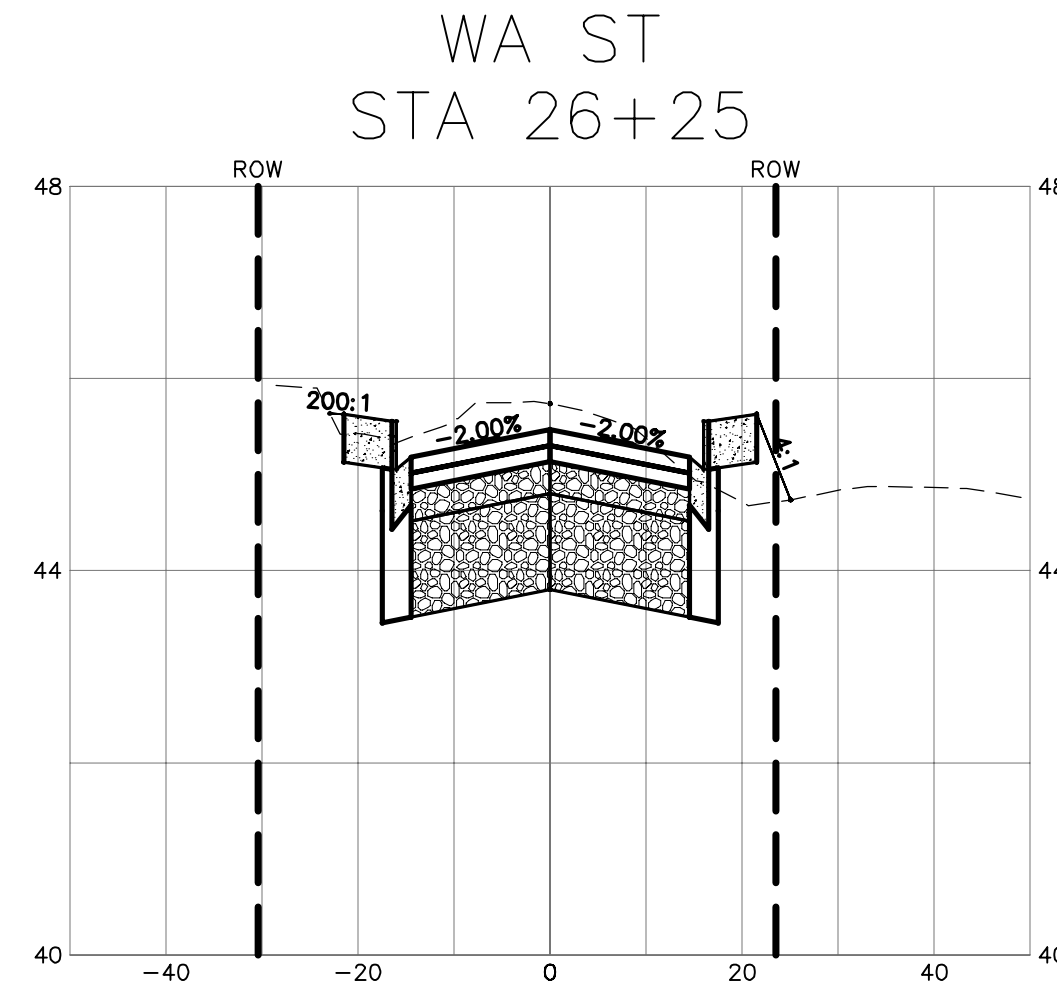
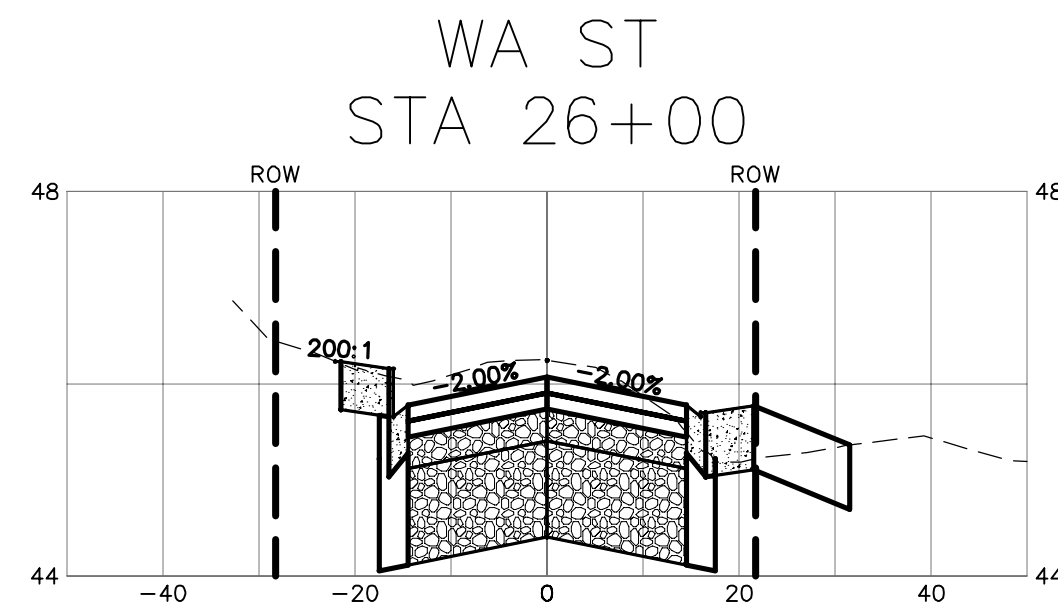
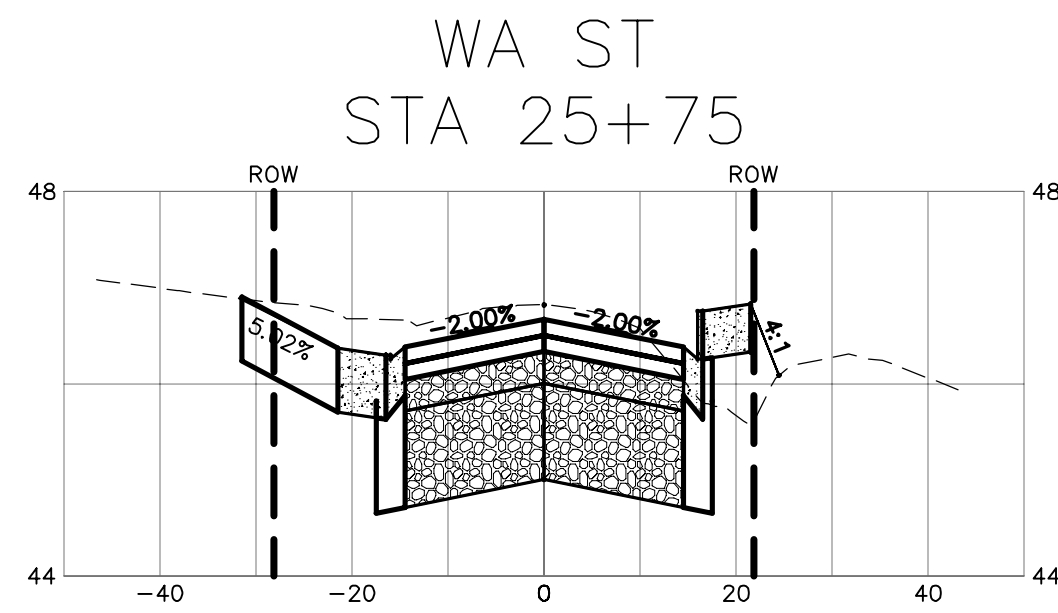
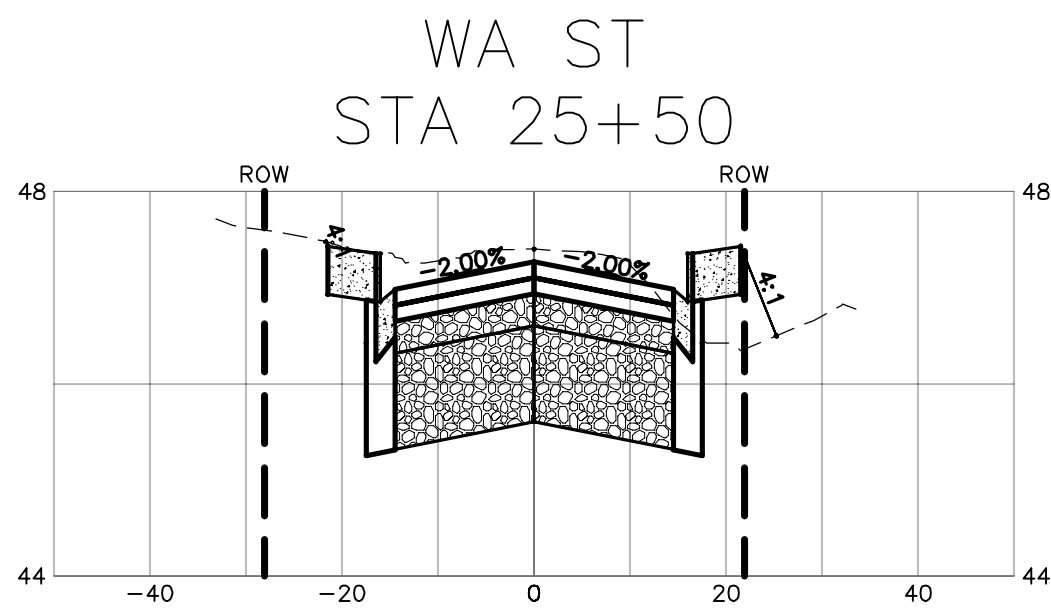
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
CROSS SECTIONS

DWG 16026 SEWER STORM PP
JOB# 16026
SCALE H: 1"=20' V: 1"=2'

DATE 1/8/2019
SHEET 36
of 38



1/8/19 AS-BUILT	DESIGNED BY ARS	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713						CITY OF FERNDAL 2095 MAIN ST FERNDAL, WA 98248	WASHINGTON STREET IMPROVEMENTS MAIN STREET TO VISTA DRIVE CROSS SECTIONS	DWG 16026 SEWER STORM PP		DATE 1/8/2019	
	DRAWN BY PJC												
	CHECKED BY LP												
			NO.	DATE	DESCRIPTION		BY			JOB# 16026	SCALE H: 1"=20' V: 1"=2'	SHEET 37 of 38	



SUBMITTED WITH
DESIGN PLAN

DESIGNED BY
ARS
DRAWN BY
PJC
CHECKED BY
LP



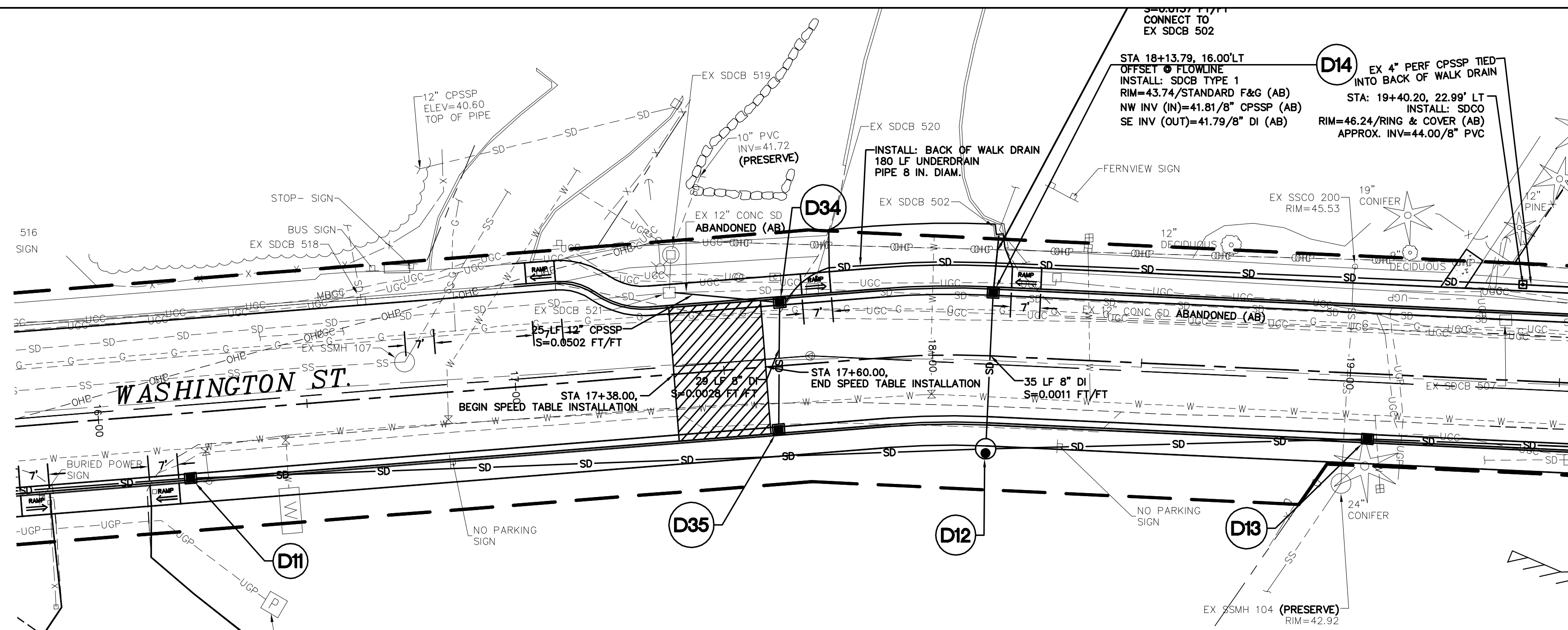
Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

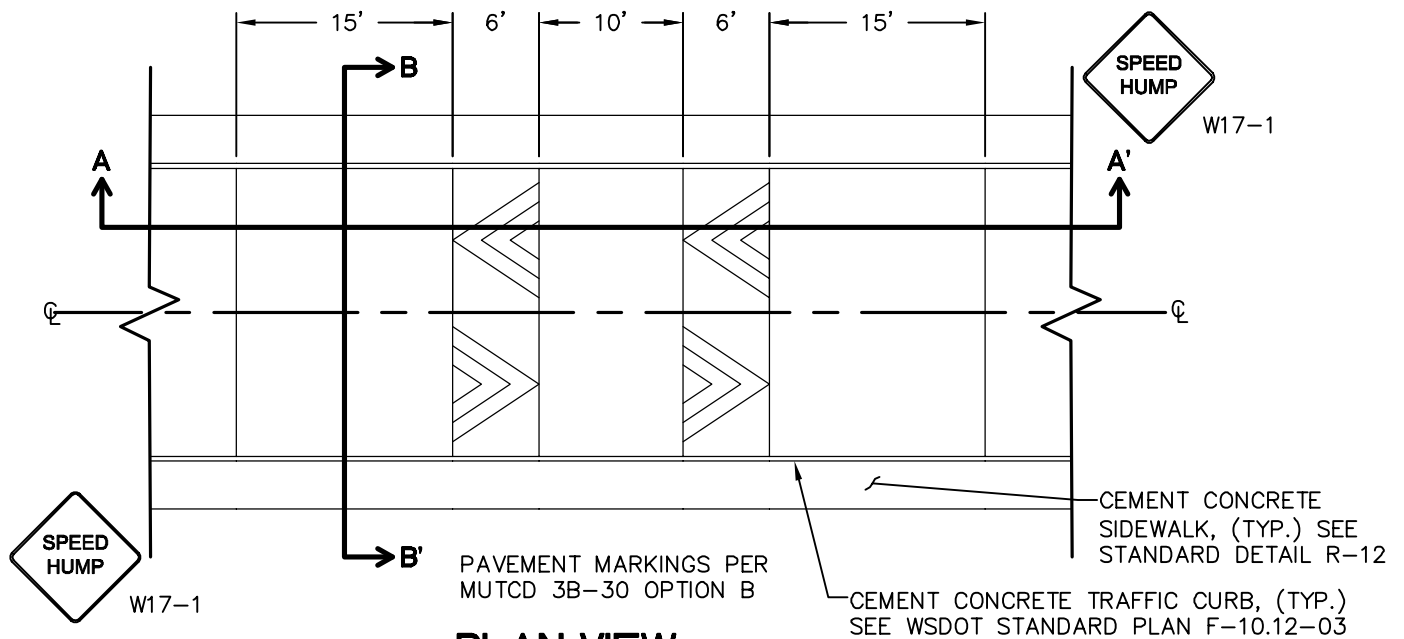
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDAL
2095 MAIN ST
FERNDAL, WA 98248

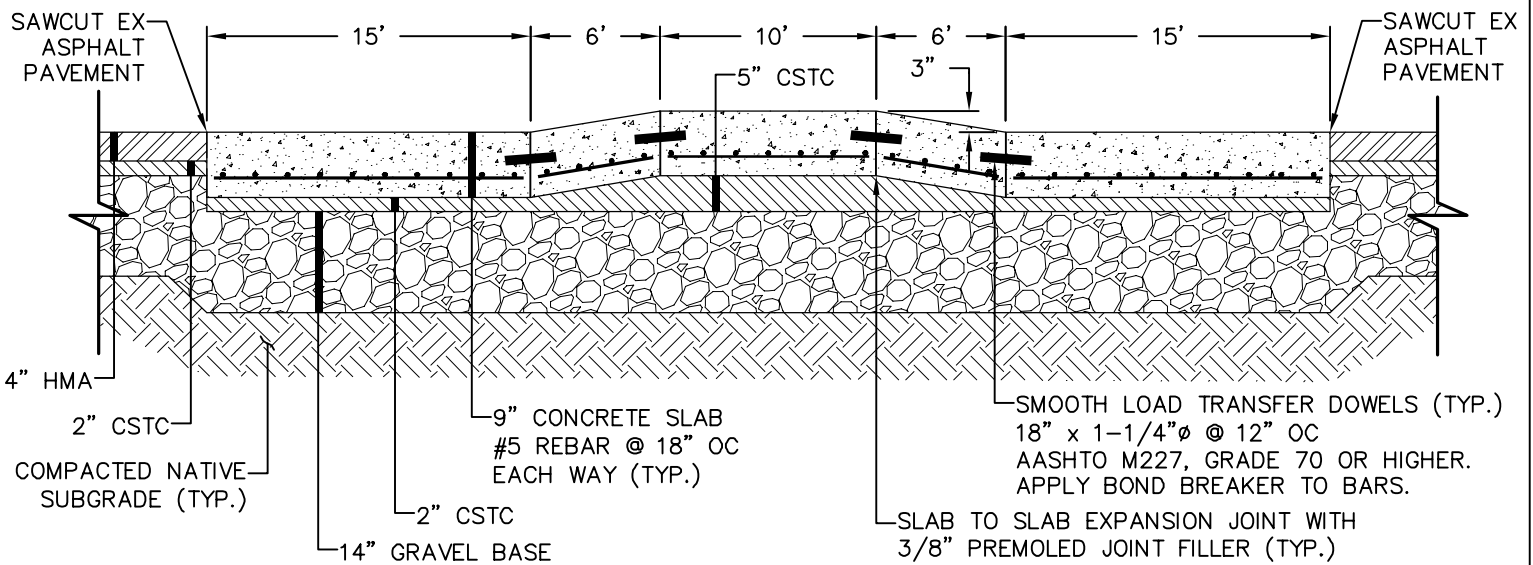
WASHINGTON STREET IMPROVEMENTS
MAIN STREET TO VISTA DRIVE
CROSS SECTIONS

DWG 16026 SEWER STORM PP	DATE 1/8/2019
JOB# 16026	SCALE H: 1"=20' V: 1"=2'
SHEET 38 of 38	



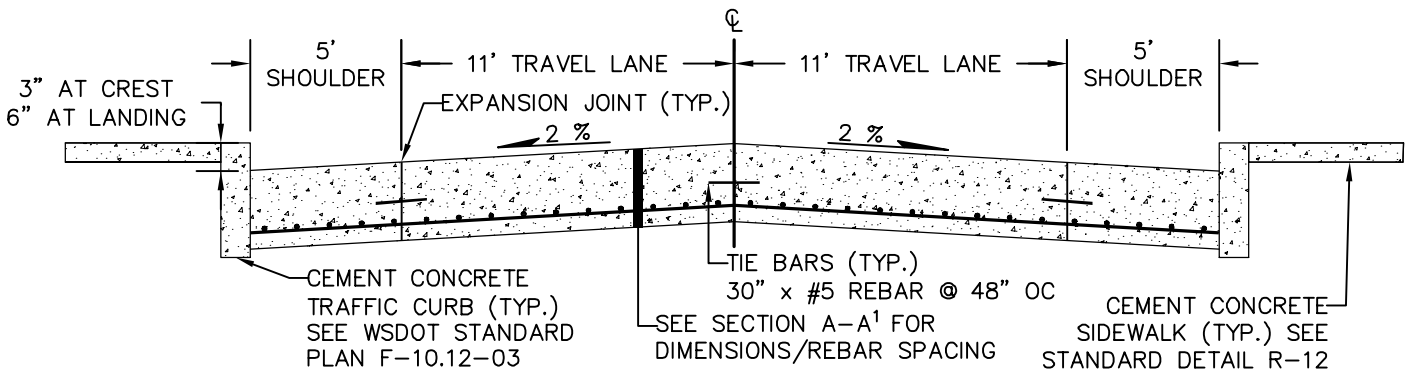


PLAN VIEW
NTS



NOTE:
SEE WSDOT STANDARD PLAN A-40.10-03
FOR CEMENT CONCRETE PAVEMENT JOINTS

SECTION A-A'
NTS



SECTION B-B'
NTS

MAY 3, 2018



APPROVED

Public Works Director

Date

SPEED TABLE

STANDARD DETAIL

00660.042 1/28/19 KB
NOT TO SCALE