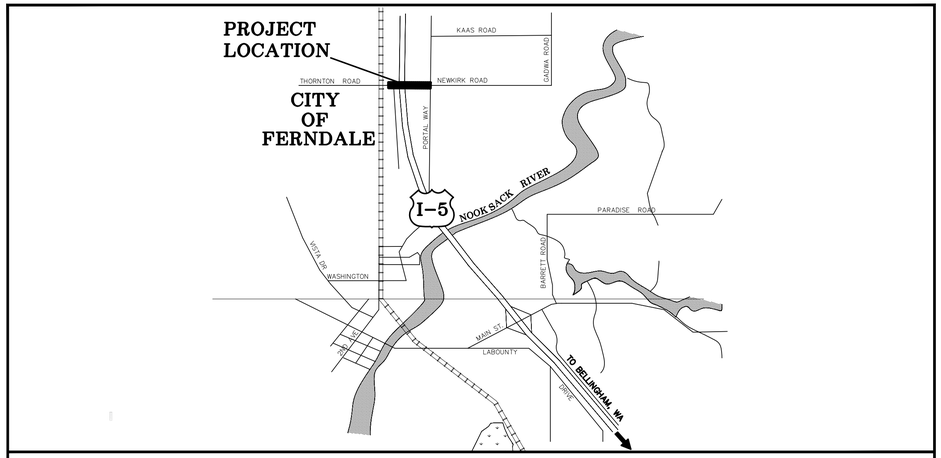
THORNTON TO NEWKIRK WATER MAIN IMPROVEMENTS

CITY OF FERNDALE, WA

CITY OF FERNDALE PROJECT NO. WA2018-01

VICINITY MAP

PROJECT LOCATED IN SECTION 29, TOWNSHIP 39N, RANGE 2E, W.M.



SHEET SERIES INDEX	
SHEET	**DESCRIPTION**
1	COVER
2	LEGEND AND ABBREVIATIONS
3	TESC STA 1+25 to 6+50 (BASE BID)
4	TESC STA 5+76 to 11+00 (ALTERNATE A1)
5	TESC STA 11+00 to 12+51 (ALTERNATE A1)
6	TESC NOTES
7	PLAN & PROFILE STA 1+25 to 6+50 (BASE BID)
8	PLAN & PROFILE STA 5+76 to 11+00 (ALTERNATE A1)
9	PLAN & PROFILE STA 11+00 to 12+51 (ALTERNATE A1)
10	ORDER OF WORK (ALTERNATE A1)
11	DETAILS (TESC)
12	DETAILS (Thrust Block)
13	DETAILS (Blowoff & Hydrant)
14	DETAILS (Water Meter)
15	DETAILS
16	TRAFFIC CONTROL

CITY OF FERNDALE WASHINGTON

APPROVED FOR CONSTRUCTION

KEVIN RENZ
PUBLIC WORKS DIRECTOR

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
COVER

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 1 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 1 COVER, 5/7/2025 11:08:34 AM, , AutoCAD PDF (General Documentation).pc3

LEGEND

LINETYPES

EXISTING

- = EXISTING TOP OF BANK
- = EXISTING BOTTOM OF BANK
- = EXISTING DITCH ℄
- = EXISTING GRADE BREAK
- = EXISTING MAJOR CONTOUR
- = EXISTING MINOR CONTOUR
- = EXISTING GUARDRAIL
- = EXISTING FENCE
- = EXISTING HANDRAIL
- = EXISTING GRAVEL
- = EXISTING WALL
- = EXISTING BUILDING
- = EXISTING PROPERTY BOUNDARY
- = EXISTING RIGHT OF WAY
- = EXISTING RIGHT OF WAY ℄
- = EXISTING EASEMENT
- = EXISTING SECTION LINE
- = EXISTING ROAD ℄
- = EXISTING WETLANDS BOUNDARY
- = EXISTING STRIPE
- = EXISTING EDGE OF PAVEMENT
- = EXISTING FLOWLINE
- = EXISTING TOP BACK OF CURB
- = EXISTING SIDEWALK
- = EXISTING BURIED POWER
- = EXISTING OVERHEAD POWER
- = EXISTING BURIED COMMUNICATIONS
- = EXISTING OVERHEAD COMMUNICATIONS
- = EXISTING BURIED FIBER OPTICS
- = EXISTING BURIED TV
- = EXISTING BURIED TELEPHONE
- = EXISTING CONDUIT
- = EXISTING GAS MAIN
- = EXISTING WATER MAIN
- = EXISTING IRRIGATION LINE
- = EXISTING SANITARY SEWER FORCE MAIN
- = EXISTING SANITARY SEWER
- = EXISTING STORM DRAIN
- = EXISTING ORDINARY HIGH WATER
- = EXISTING RR TRACKS
- = EXISTING CULVERT
- = EXISTING TREE LINE
- = EXISTING CONCRETE
- = EXISTING WETLAND

PROPOSED

- = **PROPOSED TOP OF BANK**
- = **PROPOSED BOTTOM OF BANK**
- = **PROPOSED DITCH ℄**
- = **PROPOSED GRADE BREAK**
- = **PROPOSED MAJOR CONTOUR**
- = PROPOSED MINOR CONTOUR
- = **PROPOSED GUARDRAIL**
- = **PROPOSED FENCE**
- = **PROPOSED HANDRAIL**
- = **PROPOSED GRAVEL**
- = **PROPOSED WALL**
- = **PROPOSED BUILDING**
- = **PROPOSED PAVEMENT VALLEY**
- = **PROPOSED RIGHT OF WAY**
- = **PROPOSED CONSTRUCTION EASEMENT**
- = **PROPOSED ROAD ℄**
- = **PROPOSED SAWCUT**
- = **PROPOSED STRIPE**
- = **PROPOSED EDGE OF PAVEMENT**
- = **PROPOSED CURB AND GUTTER**
- = **PROPOSED PATH**
- = **PROPOSED SIDEWALK**
- = **PROPOSED BURIED POWER**
- = **PROPOSED OVERHEAD POWER**
- = **PROPOSED TRAFFIC SIGNAL CONDUCTOR**
- = **PROPOSED FIBER OPTICS**
- = **PROPOSED BURIED COMMUNICATIONS**
- = **PROPOSED OVERHEAD COMMUNICATIONS**
- = **PROPOSED HIGH VISIBILITY SILT FENCE**
- = **PROPOSED SILT FENCE**
- = **PROPOSED CONDUIT**
- = **PROPOSED IRRIGATION LINE**
- = **PROPOSED WATER MAIN**
- = **PROPOSED SANITARY SEWER FORCE MAIN**
- = **PROPOSED SANITARY SEWER**
- = **PROPOSED STORM DRAIN**
- = **PROPOSED CULVERT**
- = **PROPOSED TREE/SHRUB LINE**
- = **PROPOSED CONC. SIDEWALK/DRIVEWAY**
- = **PROPOSED INFILTRATION TRENCH**
- = **PROPOSED INFILTRATION FILTER MEDIA**
- = **PROPOSED GRIND**
- = **PROPOSED DEMOLITION AREA**
- = **PROPOSED ASPHALT**
- = **PROPOSED RIGHT OF WAY ACQUISITION**
- = **PROPOSED PAVEMENT PULVERIZING AREA**

SYMBOLS

EXISTING

- = EXISTING SIGNAL POLE
- = EXISTING SIGNAL POLE W/ LUMINARE
- = EXISTING STREET LIGHT ASSEMBLY
- = EXISTING YARD LIGHT
- = EXISTING GUY WIRE
- = EXISTING TRANSFORMER PAD
- = EXISTING POWER VAULT
- = EXISTING JBOX
- = EXISTING UTILITY POLE
- = EXISTING TRAFFIC SIGNAL VAULT
- = EXISTING GAS METER
- = EXISTING GAS VALVE
- = EXISTING TELEPHONE PEDESTAL
- = EXISTING COMMUNICATIONS MANHOLE
- = EXISTING COMMUNICATIONS VAULT
- = EXISTING WATER SPIGOT
- = EXISTING WATER BLOW OFF
- = EXISTING WATER METER
- = EXISTING WATER VALVE
- = EXISTING FIRE HYDRANT
- = EXISTING RIP RAP OR QUARRY SPALLS
- = EXISTING STORM AREA DRAIN
- = EXISTING STORM DRAIN CATCH BASIN TYPE I/INLET
- = EXISTING STORM DRAIN CATCH BASIN TYPE II
- = EXISTING STORM CLEANOUT
- = EXISTING SEWER CLEANOUT
- = EXISTING SEWER MANHOLE
- = EXISTING SOIL BORING LOCATION
- = EXISTING MONITORING WELL
- = EXISTING STOP BAR OR CROSSWALK
- = EXISTING MAIL BOX
- = EXISTING SIGN
- = EXISTING BENCH MARK
- = EXISTING NAIL AND SHINER
- = EXISTING IRON PIPE
- = EXISTING MONUMENT (IN CASE)
- = EXISTING MONUMENT (SURFACE)
- = EXISTING ANGLE POINT
- = EXISTING ROCK WALL
- = EXISTING TREE STUMP
- = EXISTING SHRUB
- = EXISTING TREE

PROPOSED

- = **PROPOSED HYDRANT**
- = **PROPOSED COUPLER**
- = **PROPOSED WATER METER**
- = **PROPOSED WATER VALVE**
- = **PROPOSED 45° BEND, MJ**
- = **PROPOSED TEE, MJ**
- = **PROPOSED TEE, FL**
- = **PROPOSED AIR RELEASE/AIR VACUUM VALVE**
- = **PROPOSED BLOWOFF VALVE**
- = **PROPOSED REDUCER, FLxMJ**
- = **PROPOSED REVERSE THRUST BLOCK**
- = **PROPOSED THRUST BLOCK**
- = **PROPOSED HDPE/D.I CONNECTION**
- = **PROPOSED ADAPTER, FLxMJ**
- = **PROPOSED RIP RAP OR QUARRY SPALLS**
- = **PROPOSED STORM AREA DRAIN**
- = **PROPOSED STORM DRAIN CATCH BASIN TYPE I/INLET**
- = **PROPOSED STORM DRAIN CATCH BASIN TYPE II**
- = **PROPOSED STORM CLEANOUT**
- = **PROPOSED SANITARY SEWER CLEAN OUT**
- = **PROPOSED SANITARY SEWER MANHOLE**
- = **PROPOSED UTILITY POLE**
- = **PROPOSED JBOX (TYPE I, II, III)**
- = **PROPOSED MONITORING WELL**
- = **PROPOSED STOP BAR OR CROSSWALK**
- = **PROPOSED SIGN**
- = **FLOW ARROW**
- = **PROPOSED ROCK WALL**
- = **PROPOSED TREE**
- = **SECTION MARK**

DETAIL NUMBER
DET
SHT
SHEET NUMBER

ABBREVIATIONS

Δ	= DELTA
ø	= DIAMETER
AC	= ASBESTOS CEMENT
AD	= ALGEBRAIC DIFFERENCE
ASPH	= ASPHALT
BLDG	= BUILDING
BVCE	= BEGIN VERTICAL CURVE ELEVATION
BVCS	= BEGIN VERTICAL CURVE STATION
C&G	= CURB & GUTTER
CATV	= CABLE TELEVISION
CDF	= CONTROLLED DENSITY FILL
℄	= CENTERLINE
CL	= CLASS
CMP	= CORRUGATED METAL PIPE
CMU	= CONCRETE MASONRY UNIT
COMP	= COMPACTED
CON	= CONIFER
CONC	= CONCRETE
CONT	= CONTOUR
CPSSP	= CORRUGATED POLYETHYLENE STORM SEWER PIPE
CULV	= CULVERT
D/W	= DRIVEWAY
DEC	= DECIDUOUS
DI	= DUCTILE IRON
E	= EAST
EL	= ELEVATION
EOP, EP	= EDGE OF PAVEMENT
EQUIV	= EQUIVALENT
EVCE	= END VERTICAL CURVE ELEVATION
EVCS	= END VERTICAL CURVE STATION
EX, EXIST	= EXISTING
IR	= EXISTING IRRIGATION
F&C	= FRAME & COVER
F&G	= FRAME & GRATE
FDC	= FIRE DEPARTMENT CONNECTION
FF	= FINISHED FLOOR
FG	= FINISHED GRADE
Ę	= FLOWLINE
FL	= FLANGE
FND	= FOUND
FT	= FEET
FT/FT	= FEET PER FOOT
GALV	= GALVANIZED
GRVL	= GRAVEL
GV	= GATE VALVE
HDPE	= HIGH DENSITY POLYETHYLENE
HMA	= HOT MIX ASPHALT
HP	= HIGH POINT
HYD	= HYDRANT
IE, INV	= INVERT ELEVATION
IW	= INJECTION WELL
L	= LENGTH
LDSC	= LANDSCAPING
LF	= LINEAR FEET
LOC	= LOCATION
LP	= LOW POINT
LT	= LEFT
MAX	= MAXIMUM
MIN	= MINIMUM
MJ	= MECHANICAL JOINT
MOD	= MODIFIED
MON	= MONUMENT
MPOC	= MID-POINT ON CURVE
MTR	= METER
MW	= MONITORING WELL
N	= NORTH
N/A	= NOT APPLICABLE
NE	= NORTHEAST
NW	= NORTHWEST
NTS	= NOT TO SCALE
OC	= ON CENTER
PVMNT	= PAVEMENT
PC	= POINT OF CURVATURE
PCC	= POINT OF COMPOUND CURVATURE, PORTLAND CEMENT CONCRETE
PED	= PEDESTAL
PIV	= POST INDICATOR VALVE
POC	= POINT ON CURVE
POSS	= POSSIBLE
PRC	= POINT OF REVERSE CURVE
PROP	= PROPOSED
PT	= POINT OF TANGENCY
PVC	= POLYVINYL CHLORIDE
PVI	= POINT OF VERTICAL INTERSECTION
PWR	= POWER
R	= RADIUS
R&C	= RING & COVER
RET	= RETAINING
ROW	= RIGHT OF WAY
RT	= RIGHT
S	= SOUTH
SCH	= SCHEDULE
SD	= STORM DRAIN
SDCO	= STORM DRAIN CLEAN OUT
SDCB	= STORM DRAIN CATCH BASIN
SDMH	= STORM DRAIN MANHOLE
SE	= SOUTHEAST
SN	= EXISTING SIGN
SP	= STANDARD PLAN
SSCO	= SANITARY SEWER CLEAN OUT
SSMH	= SANITARY SEWER MANHOLE
STA	= STATION
STD	= STANDARD
SW	= SOUTHWEST
TBC	= TOP BACK OF CONCRETE
TEL	= TELEPHONE
TL	= TRAFFIC LOOP
TYP	= TYPICAL
UP	= UTILITY POLE
UTIL	= UTILITY
VC	= VERTICAL CURVE
VLT	= VAULT
VPC	= VERTICAL POINT OF CURVATURE
VPI	= VERTICAL POINT OF INTERSECTION
VPT	= VERTICAL POINT OF TANGENCY
W	= WEST
WM	= WATER METER / WATER MAIN
WSEL	= WATER SURFACE ELEVATION
WSDOT	= WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

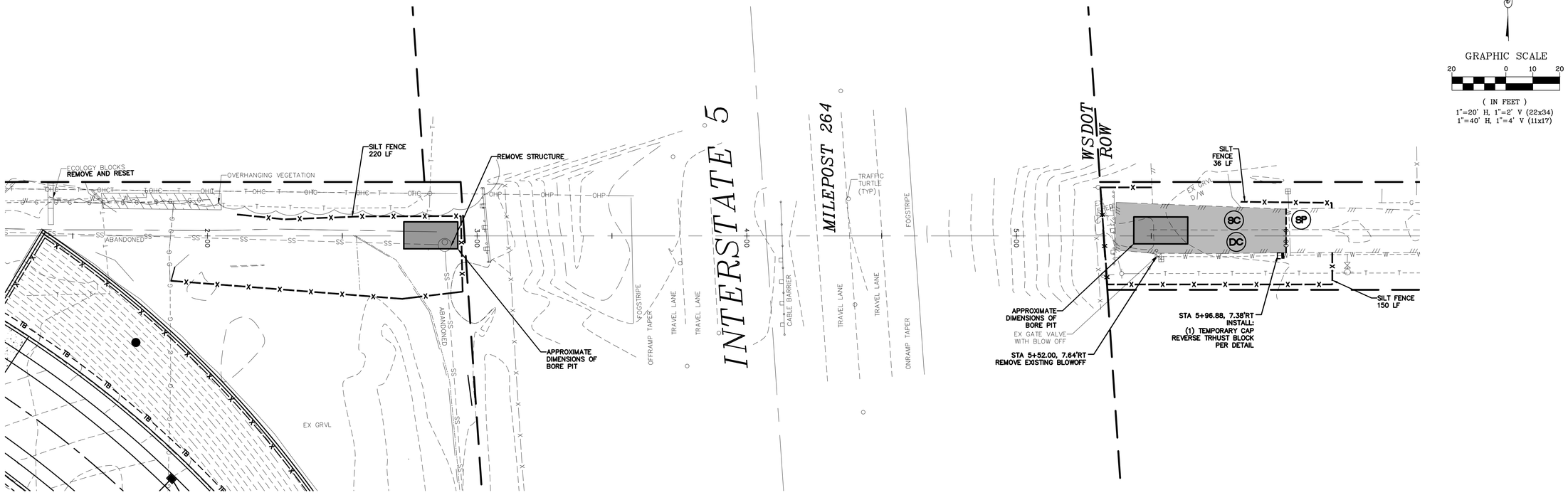
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
LEGEND AND ABBREVIATIONS

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 2 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 2 LEGEND AND ABBREVIATIONS, 5/7/2025 11:09:00 AM, , AutoCAD PDF (General Documentation).pc3



GRAPHIC SCALE

20 0 10 20

(IN FEET)

1"=20' H, 1"=2' V (22x34)
1"=40' H, 1"=4' V (11x17)

EROSION CONTROL LEGEND

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

NOTES:
1. SEE TESC DETAILS AND TESC GENERAL NOTES, SHEET 6.
2. GENERALLY THE FENCE AND CLEARING LIMITS FOLLOW THE RIGHT OF WAY OR CONSTRUCTION EASEMENTS UNLESS OTHERWISE DRAWN ON THE PLANS.

- (CE) = BMP C105/C106: STABILIZED CONSTRUCTION ENTRANCE – SEE DETAIL SHEET 10
- (IP) = BMP C220: INLET PROTECTION – CB INSERT – SEE DETAIL SHEET 10
- (SC) = BMP C105 AND C140: STREET CLEANING (STREET CLEANING IS ONLY REQUIRED IF THE WATER MAIN INSTALLED AND EXISTING ROAD NOT PULVERIZED UNTIL AFTER WATER MAIN INSTALLATION)
- (DC) = BMP C140: DUST CONTROL
- (SP) = BMP C152: SAWCUTTING AND SURFACE POLLUTION

DEMOLITION LEGEND

- = PROPOSED SAWCUT
- = PROPOSED DEMOLITION AREA (IF ALTERNATIVE A1 IS AWARDED, THIS AREA SHALL BE PULVERIZED PER PAVEMENT PULVERIZING DETAIL SHEET 14)
- = PROPOSED CLEARING, GRUBBING, AND OVERHEAD LIMBS TRIMMING LIMITS
- = SILT FENCE
- = PROPOSED BORE PIT

BASE BID

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

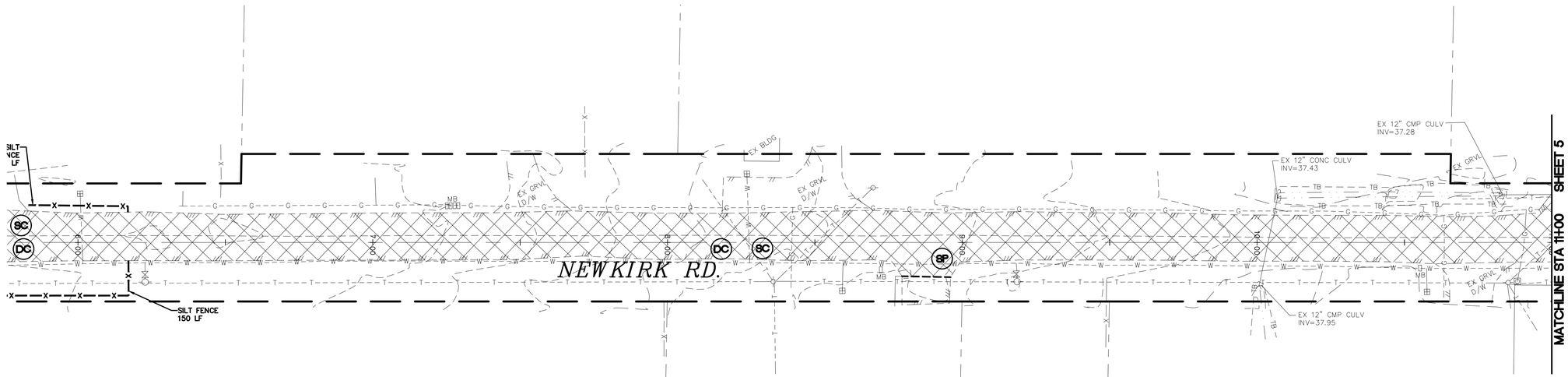
Reichhardt & Ebe
ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
TESC STA 1+25 To 6+50 (BASE BID)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: 1"=20' V: N/A
SHEET 3 of 15



GRAPHIC SCALE

20 0 10 20

(IN FEET)

1"=20' H, 1"=2' V (22x34)

1"=40' H, 1"=4' V (11x17)

EROSION CONTROL LEGEND

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

NOTES:
1. SEE TESC DETAILS AND TESC GENERAL NOTES, SHEET 6.
2. GENERALLY THE FENCE AND CLEARING LIMITS FOLLOW THE RIGHT OF WAY OR CONSTRUCTION EASEMENTS UNLESS OTHERWISE DRAWN ON THE PLANS.

CE = BMP C105/C106: STABILIZED CONSTRUCTION ENTRANCE – SEE DETAIL SHEET 10

IP = BMP C220: INLET PROTECTION – CB INSERT – SEE DETAIL SHEET 10

SC = BMP C105 AND C140: STREET CLEANING (STREET CLEANING IS ONLY REQUIRED IF THE WATER MAIN INSTALLED AND EXISTING ROAD NOT PULVERIZED UNTIL AFTER WATER MAIN INSTALLATION)

DC = BMP C140: DUST CONTROL

SP = BMP C152: SAWCUTTING AND SURFACE POLLUTION

DEMOLITION LEGEND

= PROPOSED SAWCUT

= PROPOSED PAVEMENT PULVERIZING AREA

= SILT FENCE

ALTERNATE A1

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

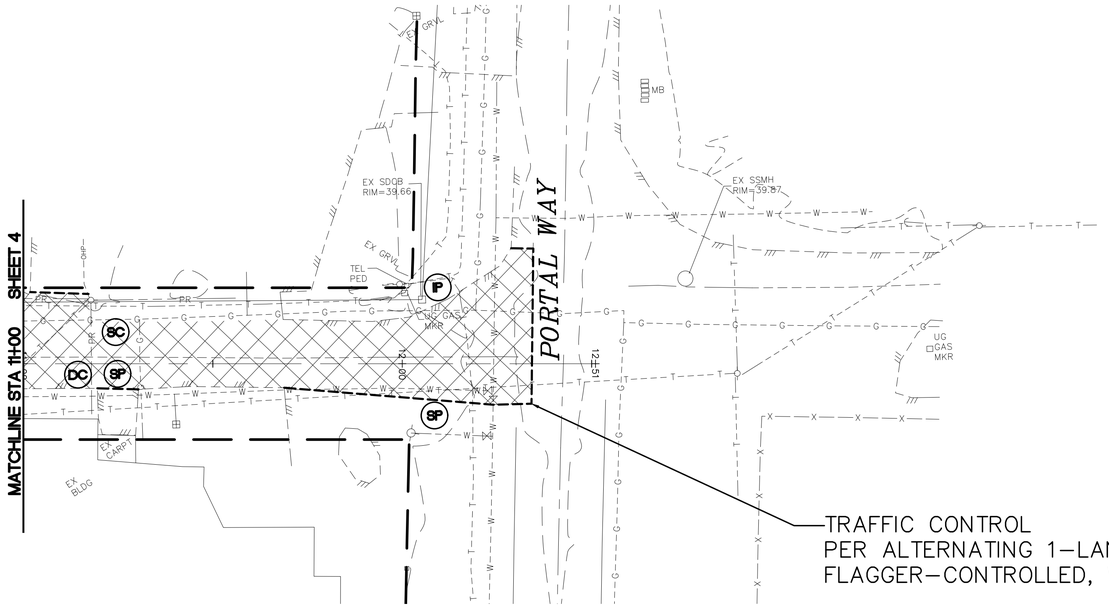
CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
TESC STA 5+76 To 11+00 (ALTERNATE A1)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: 1"=20' V: N/A
SHEET 4 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg - 4 TESC STA 5+76 to 11+00 (ALTERNATE A1), 5/7/2025 11:11:09 AM, , AutoCAD PDF (General Documentation).pc3

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1"=20' H, 1"=2' V (22x34)
1"=40' H, 1"=4' V (11x17)



EROSION CONTROL LEGEND

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

NOTES:
1. SEE TESC DETAILS AND TESC GENERAL NOTES, SHEET 6.
2. GENERALLY THE FENCE AND CLEARING LIMITS FOLLOW THE RIGHT OF WAY OR CONSTRUCTION EASEMENTS UNLESS OTHERWISE DRAWN ON THE PLANS.

CE = BMP C105/C106: STABILIZED CONSTRUCTION ENTRANCE – SEE DETAIL SHEET 10
IP = BMP C220: INLET PROTECTION – CB INSERT – SEE DETAIL SHEET 10
SC = BMP C105 AND C140: STREET CLEANING (STREET CLEANING IS ONLY REQUIRED IF THE WATER MAIN INSTALLED AND EXISTING ROAD NOT PULVERIZED UNTIL AFTER WATER MAIN INSTALLATION)
DC = BMP C140: DUST CONTROL
SF = BMP C152: SAWCUTTING AND SURFACE POLLUTION

DEMOLITION LEGEND

= PROPOSED SAWCUT
= PROPOSED PAVEMENT PULVERIZING AREA
= SILT FENCE

ALTERNATE A1

STATE OF WASHINGTON LUIS PONCE 38378 REGISTERED PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
TESC STA 11+00 To 12+51 (ALTERNATE A1)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: 1"=20' V: N/A
SHEET 5 of 15

P:\Projects\23007\Cnd 3D 2023\23007 PLOT.dwg, 5 TESC STA 11+00 to 12+51 (ALTERNATE A1), 5/7/2025 11:12:11 AM, _AutoCAD PDF (General Documentation).pc3

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 2019 STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (SWMMWW) 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 THE CITY OF FERNDALE 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(S) 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 TRANSPORTING 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 ACCESS
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 INFILTRATION OR DETENTION BMPS AS ONE OF THE FIRST STEPS IN GRADING. ASSURE THAT DETENTION BMPS FUNCTION PROPERLY BEFORE CONSTRUCTING SITE IMPROVEMENTS (E.G. IMPERVIOUS SURFACES).
- IF PERMANENT INFILTRATION BMPS ARE USED FOR TEMPORARY FLOW CONTROL DURING CONSTRUCTION, PROTECT THESE BMPS 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 MUST BE FUNCTIONAL 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 BMP C241: SEDIMENT POND (TEMPORARY) 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 CONTROL FLOW RATES PER ELEMENT 3: CONTROL FLOW RATES.
- 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)
BMP C233: SILT FENCE

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 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 – SEPTEMBER 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, PROTECT WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, LOCATE 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 BE SIZED TO CONVEY THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:
  - SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.
    OR
  - CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

  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 DOES 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: INLET PROTECTION

ELEMENT 8: STABILIZE CHANNELS AND OUTLETS

- DESIGN, CONSTRUCT, AND STABILIZE ALL ON-SITE CONVEYANCE CHANNELS TO PREVENT EROSION FROM THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:
  - SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.
    OR
  - CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

  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. THE PROJECT PROPONENT MUST:

- 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 TANK 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, 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: RECYCLED CONCRETE STOCKPILES, 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 TRUCK DRUMS OR CONCRETE HANDLING EQUIPMENT ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. WASHOUT OF SMALL CONCRETE HANDLING EQUIPMENT MAY BE DISPOSED OF IN A FORMED AREA AWAITING CONCRETE WHERE IT WILL NOT CONTAMINATE SURFACE OR GROUND WATER. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE 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, OR FOOD GRADE VINEGAR TO ADJUST PH.

BMP C151: CONCRETE HANDLING
BMP C154: CONCRETE WASHOUT AREA

ELEMENT 10: CONTROL DE-WATERING

- DISCHARGE FOUNDATION, VAULT, AND TRENCH DE-WATERING WATER, WHICH HAVE SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, INTO A CONTROLLED CONVEYANCE SYSTEM BEFORE DISCHARGE TO BMP C240: SEDIMENT TRAP OR BMP C241: SEDIMENT POND (TEMPORARY).
- 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: STABILIZE CHANNELS AND OUTLETS, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. DO NOT ROUTE CLEAN DEWATERING WATER THROUGH STORMWATER SEDIMENT BMPS. NOTE THAT SURFACE WATERS OF THE STATE MAY 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 DEWATERING 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 2019 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.
- INSPECT, MAINTAIN AND REPAIR ALL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. PROJECTS REGULATED UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT (CSWGP) MUST CONDUCT SITE INSPECTIONS AND MONITORING IN ACCORDANCE WITH SPECIAL CONDITION S4 OF THE CSWGP.
- MAINTAIN, UPDATE, AND IMPLEMENT THE CONSTRUCTION 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 CONSTRUCTION SWPPP MUST IDENTIFY THE CESCL OR INSPECTOR, WHO MUST BE PRESENT ON SITE OR ON-CALL AT ALL TIMES.
- ADDITIONAL GUIDANCE FOR ELEMENT 12
  - THE PROJECT MANAGER MUST ENSURE THAT THE PROJECT IS BUILT IN SUCH A WAY TO COMPLY WITH ALL CONSTRUCTION SWPPP ELEMENTS, AS DETAILED IN THIS SECTION. CONSIDERATIONS FOR THE PROJECT MANAGER INCLUDE, BUT ARE NOT LIMITED TO:
    - CONSTRUCTION PHASING
    - SEASONAL WORK LIMITATIONS
    - COORDINATION WITH UTILITIES AND OTHER CONTRACTORS
    - INSPECTION
    - MONITORING
    - MAINTAINING AN UPDATED CONSTRUCTION SWPPP
  - PHASING OF CONSTRUCTION
    - PHASE DEVELOPMENT PROJECTS WHERE FEASIBLE IN ORDER TO PREVENT SOIL EROSION AND TRANSPORTING OF SEDIMENT FROM THE SITE DURING CONSTRUCTION. REVEGETATE EXPOSED AREAS AND MAINTAIN THAT VEGETATION AS AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.
    - CLEARING AND GRADING ACTIVITIES FOR DEVELOPMENTS SHALL BE PERMITTED ONLY IF CONDUCTED USING AN APPROVED SITE DEVELOPMENT PLAN (E.G., SUBDIVISION APPROVAL) THAT ESTABLISHES PERMITTED AREAS OF CLEARING, GRADING, CUTTING, AND FILLING. MINIMIZE REMOVING TREES AND DISTURBING OR COMPACTING NATIVE SOILS WHEN ESTABLISHING PERMITTED CLEARING AND GRADING AREAS. SHOW ON THE SITE PLANS AND THE DEVELOPMENT SITE PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS AS MAY BE REQUIRED BY LOCAL JURISDICTIONS.
  - INSPECTION
    - ALL BMPS MUST BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SITE INSPECTIONS MUST BE CONDUCTED BY A PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL. THE PERSON MUST HAVE THE SKILLS TO 1) ASSESS THE SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER, AND 2) ASSESS THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
    - FOR CONSTRUCTION SITES ONE ACRE OR LARGER THAT DISCHARGE STORMWATER TO SURFACE WATERS OF THE STATE, A CESCL MUST BE IDENTIFIED IN THE CONSTRUCTION SWPPP. THIS PERSON MUST BE ON-SITE OR ON-CALL AT ALL TIMES. CERTIFICATION MUST BE OBTAINED THROUGH AN APPROVED TRAINING PROGRAM THAT MEETS THE EROSION AND SEDIMENT CONTROL TRAINING STANDARDS ESTABLISHED BY ECOLOGY. SEE BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD.
    - APPROPRIATE BMPS OR DESIGN CHANGES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, DUE TO THE ACTUAL DISCHARGE OF/OR POTENTIAL TO DISCHARGE A SIGNIFICANT AMOUNT OF ANY POLLUTANT.
    - 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 CONSTRUCTION SWPPP FOR COMPLIANCE WITH THE 13 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 NO 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 (APPLIES ONLY TO SITES THAT HAVE COVERAGE UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT).
  - 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
- MAINTAINING AN UPDATED CONSTRUCTION SWPPP
  - RETAIN THE CONSTRUCTION SWPPP ON-SITE OR WITHIN REASONABLE ACCESS TO THE SITE.
  - MODIFY THE CONSTRUCTION SWPPP WHENEVER THERE IS A CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE AT THE CONSTRUCTION SITE THAT HAS, OR COULD HAVE, A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO WATERS OF THE STATE.
  - THE CONSTRUCTION SWPPP MUST BE MODIFIED IF, DURING INSPECTIONS OR INVESTIGATIONS CONDUCTED BY THE OWNER/OPERATOR, OR THE APPLICABLE LOCAL OR STATE REGULATORY AUTHORITY, IT IS DETERMINED THAT THE CONSTRUCTION SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN STORMWATER DISCHARGES FROM THE SITE. MODIFY THE CONSTRUCTION SWPPP AS NECESSARY TO INCLUDE ADDITIONAL OR MODIFIED BMPS DESIGNED TO CORRECT PROBLEMS IDENTIFIED. COMPLETE REVISIONS TO THE CONSTRUCTION SWPPP WITHIN SEVEN (7) DAYS FOLLOWING THE INSPECTION.

BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT 13: PROTECT LOW IMPACT DEVELOPMENT BMPS

- THE PRIMARY PURPOSE OF ON-SITE STORMWATER MANAGEMENT IS TO REDUCE THE DISRUPTION OF THE NATURAL SITE HYDROLOGY THROUGH INFILTRATION. BMPS USED TO MEET I-3.4.5 MR5: ON-SITE STORMWATER MANAGEMENT (OFTEN CALLED LID BMPS) ARE PERMANENT FACILITIES.
- PROTECT ALL LID BMPS (INCLUDING, BUT NOT LIMITED TO BMP T7.30: BIORETENTION, BMP T5.14: RAIN GARDENS, AND BMP T5.15: PERMEABLE PAVEMENTS) FROM SEDIMENTATION THROUGH INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL BMPS ON PORTIONS OF THE SITE THAT DRAIN INTO THE LID BMPS. RESTORE THE BMPS TO THEIR FULLY FUNCTIONING CONDITION IF THEY ACCUMULATE SEDIMENT DURING CONSTRUCTION. RESTORING THE BMP MUST INCLUDE REMOVAL OF SEDIMENT AND ANY SEDIMENT-LADEN BIORETENTION/RAIN GARDEN SOILS, AND REPLACING THE REMOVED SOILS WITH SOILS MEETING THE DESIGN SPECIFICATION.
- MAINTAIN THE INFILTRATION CAPABILITIES OF LID BMPS BY PROTECTING AGAINST COMPACTION BY CONSTRUCTION EQUIPMENT AND FOOT TRAFFIC. PROTECT COMPLETED LAWN AND LANDSCAPED AREAS FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT.
- CONTROL EROSION AND AVOID INTRODUCING SEDIMENT FROM SURROUNDING LAND USES ONTO BMP T5.15: PERMEABLE PAVEMENTS. DO NOT ALLOW MUDDY CONSTRUCTION EQUIPMENT ON THE BASE MATERIAL OR PAVEMENT. DO NOT ALLOW SEDIMENT-LADEN RUNOFF ONTO PERMEABLE PAVEMENTS OR BASE MATERIALS.
- PERMEABLE PAVEMENT FOULED WITH SEDIMENTS OR NO LONGER PASSING AN INITIAL INFILTRATION TEST MUST BE CLEANED USING PROCEDURES IN ACCORDANCE WITH THIS MANUAL OR THE MANUFACTURER'S PROCEDURES.
- KEEP ALL HEAVY EQUIPMENT OFF EXISTING SOILS UNDER LID BMPS THAT HAVE BEEN EXCAVATED TO FINAL GRADE TO RETAIN THE INFILTRATION RATE OF THE SOILS.
- ADDITIONAL GUIDANCE FOR ELEMENT 13
  - SEE CHAPTER 5- PRECISION SITE PREPARATION, CONSTRUCTION & INSPECTION OF LID FACILITIES IN THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) FOR MORE DETAIL ON PRO-TECTING LID INTEGRATED MANAGEMENT PRACTICES.
  - NOTE THAT THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) IS FOR ADDITIONAL INFORMATIONAL PURPOSES ONLY. YOU MUST FOLLOW THE GUIDANCE WITHIN THIS MANUAL IF THERE AREANY DISCREPANCIES BETWEEN THIS MANUAL AND THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012).

BMP C102: BUFFER ZONES
BMP C103: HIGH-VISIBILITY FENCE
BMP C200: INTERCEPTOR DIKE AND SWALE
BMP C201: GRASS-LINED CHANNELS
BMP C207: CHECK DAMS
BMP C208: TRIANGULAR SILT DIKE (TSD)
BMP C231: BRUSH BARRIER
BMP C233: SILT FENCE
BMP C234: VEGETATED STRIP

STATE OF WASHINGTON LUIS PONCE 38378 REGISTERED PROFESSIONAL ENGINEER 5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

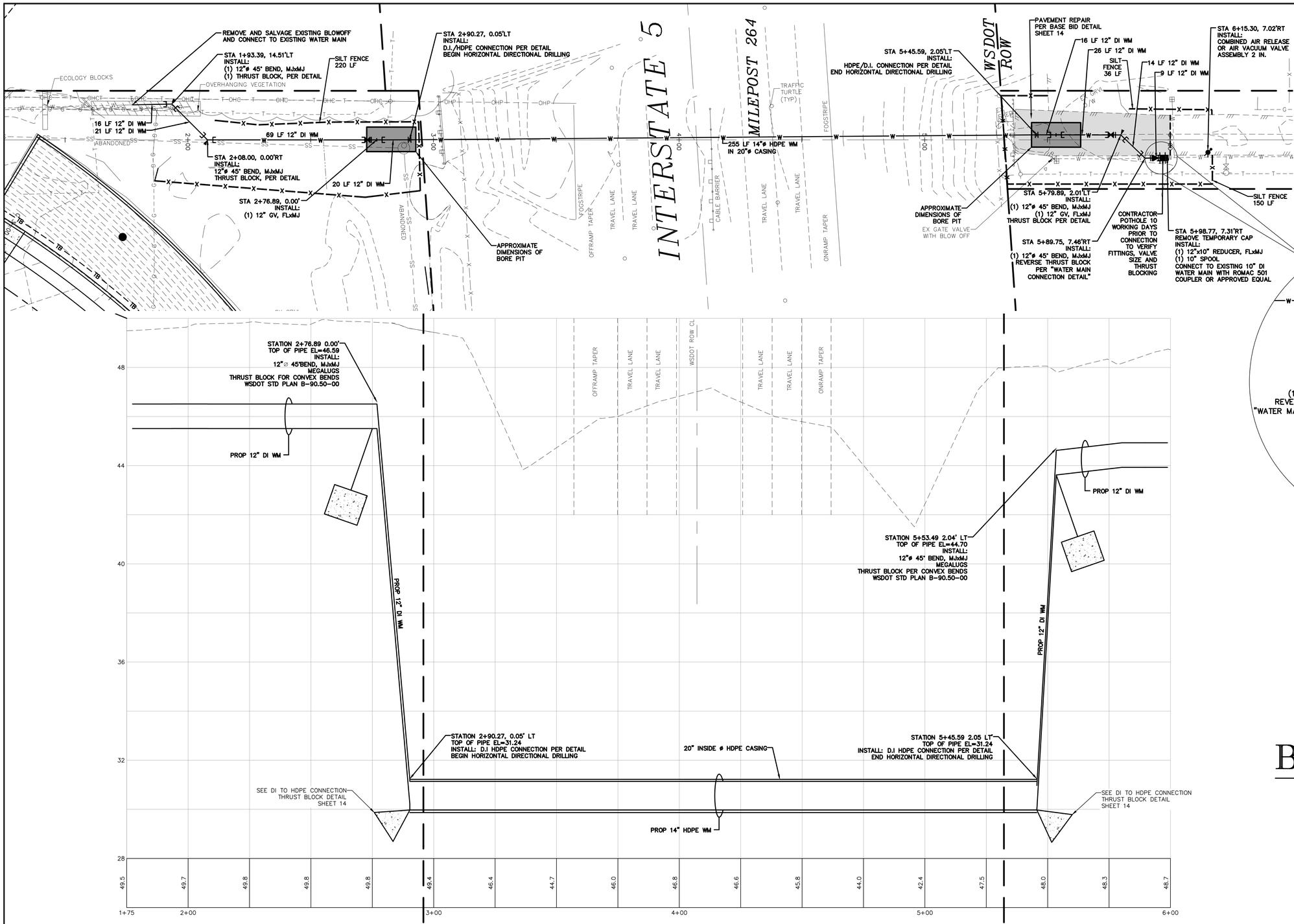
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
TESC NOTES

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 6 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 6 TESC NOTES, 5/7/2025 11:12:56 AM, AutoCAD PDF (General Documentation).pc3



BASE BID

STATE OF WASHINGTON LUIS PONCE 38378 REGISTERED PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY	LP
DRAWN BY	BC
CHECKED BY	LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

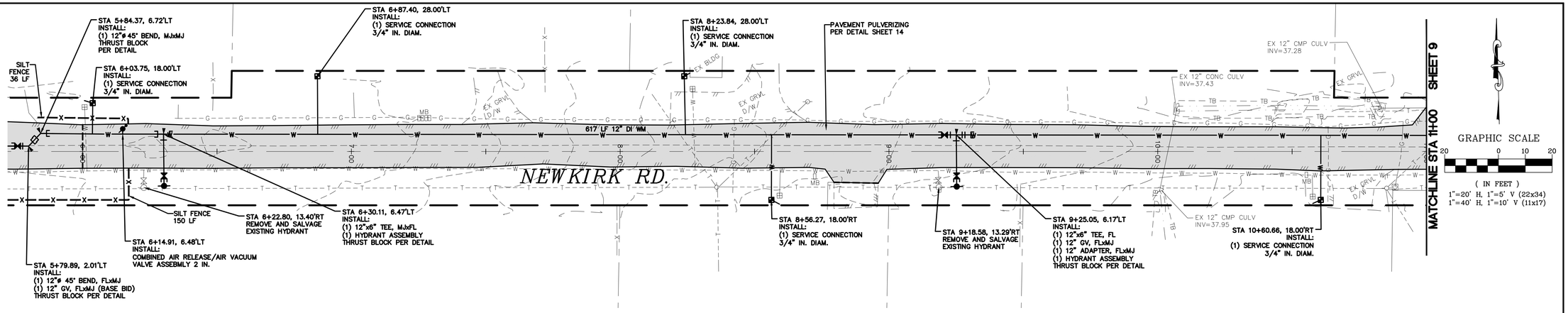
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
PLAN + PROFILE STA 1+25 To 6+50 (BASE BID)

DWG 23007 PLOT		DATE 5/7/25
JOB# 23007	SCALE H: 1"=20' V: 1"=40'	SHEET 7 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 7 PLAN & PROFILE STA 1+25 to 6+50 (BASE BID), 5/7/2025 11:13:48 AM, AutoCAD PDF (General Documentation).pc3



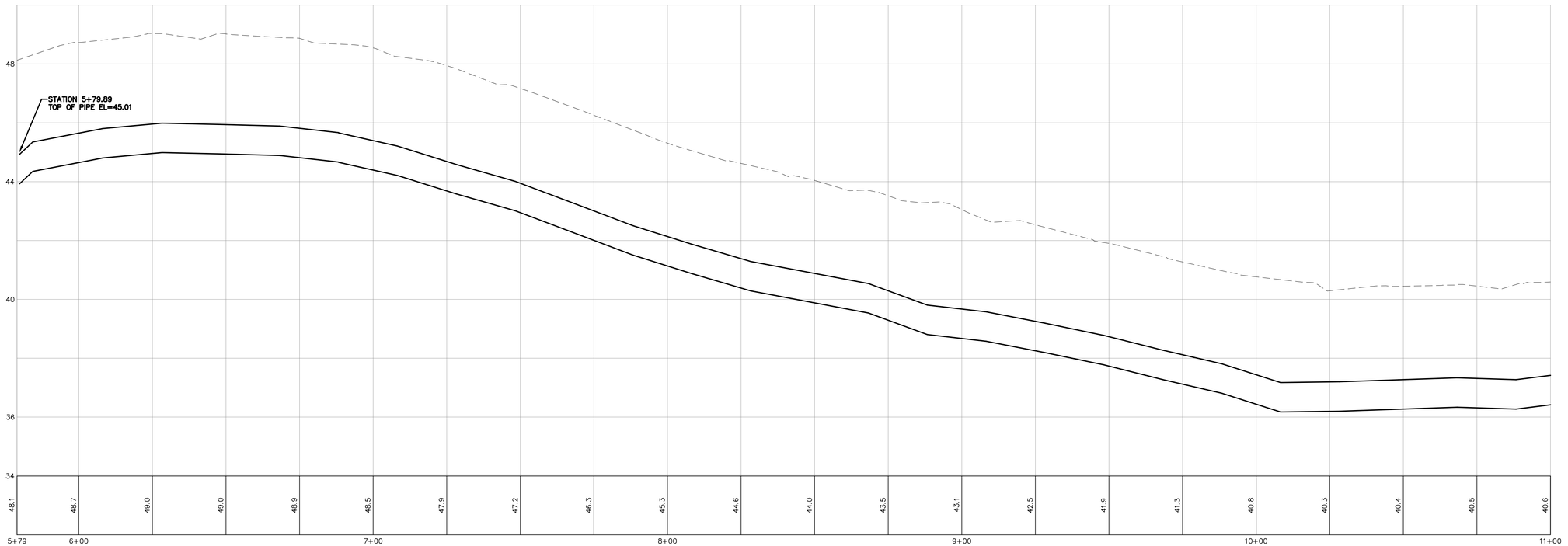
GRAPHIC SCALE

20 0 10 20

(IN FEET)

1"=20' H, 1"=5' V (22x34)

1"=40' H, 1"=10' V (11x17)



ALTERNATE A1

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
PLAN + PROFILE STA 5+76 To 11+00 (ALTERNATE A1)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: 1"=20' V: 1"=40'
SHEET 8 of 15

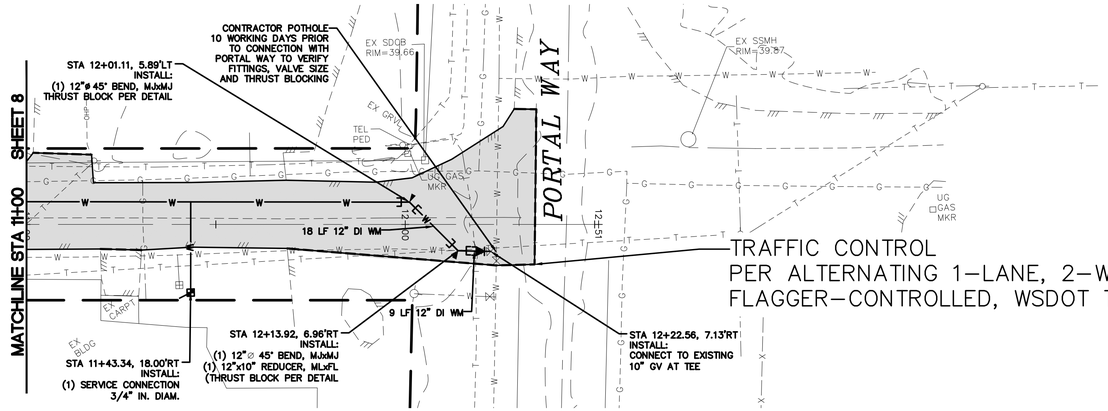
LUIS PONCE STATE OF WASHINGTON 38378 REGISTERED PROFESSIONAL ENGINEER
5/7/25

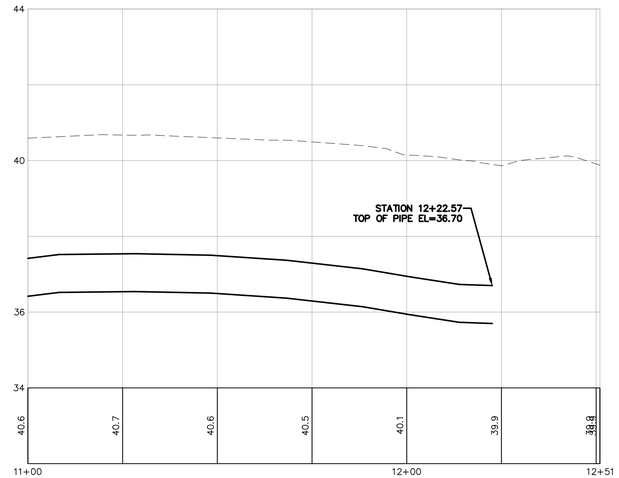
P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 8 PLAN & PROFILE STA 5+76 to 11+00 (ALTERNATE A1), 5/7/2025 11:14:48 AM, AutoCAD PDF (General Documentation).pc3

GRAPHIC SCALE

20 0 10 20

(IN FEET)
1"=20' H, 1"=5' V (22x34)
1"=40' H, 1"=10' V (11x17)





ALTERNATE A1

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

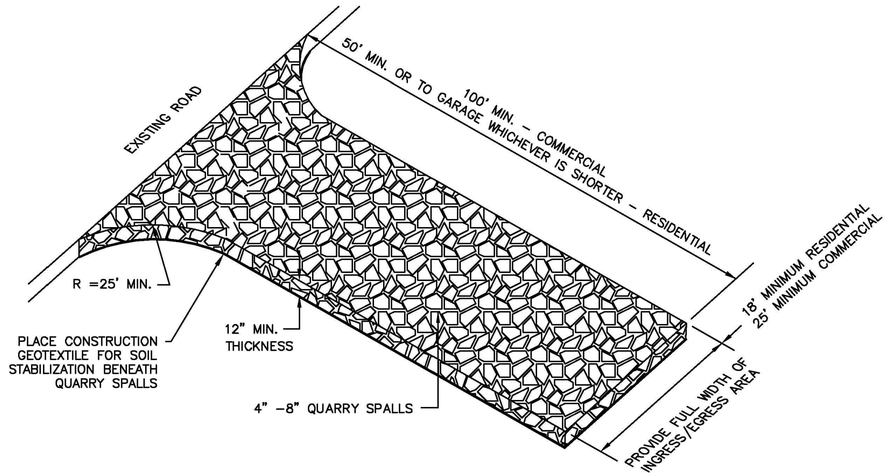
R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
PLAN + PROFILE STA 11+00 To 12+51 (ALTERNATE A1)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: 1"=20' V: 1"=40'
SHEET 9 of 15



NOVEMBER 29, 2016

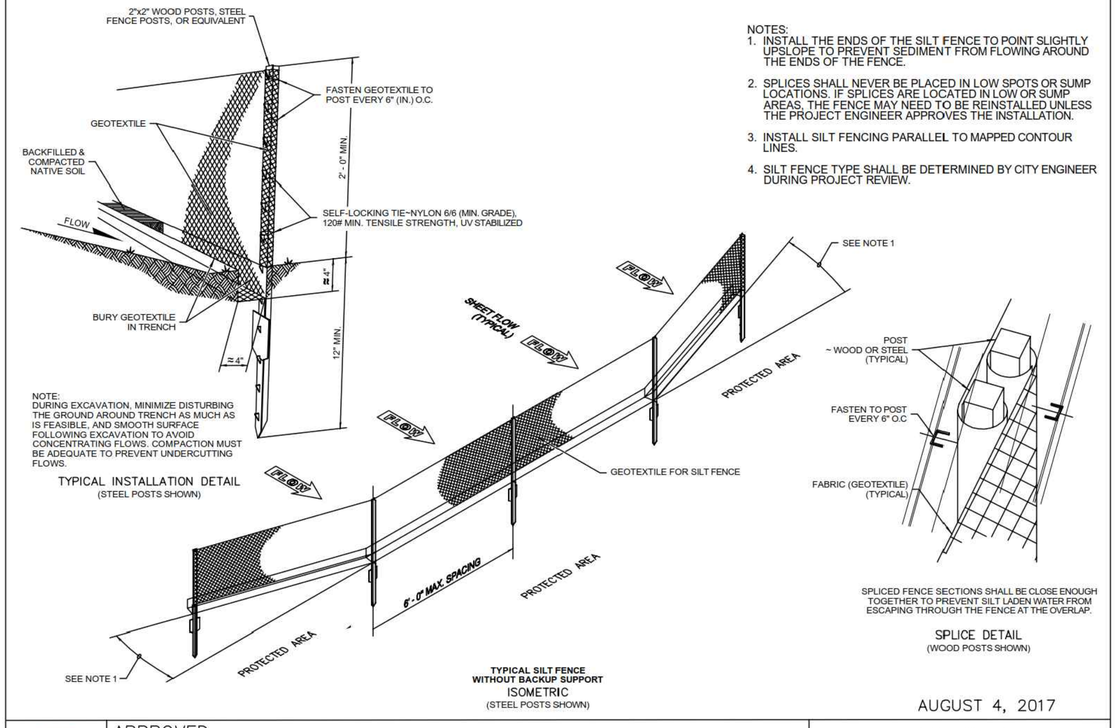
APPROVED

Public Works Director — 8/11/17 Date

TEMPORARY CONSTRUCTION ENTRANCE

STANDARD DETAIL ST–25

NOT TO SCALE



NOTES:
1. INSTALL THE ENDS OF THE SILT FENCE TO POINT SLIGHTLY UPSLOPE TO PREVENT SEDIMENT FROM FLOWING AROUND THE ENDS OF THE FENCE.
2. SPLICES SHALL NEVER BE PLACED IN LOW SPOTS OR SUMP LOCATIONS. IF SPLICES ARE LOCATED IN LOW OR SUMP AREAS, THE FENCE MAY NEED TO BE REINSTALLED UNLESS THE PROJECT ENGINEER APPROVES THE INSTALLATION.
3. INSTALL SILT FENCING PARALLEL TO MAPPED CONTOUR LINES.
4. SILT FENCE TYPE SHALL BE DETERMINED BY CITY ENGINEER DURING PROJECT REVIEW.

AUGUST 4, 2017

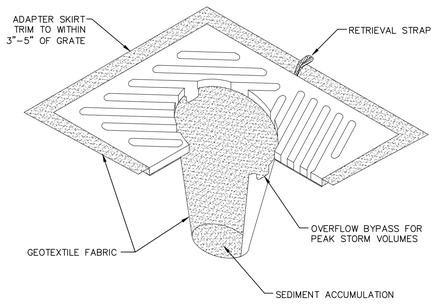
APPROVED

Public Works Director — 8/11/17 Date

SILT FENCE

STANDARD DETAIL ST–27

NOT TO SCALE



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 – CB INSERT

NTS

LUIS PONCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER — 5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

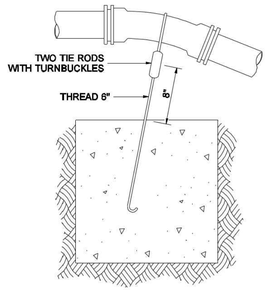
R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

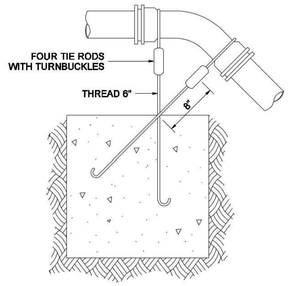
CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
DETAILS (TESC)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 10 of 15



BLOCKING FOR 11.25° OR 22.5° VERTICAL BENDS



BLOCKING FOR 45° VERTICAL BENDS

NOTE

Steel tie rods to be heavily coated with asphalt after installation.

DIMENSION TABLE						
PIPE DIAM.	TEST PRESSURE (PSI)	BEND ANGLE	CONCRETE VOLUME (Ft^3)	CUBE SIZE (Ft)	TIE ROD DIAM.	TIE ROD EMBEDMENT
4"	250	11.25°	6	1.8	5/8"	17"
		22.5°	12	2.3		
		45°	22	2.8		
6"	250	11.25°	14	2.4	5/8"	17"
		22.5°	27	3.0		
		45°	50	3.7		
8"	250	11.25°	25	2.9	5/8"	17"
		22.5°	48	3.6		
		45°	89	4.5		
10"	250	11.25°	38	3.4	5/8"	17"
		22.5°	75	4.2		
		45°	139	5.2		
12"	250	11.25°	55	3.8	5/8"	17"
		22.5°	108	4.8		
		45°	200	5.8	7/8"	24"
14"	250	11.25°	75	4.2	5/8"	17"
		22.5°	147	5.3	3/4"	20"
		45°	272	6.5	1"	27"
16"	250	11.25°	98	4.6	5/8"	17"
		22.5°	192	5.8	7/8"	24"
		45°	355	7.1	1 1/8"	30"

MATTHEW J. WAITCAS
STATE OF WASHINGTON
19588
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES JULY 1, 2007

NOTE: THIS PLAN SHEET IS FOR ENGINEERING DOCUMENT AND RECORD PURPOSES ONLY. THE USE OF THIS PLAN SHEET BY THE CONTRACTOR OR APPROVED SUBCONTRACTORS, VENDORS OR SUPPLIERS FOR CONSTRUCTION PURPOSES IS AT THE CONTRACTOR'S OR APPROVED SUBCONTRACTOR'S, VENDOR'S OR SUPPLIER'S SOLE RISK AND WITHOUT LIABILITY TO THE ENGINEER. A CERTIFIED SET OF SHEETS IS AVAILABLE UPON REQUEST.

CONCRETE THRUST BLOCK FOR CONVEX VERTICAL BENDS
STANDARD PLAN B-90.50-00

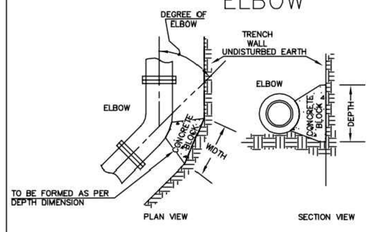
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Harold J. Peterfeso 06-08-06
STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

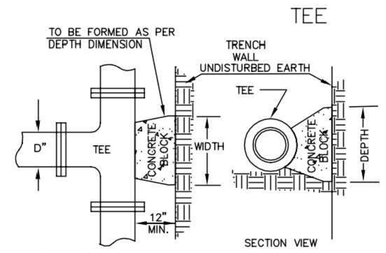
ELBOW



100 P.S.I. OPERATING PRESSURE

SIZE	11 ¼°		22 ½°		45°		90°	
	W	D	W	D	W	D	W	D
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	2'-3"	1'-6"
8"	1'-3"	1'-3"	1'-3"	1'-3"	1'-9"	1'-9"	3'-0"	2'-0"
10"	1'-9"	1'-6"	1'-9"	1'-6"	2'-3"	2'-3"	3'-6"	2'-6"
12"	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"	2'-6"	4'-0"	3'-0"
16"	2'-9"	2'-3"	2'-9"	2'-3"	4'-0"	3'-0"	6'-3"	3'-6"
20"	3'-6"	2'-9"	3'-6"	2'-9"	4'-6"	4'-0"	8'-6"	4'-0"
24"	4'-6"	3'-0"	4'-6"	3'-0"	5'-6"	5'-0"	9'-9"	5'-0"

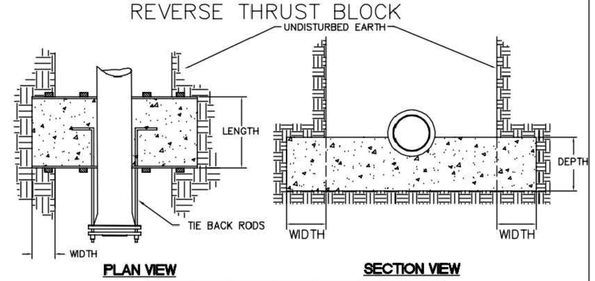
TEE



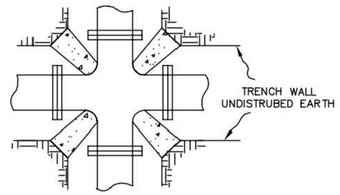
SIZE	WIDTH	DEPTH
6"	1'-10"	1'-10"
8"	2'-6"	2'-6"
10"	3'-4"	3'-0"
12"	4'-3"	3'-4"
16"	6'-4"	4'-0"
20"	7'-10"	5'-0"
24"	9'-5"	6'-0"

250 PSI TEST PRESSURE,
2000 PSF SAFE BEARING LOAD

REVERSE THRUST BLOCK



4-WAY CROSS



SIZE	WIDTH	DEPTH
6"	1'-0"	1'-0"
8"	1'-3"	1'-3"
10"	1'-6"	1'-6"
12"	1'-9"	1'-9"
16"	2'-3"	2'-6"
20"	2'-6"	3'-6"
24"	3'-0"	4'-0"

250PSI TEST PRESSURE,
2000 PSF SAFE BEARING LOAD

PLAN VIEW **SECTION VIEW**

"D"	WIDTH	DEPTH	LENGTH	*VOL.	#OF RODS	ROD DIA.
6"	1'-6"	1'-6"	12"	7.5	2	⅝"
8"	2'-0"	2'-0"	18"	20.0	2	¾"
10"	2'-6"	2'-6"	24"	37.5	2	¾"
12"	2'-9"	2'-9"	24"	44.0	4	¾"
16"						
20"						
24"						

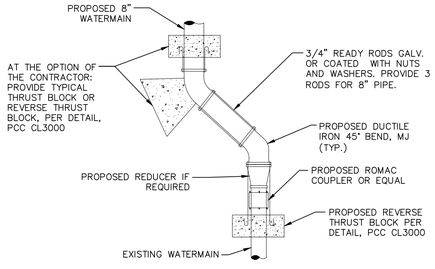
*VOL. = Approx. Volume of Blocking Material Required in cu. ft.
RODS: A36 STEEL MINIMUM

NOVEMBER 23, 2016

APPROVED

Public Works Director — 8/11/17 Date

THRUST BLOCKING DETAIL
STANDARD DETAIL W-2
NOT TO SCALE



WATER MAIN CONNECTION DETAIL

NTS

LUIS PONCE
STATE OF WASHINGTON
38378
REGISTERED
PROFESSIONAL ENGINEER
5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

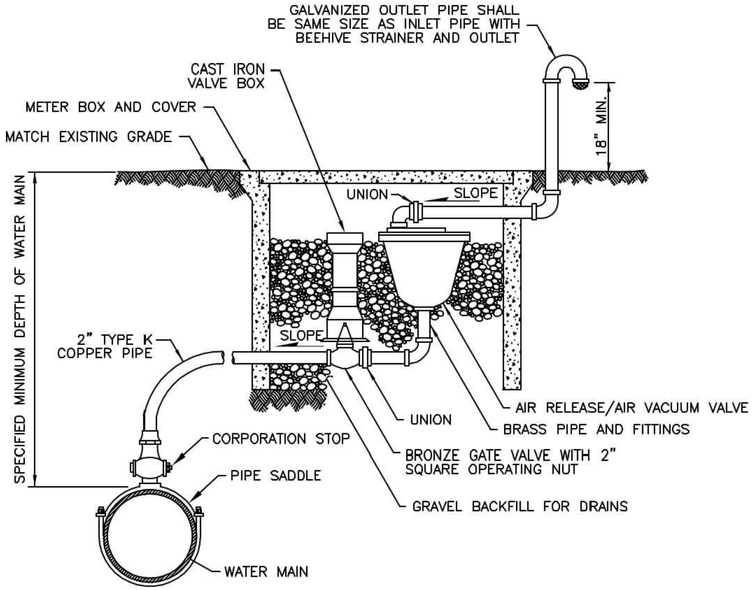
NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
DETAILS (Thrust Block)

DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 11 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg - 11 DETAILS (Thrust Block), 5/7/2025 11:16:47 AM, AutoCAD PDF (General Documentation).pc3



NOTES:
1. 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.
2. LOCATE AT THE HIGH POINT OF THE MAIN, TAP TOP OF MAIN.

NOVEMBER 23, 2016

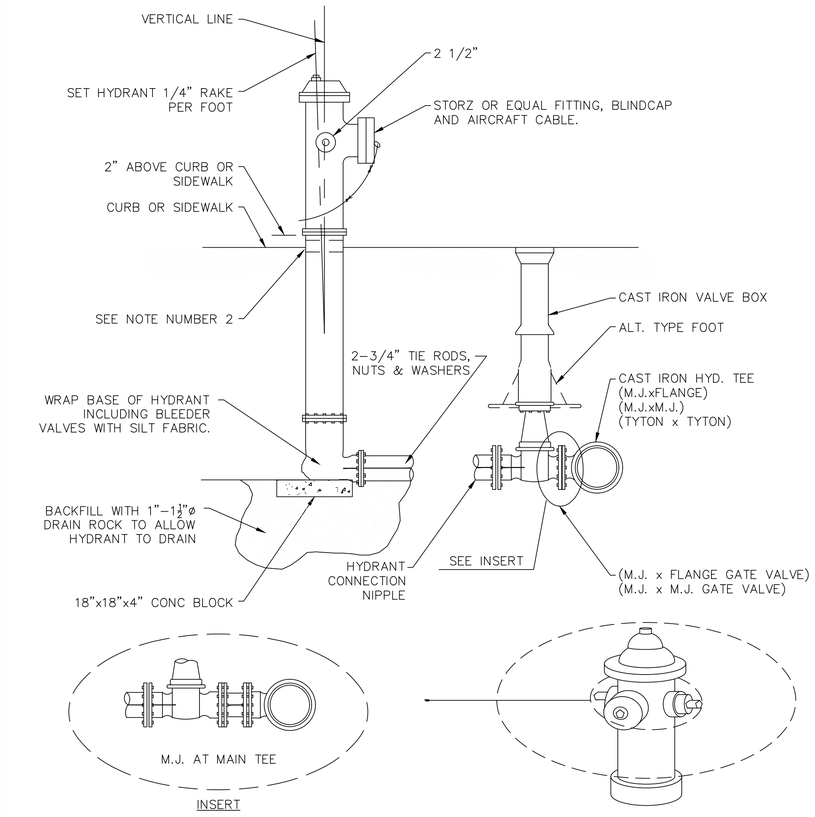
APPROVED

Public Works Director — 8/11/17 Date

COMBINATION AIR RELEASE AIR VACUUM VALVE ASSEMBLY

STANDARD DETAIL W-13

NOT TO SCALE



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.

AUGUST 2, 2017

APPROVED

Public Works Director — 8/11/17 Date

FIRE HYDRANT ASSEMBLY

STANDARD DETAIL W-1

NOT TO SCALE

LUIS PONCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER — 5/7/25

BID SET

DESIGNED BY LP
DRAWN BY BC
CHECKED BY LP

Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

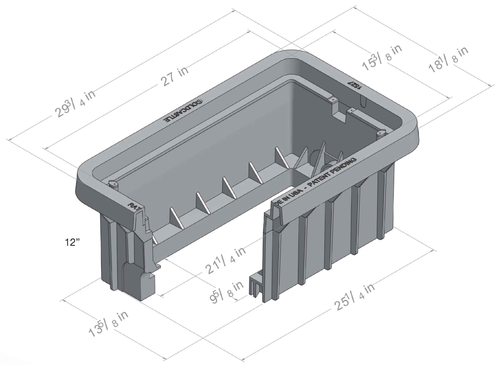
CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
DETAILS (Blowoff + Hydrant)

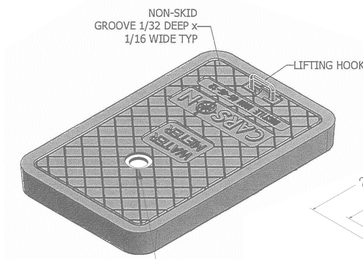
DWG 23007 PLOT
DATE 5/7/25
JOB# 23007
SCALE H: N/A V: N/A
SHEET 12 of 15

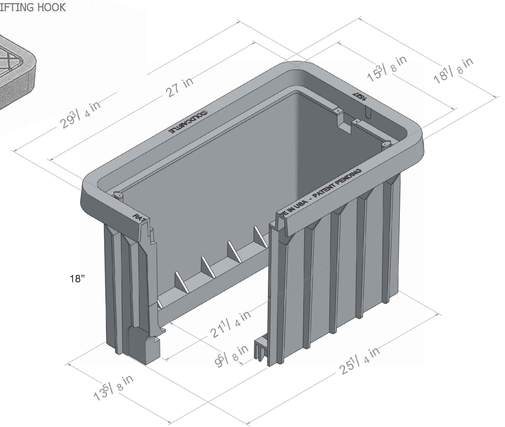
P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 12 DETAILS (Blowoff & Hydrant), 5/7/2025 11:17:05 AM, , AutoCAD PDF (General Documentation).pc3

NOTE:
1. CARSON MODEL 1118BC FLSH COVER DUCTILE IRON OR APPROVED EQUAL.
2. OLDCASTLE HEAVYWALL MODEL 1527BCF OR APPROVED EQUAL



12" BODY

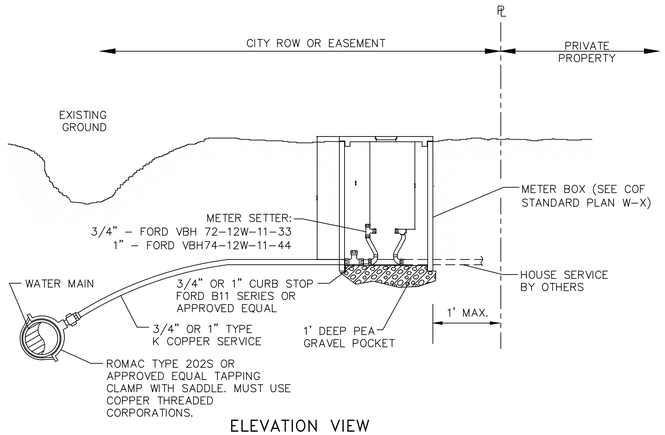




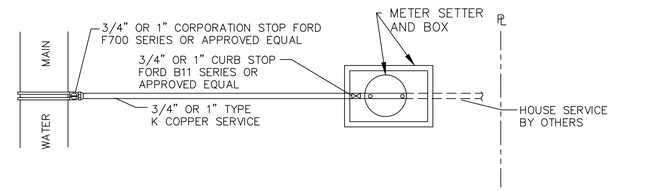
18" BODY

NOVEMBER 29, 2016

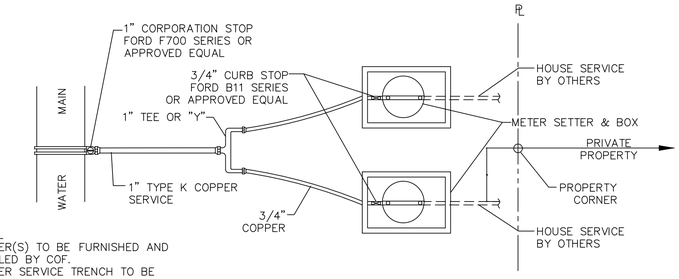
CITY OF FERNDALE WASHINGTON	APPROVED Public Works Director — 8/11/17 Date	3/4" AND 1" WATER METER NON-DELIBERATE TRAFFIC RATED STANDARD DETAIL W-6.1.1 NOT TO SCALE



ELEVATION VIEW



PLAN VIEW – SINGLE SERVICE



NOTES:
1. METER(S) TO BE FURNISHED AND INSTALLED BY COF.
2. WATER SERVICE TRENCH TO BE BACKFILLED WITH 12" MIN. DEPTH OF CLEAN SANDY FILL OR PEA GRAVEL.

PLAN VIEW – DOUBLE SERVICE

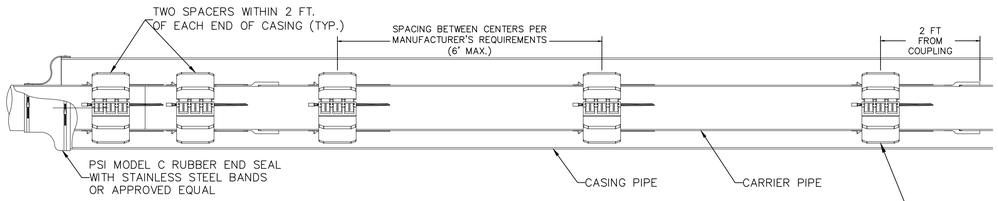
SEPTEMBER 22, 2020

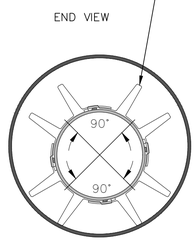
CITY OF FERNDALE WASHINGTON	APPROVED Public Works Director — Date	TYPICAL ¾" AND 1" WATER SERVICE STANDARD DETAIL W-5 NOT TO SCALE

LUIS PONCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER
5/7/25

BID SET	DESIGNED BY LP DRAWN BY BC CHECKED BY LP	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 | 423 Front Street Lynden, WA 98264 (360) 354-3687	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE. WA 98248	CITY OF FERNDALE THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS DETAILS (Water Meter)	DWG 23007 PLOT JOB# 23007 SCALE H: N/A V: N/A DATE 5/7/25 SHEET 13 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 13.DETAILS (Water Meter), 5/7/2025 11:17:30 AM, _AutoCAD PDF (General Documentation).pc3





NOTES:

A. CASING SPACERS
UPON COMPLETION OF THE INSTALLATION OF THE STEEL PIPE ENCASEMENT, THE CONTRACTOR SHALL FURNISH AND INSTALL A RANGER II® BOLTLESS CASING SPACER (OR APPROVED EQUAL) ON THE CARRIER PIPE AS DESCRIBED BELOW. WOOD SKIDS ARE NOT AN ACCEPTABLE METHOD OF SUPPORTING THE CARRIER PIPE.

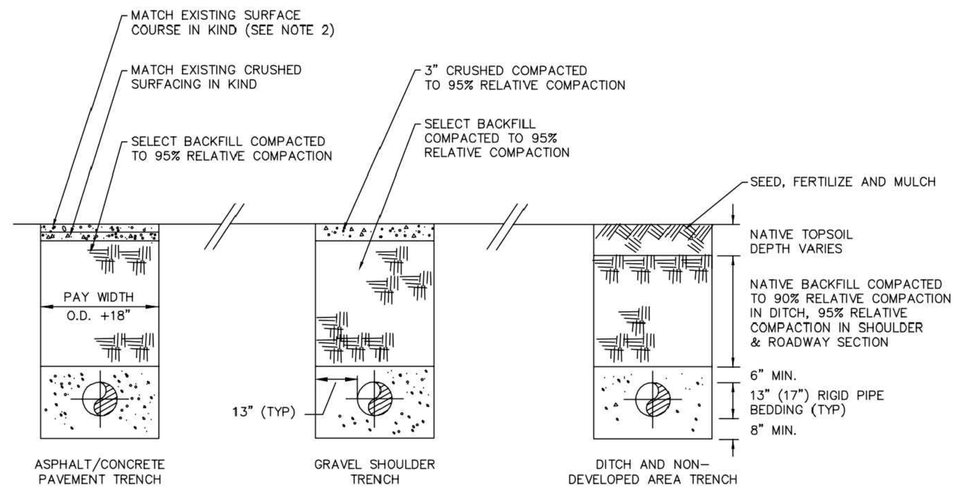
1. CASING SPACERS SHALL BE ALL NON–METALLIC (POLYPROPYLENE), MOLDED IN SEGMENTS FOR FIELD ASSEMBLY WITHOUT ANY SPECIAL TOOLS. SPACER SEGMENTS SHALL BE SECURED AROUND CARRIER PIPE BY INSERTION OF A SLIDE–LOCK. THE CASING SPACER POLYMER SHALL CONTAIN ULTRAVIOLET INHIBITORS AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI, AN 800 VOLTS/MIL DIELECTRIC STRENGTH AND IMPACT STRENGTH OF 1.5 FT–LBS./INCH. EACH CASING SPACER SHALL HAVE FULL LENGTH, INTEGRALLY MOLDED SKIDS EXTENDING BEYOND THE BELL OR MECHANICAL JOINT OF THE CARRIER PIPE. CASING SPACERS SHALL BE SPECIFIED TO "CLEAR BELL ONLY" OR "CENTERED/RESTRAINED".

2. SPACERS SHALL BE AT LEAST AS WIDE AS LISTED BELOW.

CARRIER PIPE DIAMETER INCHES	(MM)	RANGER II MODEL	LENGTH INCHES	(MM)
0.83 TO 3.07"	(21 TO 78)	MICRO	2.13"	(54)
2.48 TO 5.51"	(63 TO 140)	MINI	3.15"	(80)
5.51 TO 16.65"	(140 TO 423)	MIDI	5.12"	(130)
16.77 TO 25.98"	(426 TO 660)	MEDI	6.87"	(175)
21.22 TO 37.60"	(539 TO 955)	MAXI	8.86"	(225)

B. END SEALS
AFTER INSERTION OF THE CARRIER PIPE INTO THE CASING, THE ENDS OF THE CASING SHALL BE CLOSED BY INSTALLING 1/8" THICK SYNTHETIC RUBBER END SEALS EQUAL TO THE PSI MODEL "C" END SEAL AS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC., HOUSTON, TEXAS OR APPROVED EQUAL.

CASING SPACER DETAIL
NTS



NOTES:

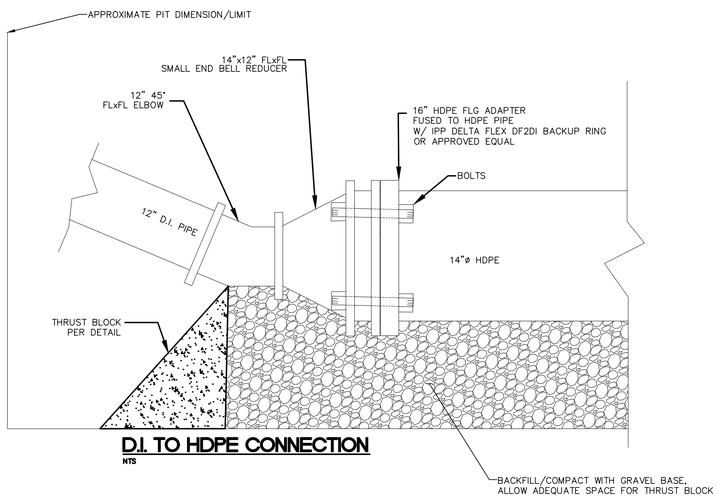
1. NATIVE BACKFILL SHALL BE COMPACTED TO 90% RELATIVE COMPACTION.
2. SELECT BACKFILL/CRUSHED SURFACE COURSE SHALL BE COMPACTED TO 95% COMPACTION.
3. PAVEMENT SHALL BE SAW CUT, TACKED, AND COMPACTED TO 92% OF ABSOLUTE DENSITY.
4. P.C.C. REPLACEMENT SHALL BE 2" GREATER THAN EXISTING COURSE, 7" MINIMUM, 6.5 P.C.C. (HEC – AIR ENTRAINED)
5. ALL TRENCH RESTORATION SHALL MEET CITY STANDARDS.

NOVEMBER 23, 2016

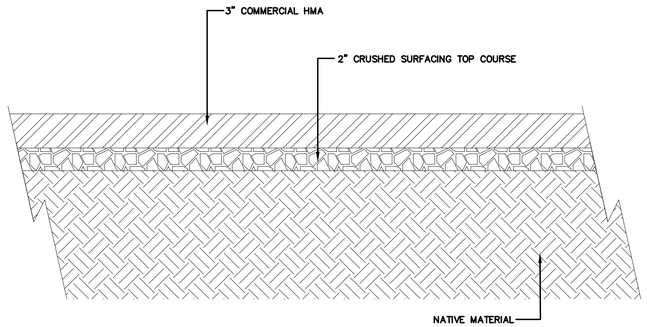
APPROVED

Public Works Director — 8/11/17 Date

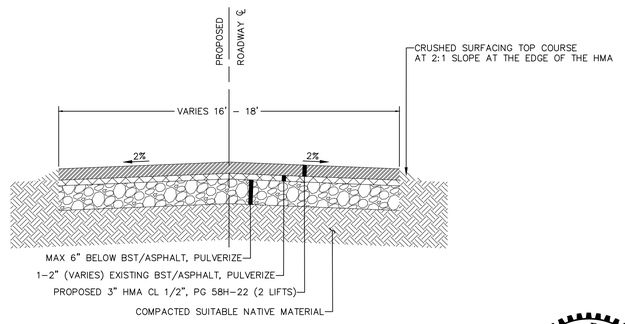
WATER TRENCHING DETAIL
STANDARD DETAIL W-11
NOT TO SCALE



D.I. TO HDPE CONNECTION
NTS



PAVEMENT REPAIR DETAIL (TYP)
NTS
BASE BID



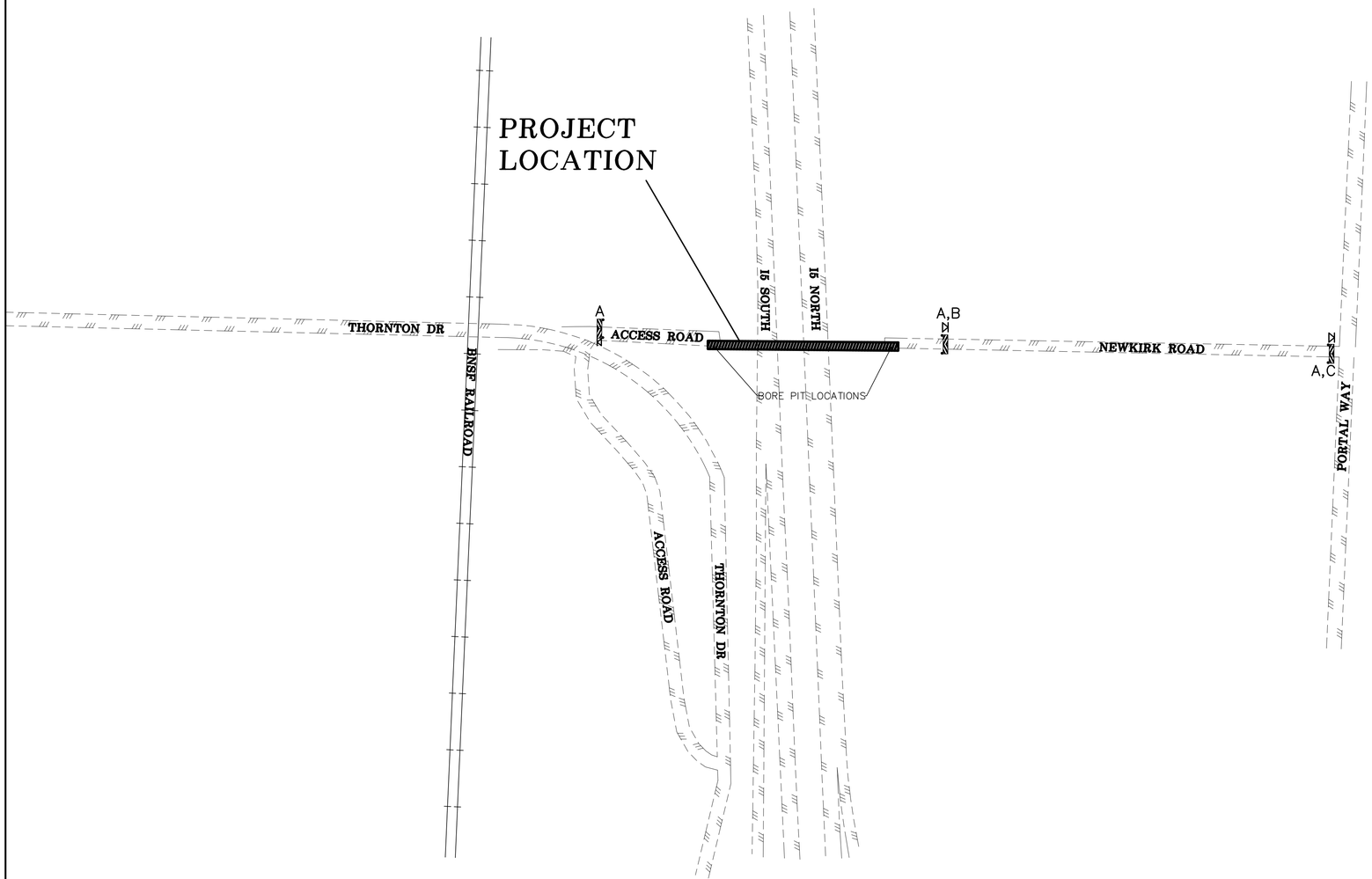
PAVEMENT PULVERIZING DETAIL (TYP)
NTS
ALTERNATE A1

LUIS PONCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER
5/7/25

BID SET	DESIGNED BY LP DRAWN BY BC CHECKED BY LP	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 | 423 Front Street Lynden, WA 98264 (360) 354-3687	NO.	DATE	DESCRIPTION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE. WA 98248	CITY OF FERNDALE THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS DETAILS	DWG 23007 PLOT JOB# 23007 SCALE H: N/A V: N/A DATE 5/7/25 SHEET 14 of 15

P:\Projects\23007\Civil 3D 2023\23007 PLOT.dwg, 14 DETAILS, 5/7/2025 11:17:56 AM, AutoCAD PDF (General Documentation).pc3

TRAFFIC CONTROL PLAN



LEGEND

A		TYPE III R AND TYPE III L, BARRICADE WITH 2 TYPE A FLASHING WARNING LIGHTS
B		R 11–3
C		R 11–3

BID SET

DESIGNED BY	LP
DRAWN BY	BC
CHECKED BY	LP

Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street
Lynden, WA 98264 (360) 354-3687

NO.	DATE	DESCRIPTION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE. WA 98248

CITY OF FERNDALE
THORNTON TO NEWKIRK WATERMAIN IMPROVEMENTS
TRAFFIC CONTROL

DWG 23007 PLOT			DATE 5/7/25
JOB# 23007	SCALE H: 1"=100' V: N/A		SHEET 15 of 15