

MALLOY VILLAGE PUD 2
ROXY LOOP STREET & UTILITY IMPROVEMENTS
FERNDALE, WA

OWNER APPLICANT
HAMMERHEAD HOLDINGS, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98223
CONTACT: MICHAEL CAREY
(310) 961-1098

ENGINEER
BENNETT ENGINEERING, LLC.
2324 JAMES STREET
BELLINGHAM, WA 98225
CONTACT: TOM BENNETT, P.E.
(360) 671-2600

SURVEYOR
LARRY STEELE & ASSOCIATES
1334 KING STREET, SUITE 1
BELLINGHAM, WA 98229
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(360) 676-9350

WETLANDS BIOLOGIST
NORTHWEST ECOLOGICAL SERVICES
2801 MERIDIAN STREET, SUITE 202
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CONTACT: VIKKI JACKSON
(360) 734-9484

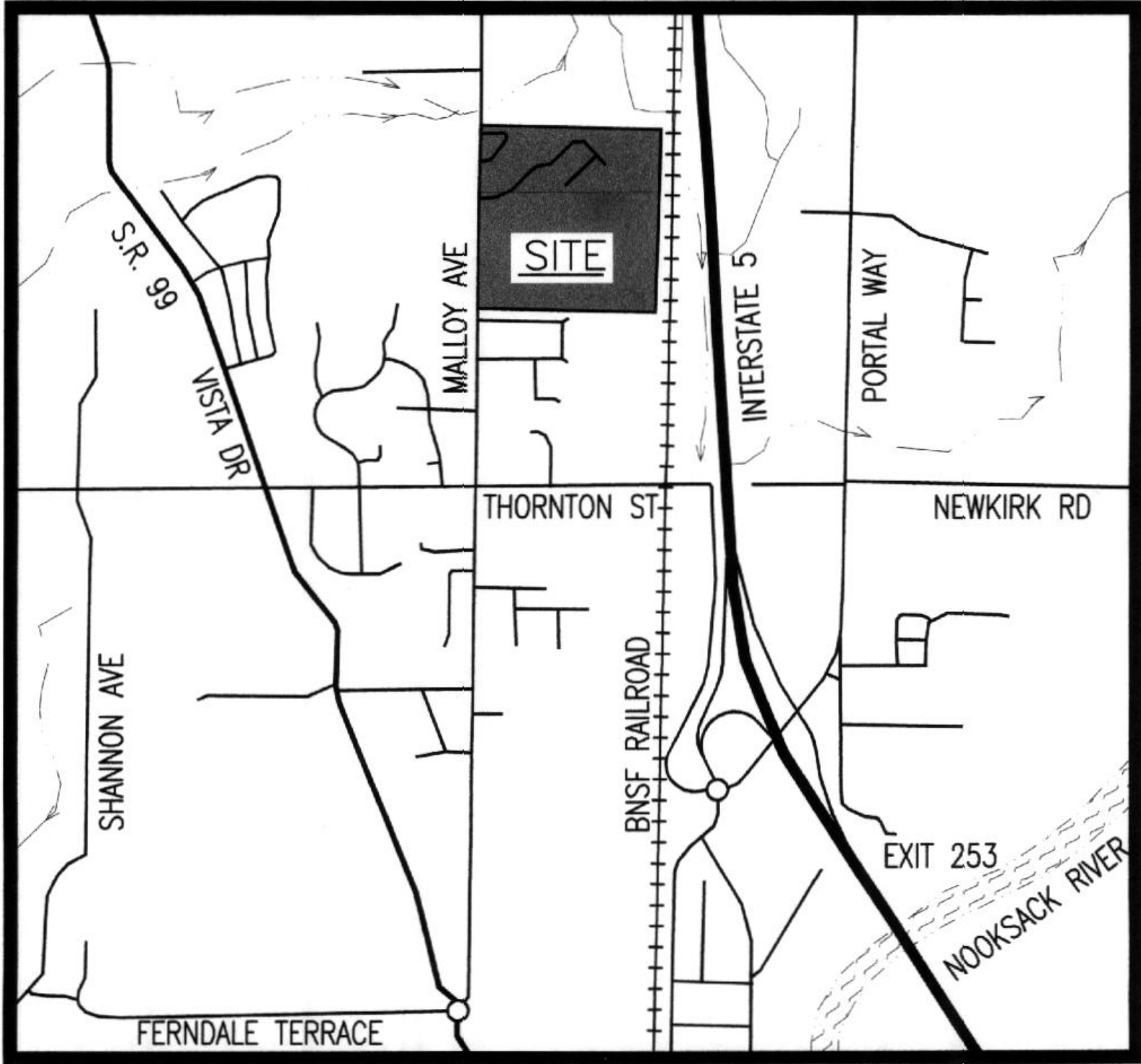
GEOTECHNICAL TESTING AGENCY
GEO-TEST SERVICES, INC.
741 MARINE DRIVE
BELLINGHAM, WA 98225
CONTACT: JEREMY WOLF
(360) 733-7318

ABBREVIATIONS

AC	ACRES
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
CL	CENTERLINE
CONC	CONCRETE
CONST	CONSTRUCTION
COR	CORNER
CPP	CORRUGATED PLASTIC PIPE
DI	DUCTILE IRON
EX	EXISTING
FDN	FOUNDATION
FF	FOUND
FF	FINISHED FLOOR
G	GAS
IE	INVERT ELEVATION
LF	LINEAR FEET
MB	MAIL BOX
MIN	MINIMUM
MON	MONUMENT
NE	NORTHEAST
NW	NORTHWEST
OCM	OVERHEAD CABLE
OHE	OVERHEAD ELECTRICAL
PC	POINT OF CURVATURE
PERM	PERMANENT
PL	PROPERTY LINE
PROP	PROPERTY
PT	POINT OF TANGENCY
PVC	POLY VINYL CHLORIDE
RD	ROOF DRAIN
RGE	RANGE
ROW	RIGHT OF WAY
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SF	SILT FENCE, SQUARE FEET
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SVC	SERVICE
SW	SOUTHWEST
TBR	TO BE REMOVED
TEMP	TEMPORARY
TESC	TEMPORARY EROSION & SEDIMENT CONTROLS
TP	TEST PIT
TYP	TYPICAL
TWN	TOWNSHIP
W	WATER
WDOT	WASHINGTON DEPT. OF TRANSPORTATION
WM	WATER METER
WV	WATER VALVE
W.M.	WILLAMETTE MERIDIAN

SHEET INDEX

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VICINITY MAP
1" = 1000'

LEGAL DESCRIPTION

PORTION OF THE SW1/4, SECTION 17 OF TOWNSHIP 39N, RANGE 02E OF WILLAMETTE MERIDIAN, CITY OF FERNDAL, WHATCOM COUNTY, WASHINGTON. (PARCEL # 390217-070173)

DATUM

VERTICAL: NGVD 29 USING CITY OF FERNDAL MON. STATION #351
HORIZONTAL: CITY OF FERNDAL MONUMENT NETWORK

BASIS OF BEARINGS

WASHINGTON STATE NORTH ZONE NAD 83/91 COORDINATES USING CITY OF FERNDAL MONUMENTS STATIONS #343 AND #351

NOTE:

EXISTING FIELD DATA PER LARRY STEELE & ASSOCIATES.

CONSTRUCTION SEQUENCE

THIS CONSTRUCTION SEQUENCE IS INTENDED AS A GENERAL GUIDELINE FOR THE PROPOSED SITE DEVELOPMENT. ANY SIGNIFICANT CHANGES TO THE SEQUENCE SHALL BE DISCUSSED WITH AND APPROVED BY THE CITY OF FERNDAL (CITY) STAFF AND THE PROJECT ENGINEER.

- ARRANGE AND ATTEND A PRE-CONSTRUCTION MEETING BETWEEN THE OWNER, GENERAL CONTRACTOR, AND CITY STAFF, AS REQUIRED. THE ROXY LOOP PROJECT SITE IS LOCATED WITHIN THE MALLOY VILLAGE PUD 2. THE PHASE 1 IMPROVEMENTS FOR PUD 2 WERE APPROVED BY THE CITY OF FERNDAL ON JULY 12, 2016.
- ARRANGE FOR A UTILITY LOCATE WITHIN THE PROJECT AREA. VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES WITH THE EXISTING CALICO LOOP IMPROVEMENTS.
- INSTALL ADDITIONAL TESC FACILITIES IN ACCORDNACE WITH SHEET C-2, AS NEEDED, AND ESTABLISH TEMPORARY HAUL ROADS AND SOIL STOCKPILE LOCATIONS.
- STRIP TOPSOIL MATERIALS WITHIN THE CLEARING LIMITS AND STOCKPILE THEM IN THE DESIGNATED AREAS. REMOVE THE EXISTING STOCKPILE AREA LOCATED WEST OF THE PARKING AREA AND WITHIN AREAS TO RECEIVE STRUCTURAL FILL. REUSE THE UNSUITABLE SOILS IN NON-STRUCTURAL OPEN SPACE AREAS OR REMOVE THEM FROM THE SITE.
- ROUGH GRADE THE SITE IN ACCORDANCE WITH THE GRADING PLAN AND SECTIONS PRESENTED ON SHEETS C-3. PLACE AND COMPACT STRUCTURAL FILL MATERIALS WITHIN THE ROXY LOOP ALIGNMENT TO ESTABLISH SUBGRADE ELEVATIONS.
- INSTALL NEW PUBLIC AND PRIVATE UTILITIES AND SERVICE CONNECTIONS, AS SHOWN ON SHEETS C-4 THROUGH C-6. PERFORM FIELD TESTING AND INSPECTIONS OF THE UTILITY INSTALLATIONS, AS REQUIRED. CITY CREWS WILL COMPLETE THE WATER MAIN CONNECTION TO THE EXISTING 8-INCH MAIN AT THE NORTH END OF ROXY LOOP.
- PLACE AND COMPACT IMPORTED GRAVEL BASE AND CRUSHED ROCK MATERIALS IN THE ROXY LOOP STREET SECTION.
- SAWCUT THE EXISTING PAVEMENT EDGE AND INSTALL ASPHALT PAVEMENT FOR ROXY LOOP.
- FINAL GRADE OR REMOVE ALL REMAINING SOIL STOCKPILES FROM THE SITE. INSTALL TOPSOIL AND HYDROSEED EXPOSED SOIL AREAS.
- REMOVE EXCESS CONSTRUCTION MATERIALS AND DEBRIS FROM THE SITE.
- MAINTAIN TESC FACILITIES, AS REQUIRED, AND REMOVE TESC FACILITIES ONCE SITE HAS STABILIZED.
- PREPARE RECORD DRAWING SET FOR THE COMPLETED IMPROVEMENTS AND SUBMIT TO THE CITY.
- DEVELOP INDIVIDUAL LOTS UPON FINAL PLAT APPROVAL FROM THE CITY.

EXIST	NEW	LEGEND
		BRASS DISK SURVEY MONUMENT
		FOUND SURVEY MARKER
		STREET SIGN
		CATCH BASIN
		SANITARY SEWER MANHOLE
		SANITARY SEWER CLEAN-OUT
		POWER / UTILITY POLE
		WATER VALVE
		WATER METER
		WATER BLOW-OFF ASSEMBLY
		WATER AIR/VAC RELEASE VALVE
		FIRE HYDRANT
		TEST PIT
		TELEPHONE PEDESTAL
		POWER TRANSFORMER
		LIGHT POLE
		EX. SANITARY SEWER LINE
		PROP. SANITARY SEWER LINE
		EX. STORM DRAIN LINE
		PROP. STORM DRAIN LINE
		EX. WATER LINE
		PROP. WATER LINE

NOTE:

THE CITY OF FERNDAL HAS GIVEN APPROVAL FOR THE ROXY LOOP STREET & UTILITY IMPROVEMENTS TO BE CONSTRUCTED UNDER THE CURRENT MALLOY VILLAGE PUD 2 LAND DISTURBANCE PERMIT. THE CITY OF FERNDAL CONSIDERS THE ROXY LOOP STREET & UTILITY IMPROVEMENTS (WHICH ALREADY HAS PARTIAL PROJECT UTILITY APPROVAL) AS AN EXTENSION OF THE APPROVED MALLOY VILLAGE PUD 2 PROJECT. THEREFORE, ALL APPLICABLE NOTES, DETAILS, REQUIREMENTS, AND SPECIFICATIONS APPROVED ON MALLOY VILLAGE PUD 2 STILL APPLY TO THE ROXY LOOP STREET & UTILITY IMPROVEMENT PLANS.

NOTE:

ROXY LOOP PRIVATE AND PUBLIC UTILITIES WERE NOT COMPLETED AND RECORDED IN CONJUNCTION WITH MALLOY VILLAGE PUD 2. ALL REMAINING UTILITY AND ROADWAY WORK ASSOCIATED WITH COMPLETION OF THE PROJECT REMAIN SUBJECT TO ALL CONDITIONS OF SPECIFICATIONS PREVIOUSLY APPROVED ON 2/21/17. THE FOLLOWING PLAN SHEET PAGES REFLECT UTILITY WORK THAT WAS COMPLETED AND WHAT REMAINS TO BE CONSTRUCTED / INSTALLED FOR CONSTRUCTION AND INSPECTION CLARITY. AS-BUILTS AND 20' PUBLIC SEWER EASEMENT FOR ROXY LOOP WILL BE REQUIRED PRIOR TO ISSUANCE OF FINAL PLAT TYPICAL.

ENGINEER'S CERTIFICATION

I, THOMAS E. BENNETT, P.E., HEREBY CERTIFY THAT THE ROXY LOOP IMPROVEMENTS FOR THE MALLOY VILLAGE PUD 2 HAVE BEEN INSPECTED BY BENNETT ENGINEERING, LLC AND TO THE BEST OF MY KNOWLEDGE, HAVE BEEN CONSTRUCTED IN CONFORMANCE WITH THE CITY OF FERNDAL DEVELOPMENT STANDARDS, THE CITY OF FERNDAL MUNICIPAL CODE, SUBSEQUENT STANDARDS ADOPTED BY REFERENCE THEREIN, AND STANDARD ENGINEERING PRACTICE.

APPROVED

APR 22 2019

BY: [Signature]
CITY OF FERNDAL
PUBLIC WORKS DEPARTMENT

DRAWING:

C-1

SHEET:

1 of 10

1	ISSUED FOR REVIEW	TEB	1/25/17
2	REVISED PER COF COMMENTS	TEB	2/13/17
3	REVISED PER COF COMMENTS	TEB	4/18/18
4	RECORD DRAWING SET	TEB	4/15/19
NO.	REVISION	BY	DATE



BENNETT
ENGINEERING, LLC

CIVIL
ENVIRONMENTAL

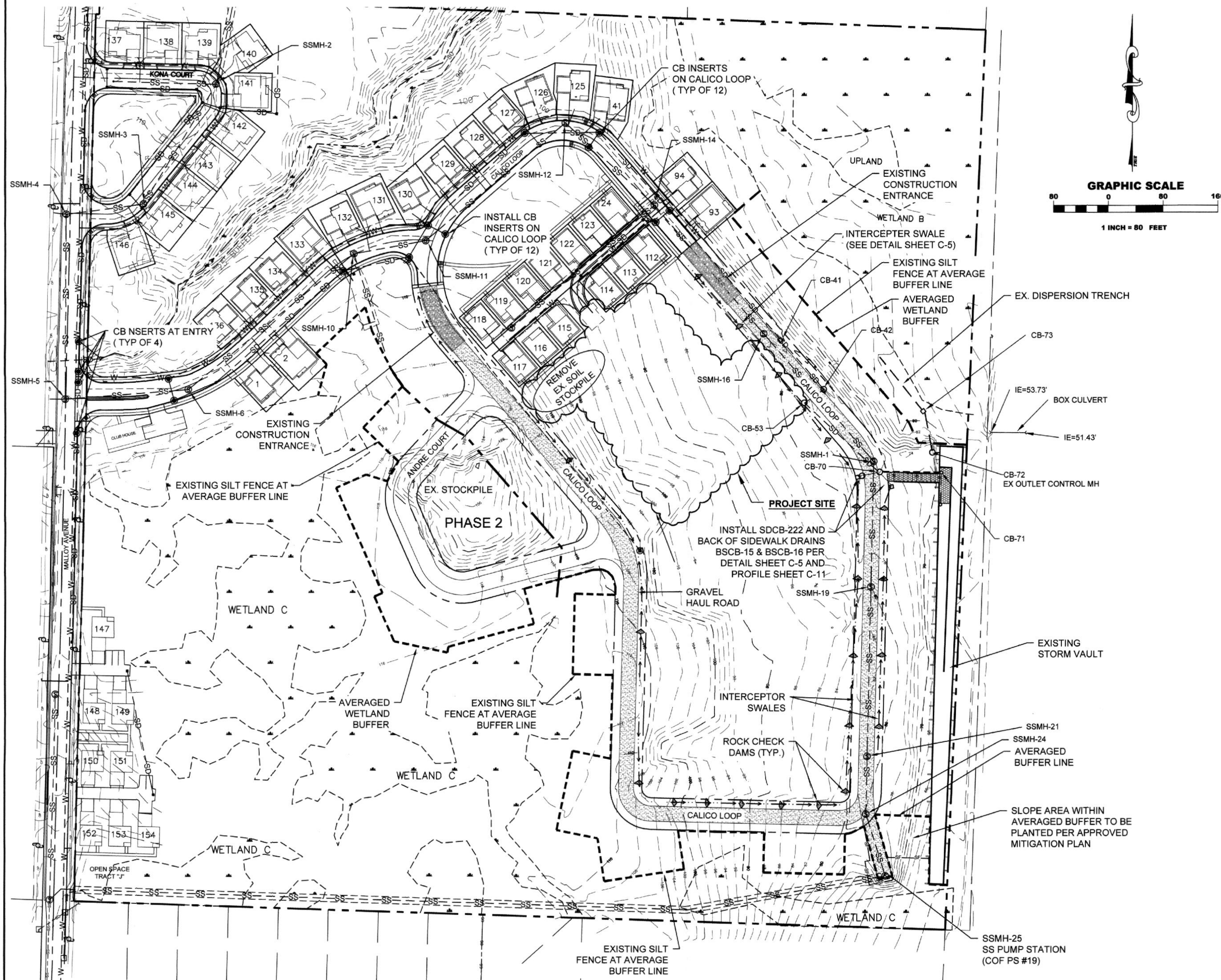
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DWG. NAME:	17007 C1-C2 EXST
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

HAMMERHEAD HOLDING, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

COVER SHEET
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDAL WASHINGTON

DATE: APRIL 2019 SCALE: H: AS NOTED v: N/A



TESC NOTES

TWELVE TESC ELEMENTS ARE REQUIRED FOR THE PROJECT IN ACCORDANCE WITH THE 2005 ECOLOGY MANUAL AND THE CITY OF FERDALE DEVELOPMENT STANDARDS.

ELEMENT #1: MARK CLEARING LIMITS
THE CLEARING LIMITS AND ESTABLISHED WETLAND BUFFERS HAVE BEEN ESTABLISHED IN THE FIELD. NO LAND DISTURBANCE OR CLEARING SHALL BE ALLOWED WITHIN THE AVERAGED 50-FOOT WETLAND BUFFERS.

ELEMENT #2: ESTABLISH CONSTRUCTION ACCESS
ACCESS TO THE PROJECT SITE FOR CONSTRUCTION EQUIPMENT AND MATERIALS WILL BE PROVIDED VIA MALLOY AVENUE AND CALICO LOOP. A STABILIZED CONSTRUCTION ENTRANCE HAS BEEN INSTALLED SOUTH OF CALICO LOOP. GRAVEL SURFACING WILL BE INSTALLED FOR HAUL ROADS AND VEHICLE PARKING AND MATERIALS STORAGE, AS NEEDED. IF SEDIMENT IS TRANSPORTED ONTO THE PUBLIC STREET SURFACE, THE STREET SHALL BE ROUTINELY CLEANED DURING THE DAY AND THOROUGHLY CLEANED AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM STREETS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

ELEMENT #3: CONTROL FLOW RATES
THE POTENTIAL FOR OFF-SITE EROSION WILL BE MITIGATED BY ROUTING RUNOFF FROM THE SITE TO THE EXISTING STORMWATER VAULT. THE VAULT INCLUDES A WET VAULT BETWEEN ELEVATION 160.7 AND 164.0 FEET, WITH AN ECOLOGY BLOCK SEPARATION WALL. THE EXISTING OUTLET CONTROL STRUCTURE WILL CONTROL RUNOFF RATES FROM THE VAULT, WITH DISCHARGE TO THE EXISTING DISPERSION TRENCH.

ELEMENT #4: INSTALL SEDIMENT CONTROLS
THE EXISTING EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND REPAIRED PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES. ALL NEW TESC MEASURES SHALL BE INSTALLED PRIOR TO COMMENCING SITE GRADING.

ELEMENT #5: STABILIZE SOILS
FROM OCTOBER 1 TO APRIL 30, NO SUBSTANTIALLY UNWORKED SOIL AREAS SHALL REMAIN EXPOSED FOR MORE THAN TWO DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SUBSTANTIALLY UNWORKED SOIL AREAS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN DAYS. ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY SUITABLE APPLICATION OF BMPs, INCLUDING GRAVEL SURFACING, TOPSOIL WITH MULCHING AND/OR HYDROSEEDING, AND PLASTIC COVERING. ADDITIONAL BMPs SHALL BE APPLIED AS NECESSARY TO STABILIZE THE SITE AND MAINTAIN THE QUALITY OF STORMWATER RUNOFF FROM THE PROJECT SITE.

ELEMENT #6: PROTECT SLOPES
PERMANENT CUT AND FILL SLOPES WILL BE LIMITED TO 3:1 (OR FLATTER) WITHIN THE DEVELOPED AREA. ALL CUT AND FILL SLOPES ASSOCIATED WITH THE PROJECT WILL BE STABILIZED BY EQUIPMENT TRACKING, MULCHING, AND HYDROSEEDING, OR OTHER EROSION CONTROL MEASURES AS NECESSARY TO MINIMIZE EROSION.

ELEMENT #7: PROTECT DRAIN INLETS
INLET PROTECTION WILL BE INSTALLED AT THE DESIGNATED CATCH BASINS INSTALLED IN CALICO LOOP.

ELEMENT #8: STABILIZE CHANNELS AND OUTLETS
ROCK HEADWALLS WILL BE INSPECTED AT EXISTING STORM DRAIN PIPING, AND REPAIRED AS NECESSARY. THE ACCESS RAMP TO THE VAULT SHALL BE REPAIRED AND RESURFACED WITH QUARRY SPALLS. ROCK CHECK DAMS OR TRIANGULAR SILT DIKES SHALL BE INSTALLED IN THE INTERCEPTOR SWALES.

ELEMENT #9: CONTROL POLLUTANTS
THE PRIMARY POLLUTANTS, OTHER THAN SEDIMENT, THAT MAY BE ASSOCIATED WITH THE PROJECT INCLUDE SOLID WASTES FROM CONSTRUCTION ACTIVITIES AND PETROLEUM PRODUCTS ASSOCIATED WITH FUELING AND LUBRICATING CONSTRUCTION EQUIPMENT AND VEHICLES. THE CONTRACTOR WILL BE RESPONSIBLE TO KEEP THE PROJECT SITE IN A NEAT AND ORDERLY CONDITION. ALL REFUSE AND CONSTRUCTION DEBRIS WILL BE REMOVED FROM THE SITE ON A REGULAR BASIS, AS SOON AS PRACTICAL. THE CONTRACTOR WILL BE RESPONSIBLE FOR RESTORING ALL OFF-SITE AREAS TO THEIR ORIGINAL CONDITION. ALL FUEL AND OIL SPILLS WILL BE CLEANED UP IMMEDIATELY.

ELEMENT #10: CONTROL DEWATERING
IF DEWATERING IS REQUIRED DURING INSTALLATION OF UNDERGROUND UTILITIES, WATER SHALL BE DISPERSED TO VEGETATED AREAS OR PUMPED TO THE INTERCEPTOR SWALES.

ELEMENT #11: MAINTAIN BMPs
THE TESC FACILITIES WILL BE INSPECTED BY A CERTIFIED EROSION AND SEDIMENTATION CONTROL LEAD (CESCL) IN ACCORDANCE WITH THE SWPPP. INSPECTIONS WILL BE PERFORMED ON A DAILY BASIS DURING THE PERIOD OF CONSTRUCTION, AND IMMEDIATELY FOLLOWING SIGNIFICANT STORM EVENTS (> 0.5 INCH PRECIPITATION IN 24-HOUR PERIOD). REPAIRS, IF NEEDED, WILL BE MADE TO SILT FENCING IMMEDIATELY. ACCUMULATED SEDIMENT WILL BE REMOVED FROM THE SILT FENCING AND WET VAULT, AS NEEDED, TO MAINTAIN ADEQUATE STORMWATER CONVEYANCE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SATISFACTORY MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROLS UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.

ELEMENT #12: MANAGE THE PROJECT
CLEARING AND GRADING ACTIVITIES ARE SCHEDULED TO BE COMPLETED DURING THE SPRING AND SUMMER 2016. AREAS OF EXISTING VEGETATION WILL BE MAINTAINED TO THE MAXIMUM EXTENT PRACTICABLE. ADDITIONAL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AS NECESSARY DURING CONSTRUCTION. ALL TEMPORARY NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

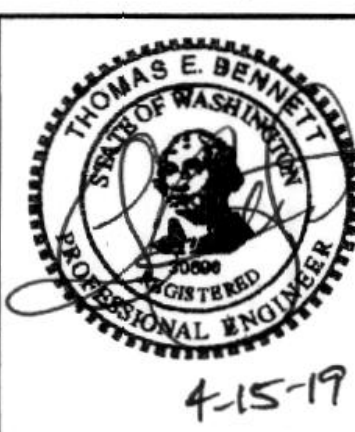
IMPLEMENTATION OF SOURCE CONTROLS

ALL KNOWN, AVAILABLE, AND REASONABLE SOURCE CONTROL BMPs SHALL BE IMPLEMENTED AT THE PROJECT SITE BY THE CONTRACTOR. SOURCE CONTROL BMPs SHALL BE SELECTED, DESIGNED, AND MAINTAINED IN ACCORDANCE WITH VOLUME IV OF THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, OR AN APPROVED EQUIVALENT MANUAL APPROVED BY ECOLOGY. INSTALLATION, INSPECTION, AND MAINTENANCE OF THE SOURCE CONTROL BMPs SHALL BE DOCUMENTED IN THE SITE LOG BOOK OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), AS REQUIRED UNDER THE CSWGP.

NOTE:

TESC PLAN FROM THE APPROVED MALLOY VILLAGE PUD2 - PHASE 1 STREET & UTILITY IMPROVEMENTS PLAN SET, SHEET C-4.

1	ISSUED FOR REVIEW	TEB	1/25/17
2	REVISED PER COF COMMENTS	TEB	2/13/17
3	REVISED PER COF COMMENTS	TEB	4/18/18
4	RECORD DRAWING SET	TEB	4/15/19
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JOB NO.:	17007
DWG. NAME:	17007 C1-C2 EXST
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

HAMMERHEAD HOLDING, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

TESC PLAN
ROXY LOOP - MALLOY VILLAGE PUD 2
FERDALE WASHINGTON

DATE: APRIL 2019 SCALE: H: 1" = 80' V: N/A

APPROVED

APR 22 2019

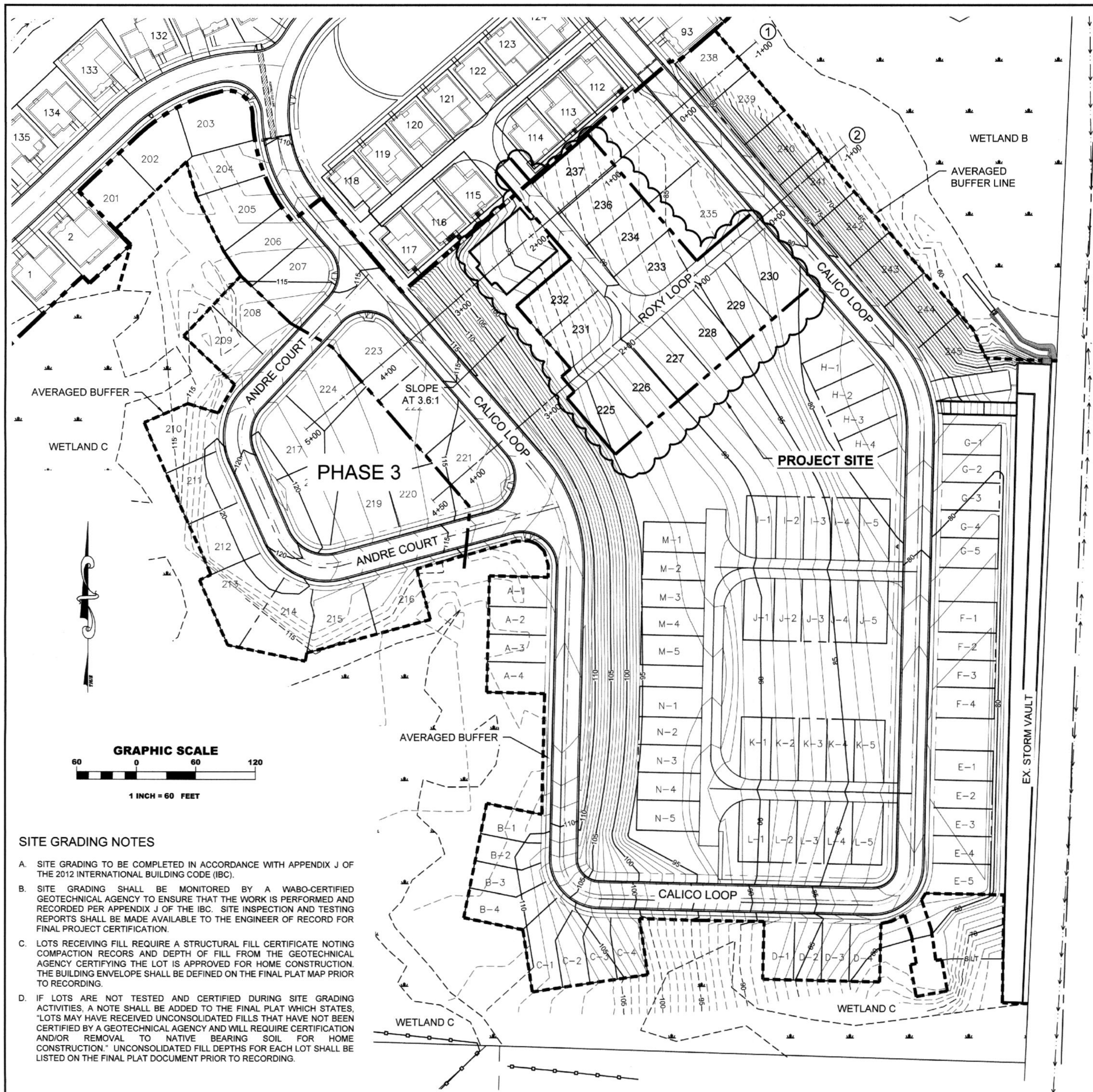
BY: [Signature]
CITY OF FERDALE
PUBLIC WORKS DEPARTMENT

DRAWING:

C-2

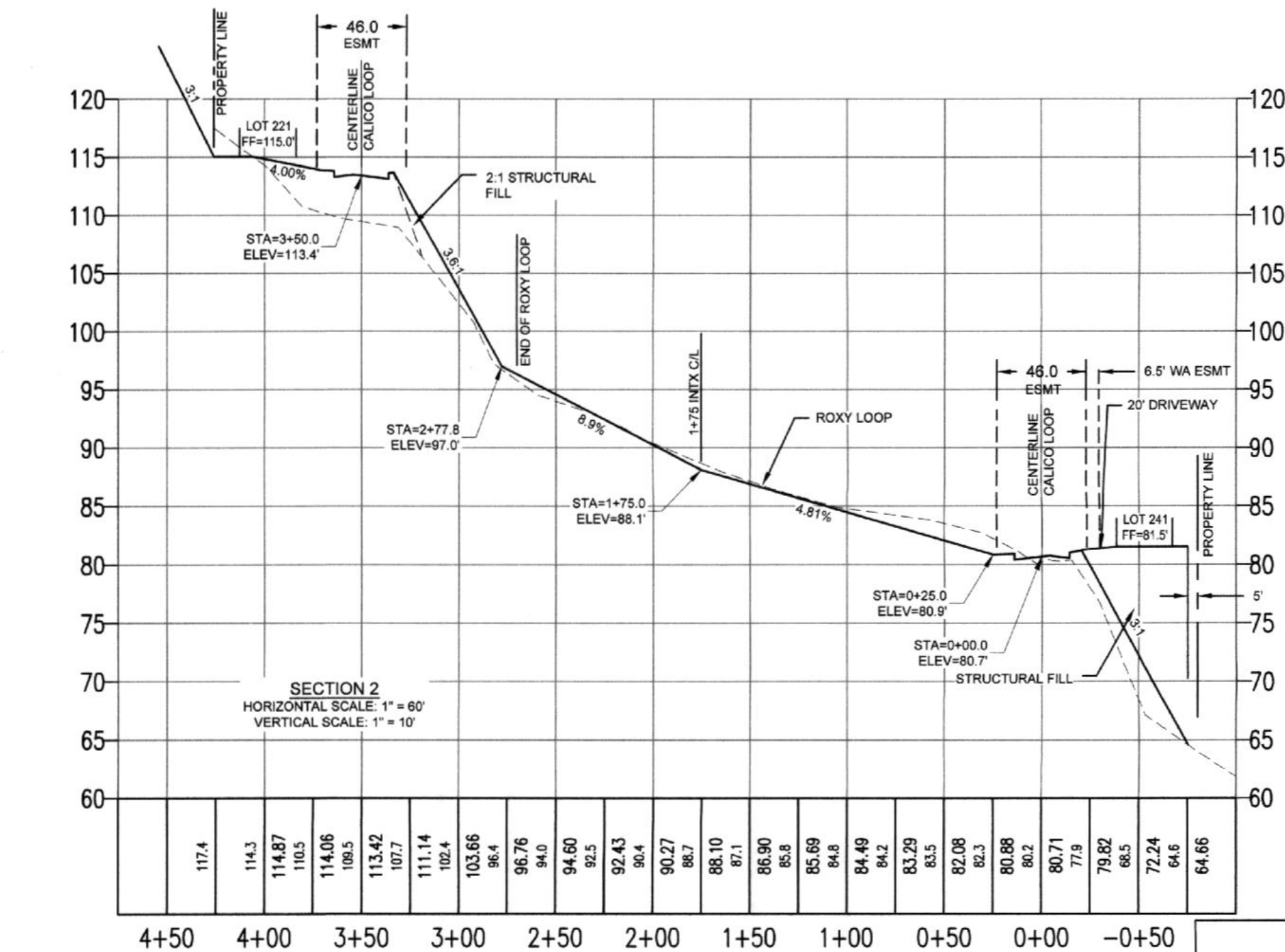
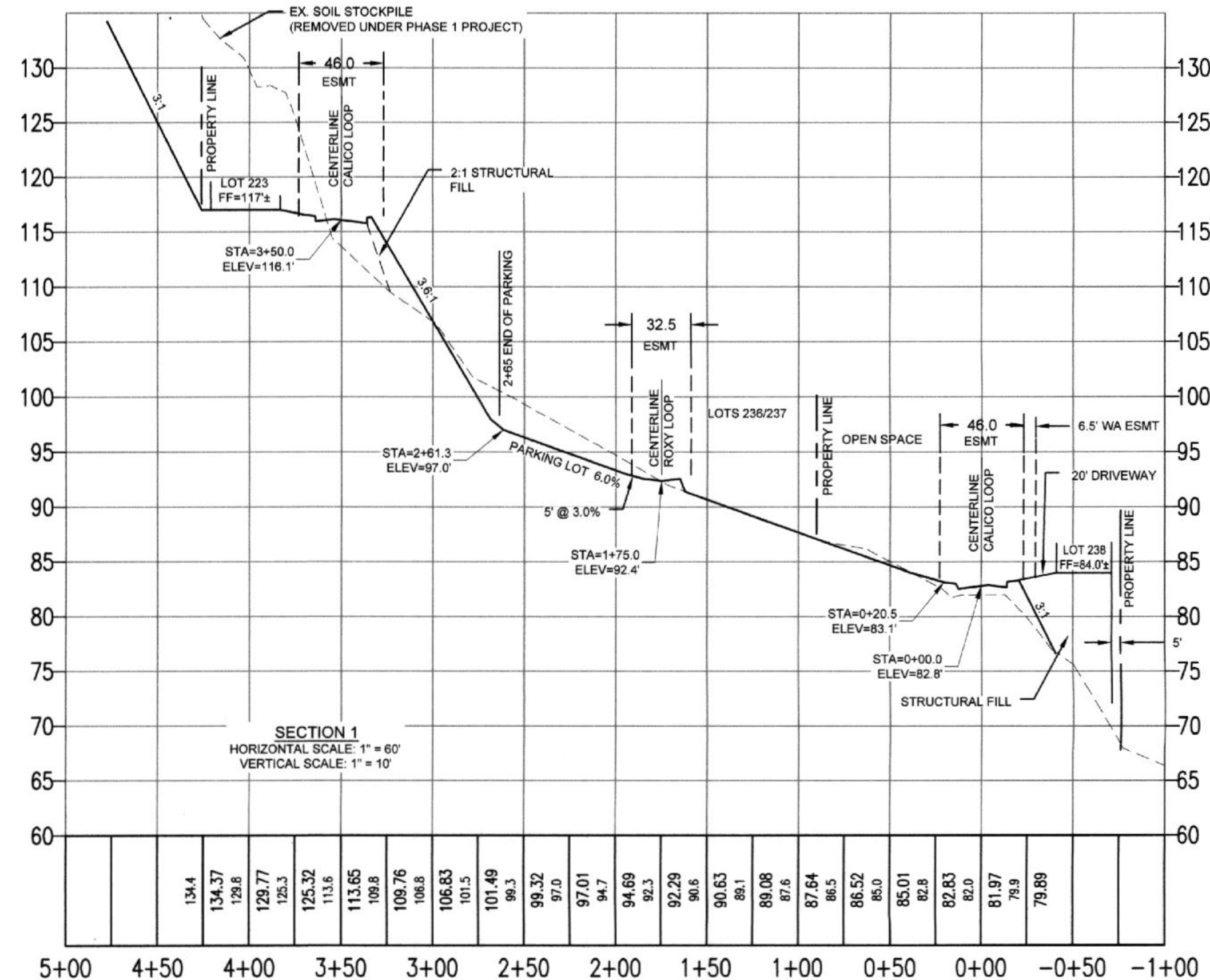
SHEET:

2 OF 10



SITE GRADING NOTES

- SITE GRADING TO BE COMPLETED IN ACCORDANCE WITH APPENDIX J OF THE 2012 INTERNATIONAL BUILDING CODE (IBC).
- SITE GRADING SHALL BE MONITORED BY A WABO-CERTIFIED GEOTECHNICAL AGENCY TO ENSURE THAT THE WORK IS PERFORMED AND RECORDED PER APPENDIX J OF THE IBC. SITE INSPECTION AND TESTING REPORTS SHALL BE MADE AVAILABLE TO THE ENGINEER OF RECORD FOR FINAL PROJECT CERTIFICATION.
- LOTS RECEIVING FILL REQUIRE A STRUCTURAL FILL CERTIFICATE NOTING COMPACTION RECORDS AND DEPTH OF FILL FROM THE GEOTECHNICAL AGENCY CERTIFYING THE LOT IS APPROVED FOR HOME CONSTRUCTION. THE BUILDING ENVELOPE SHALL BE DEFINED ON THE FINAL PLAT MAP PRIOR TO RECORDING.
- IF LOTS ARE NOT TESTED AND CERTIFIED DURING SITE GRADING ACTIVITIES, A NOTE SHALL BE ADDED TO THE FINAL PLAT WHICH STATES, "LOTS MAY HAVE RECEIVED UNCONSOLIDATED FILLS THAT HAVE NOT BEEN CERTIFIED BY A GEOTECHNICAL AGENCY AND WILL REQUIRE CERTIFICATION AND/OR REMOVAL TO NATIVE BEARING SOIL FOR HOME CONSTRUCTION." UNCONSOLIDATED FILL DEPTHS FOR EACH LOT SHALL BE LISTED ON THE FINAL PLAT DOCUMENT PRIOR TO RECORDING.



APPROVED

APR 22 2019

BY CITY OF FERNDALE
PUBLIC WORKS DEPARTMENT

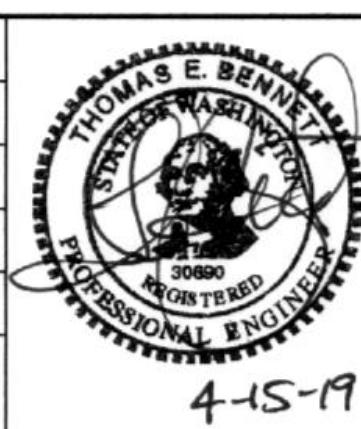
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C-3

SHEET:

3 OF 10

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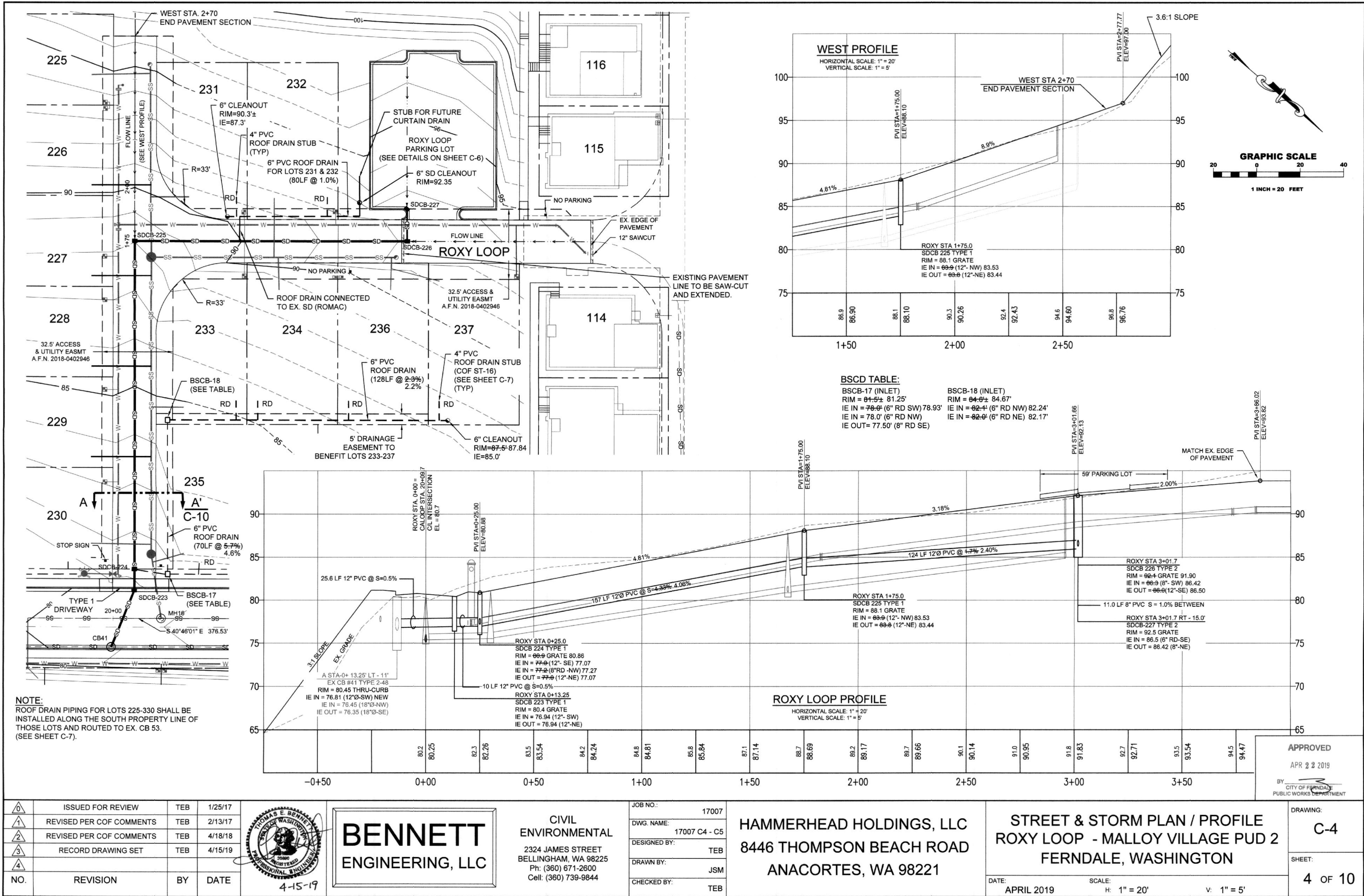
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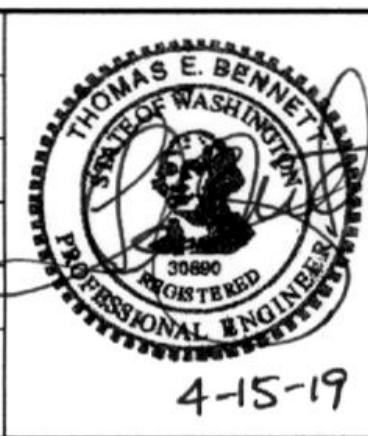
HAMMERHEAD HOLDINGS, LLC
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ANACORTES, WA 98221

GRADING PLAN
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDAL WASHINGTON

DATE: APRIL 2019 SCALE: H: 1" = 60' V: N/A



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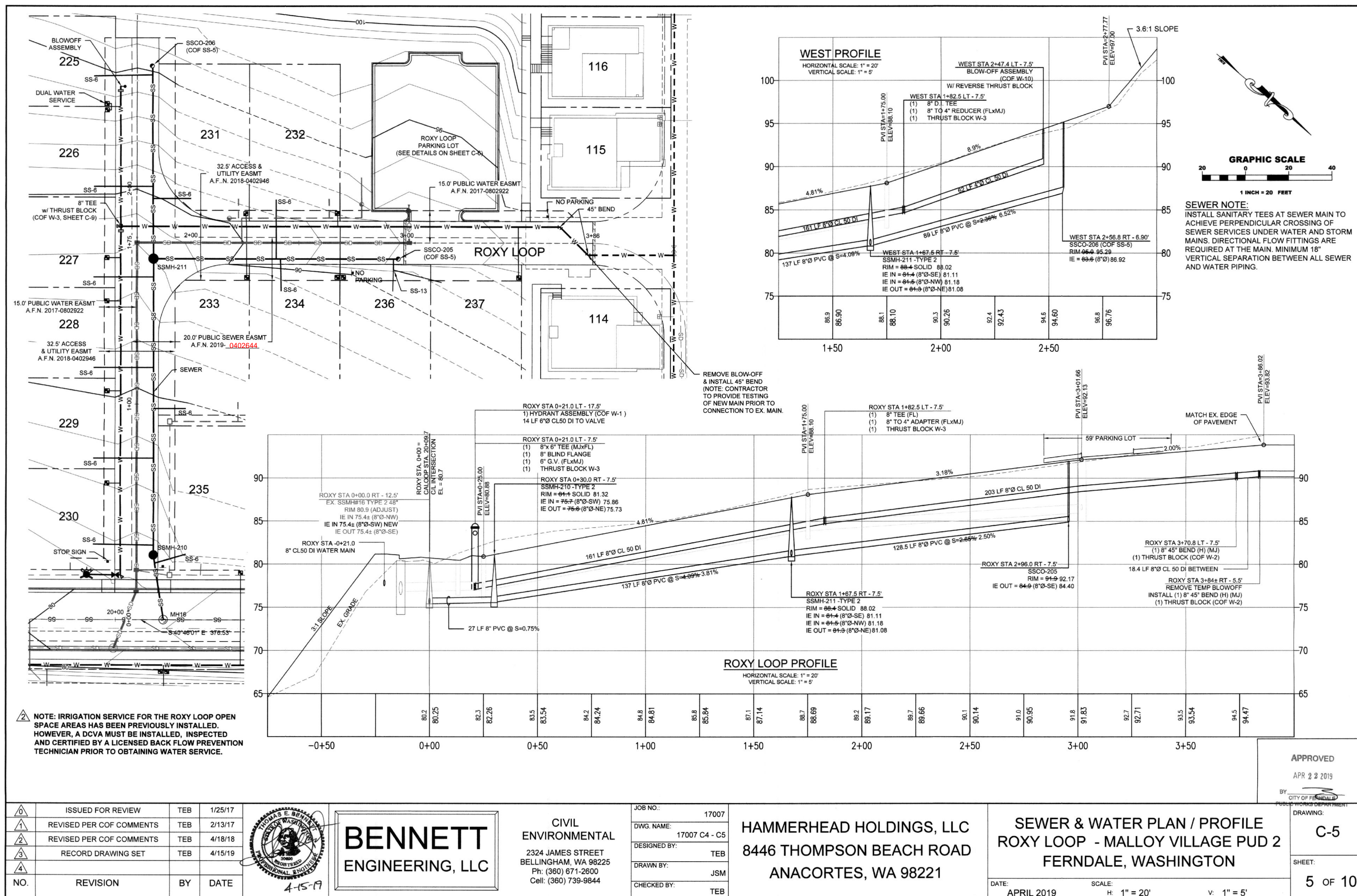
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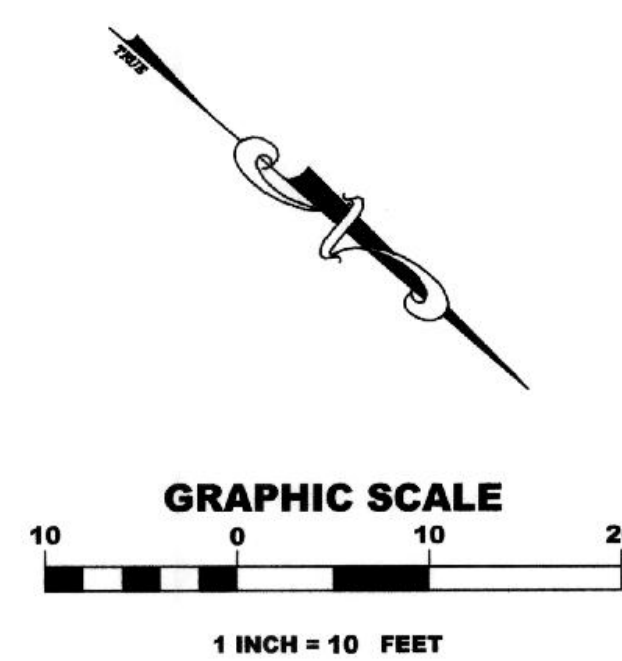
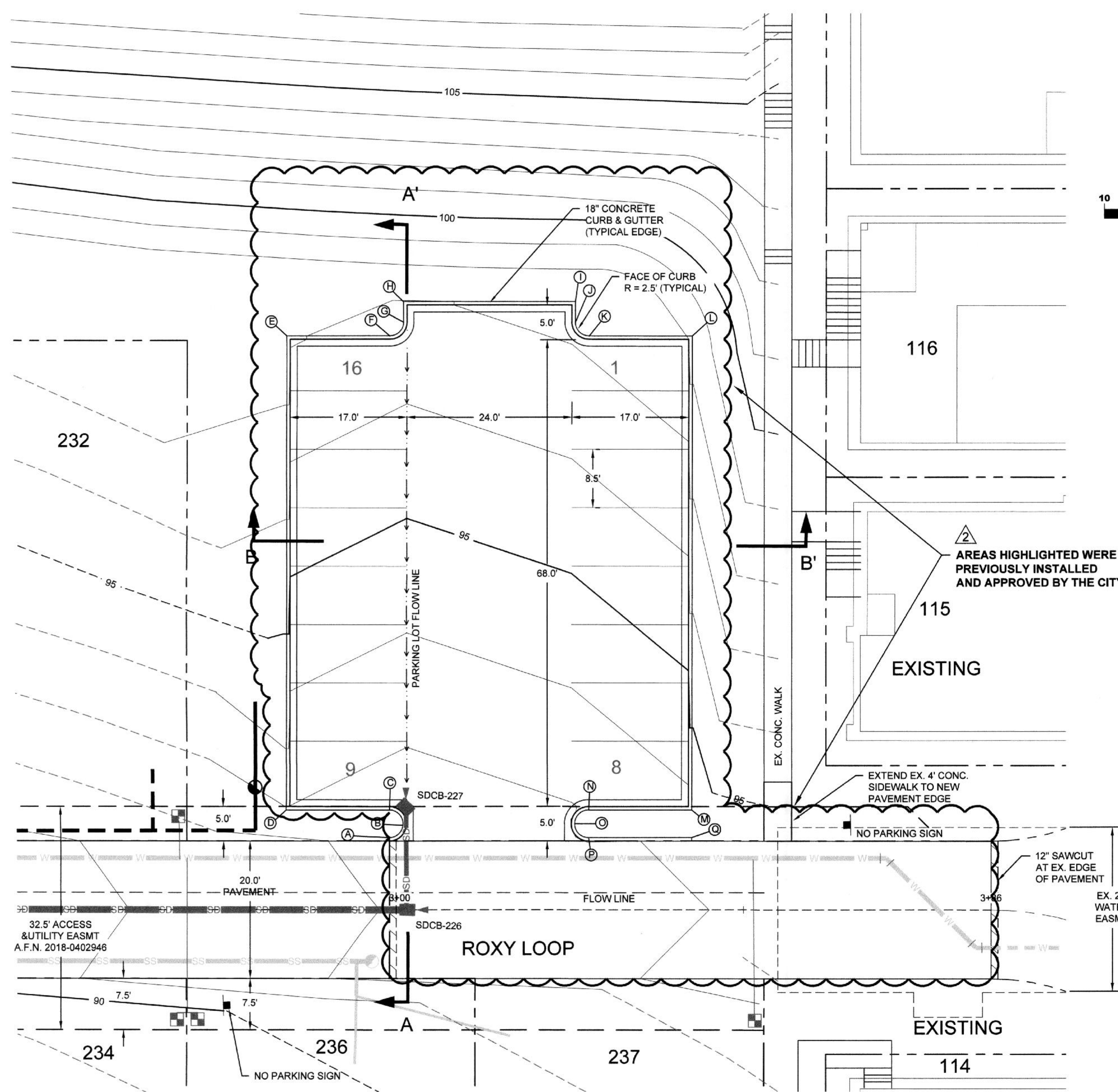
JOB NO.: 17007
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STREET & STORM PLAN / PROFILE
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDAL, WASHINGTON

DATE: APRIL 2019
SCALE: H: 1" = 20' V: 1" = 5'

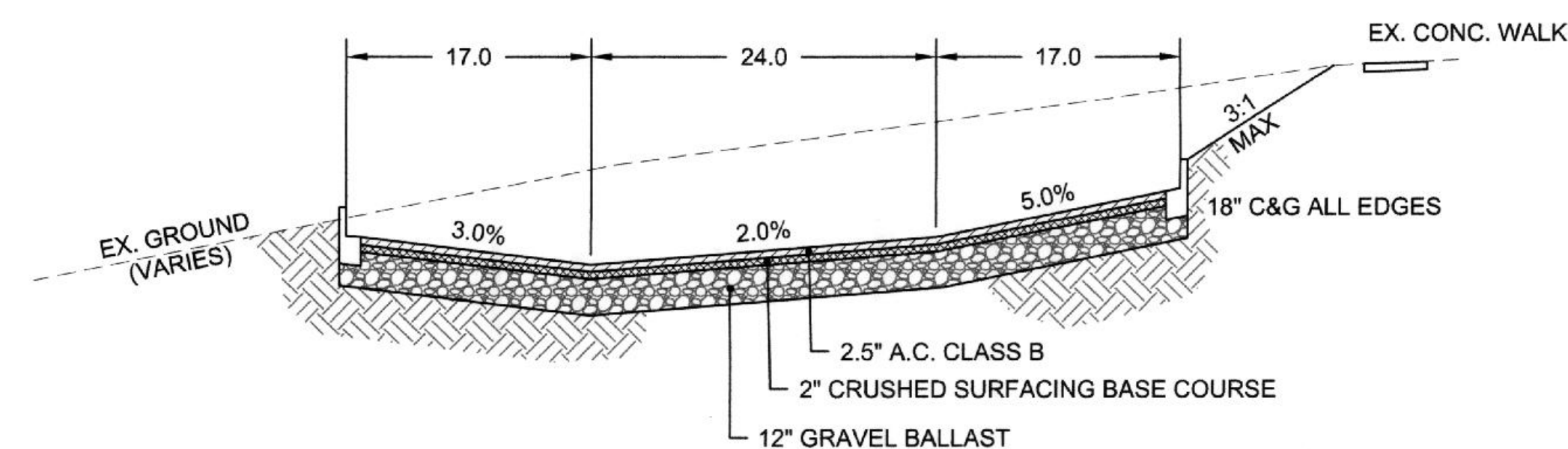




PARKING LOT COORDINATE POINTS TABLE

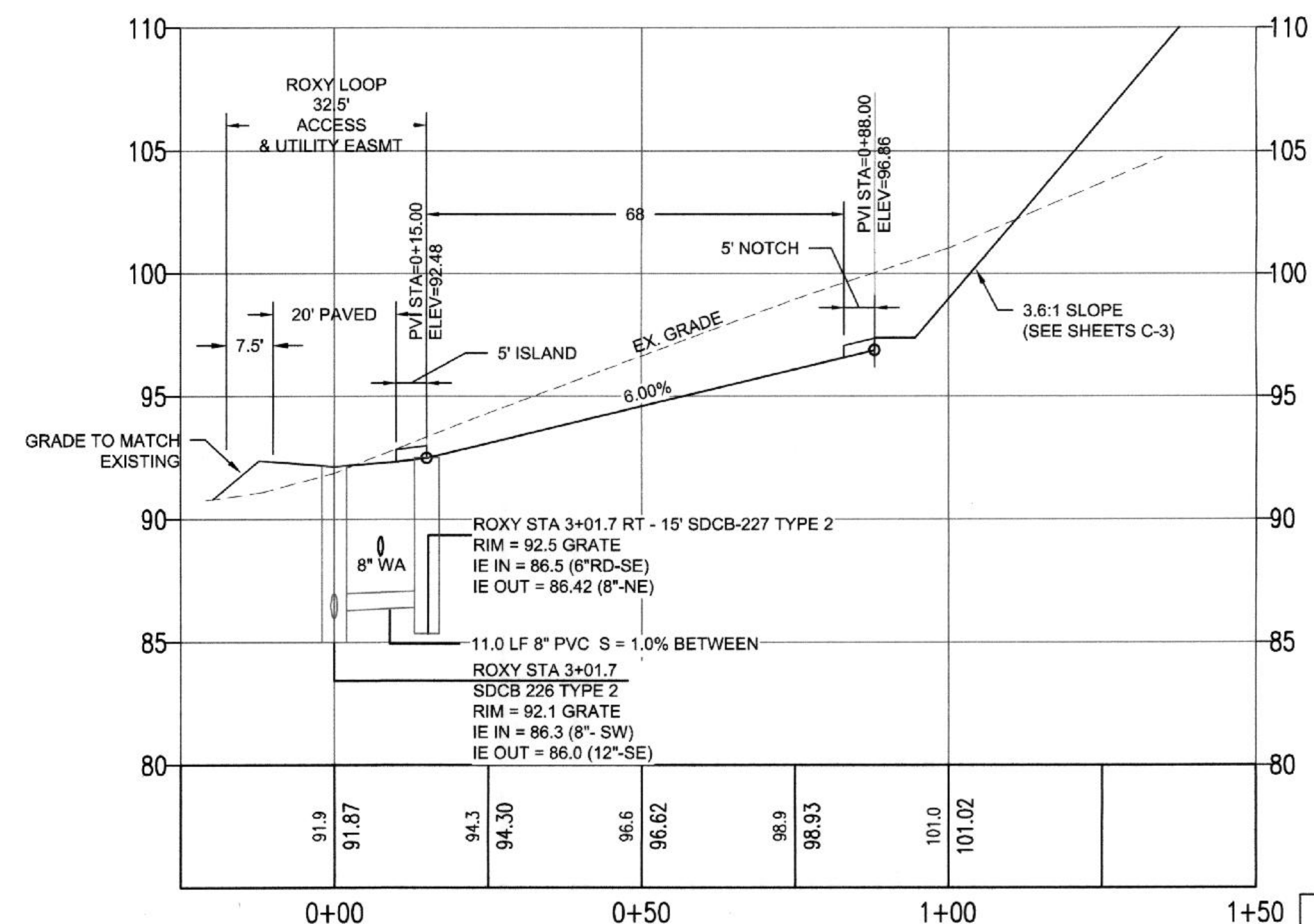
PNT ID	DESCRIPTION	ELEV	NORTHING	EASTING
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B	CURB RETURN MP	92.90	686545.88	1217069.13
C	POT RADIUS = 2.0'	93.06	686543.06	1217068.83
D	EAST CORNER	93.50	686531.70	1217078.72
E	SOUTH CORNER	97.58	686498.64	1217026.46
F	POC RADIUS = 2.0'	97.12	686498.00	1217016.67
G	POT RADIUS = 2.0'	97.22	686498.21	1217013.85
H	SOUTH CORNER	97.36	686496.25	1217011.57
I	WEST CORNER	97.84	686515.19	1216995.25
J	POC RADIUS = 2.0'	97.69	686517.52	1216997.52
K	POT RADIUS = 2.0'	97.67	686519.97	1216997.73
L	WEST CORNER	98.37	686531.33	1216987.94
M	NORTH CORNER	94.32	686576.38	1217040.19
N	POC RADIUS = 2.0'	93.80	686565.02	1217049.99
O	CURB RETURN MP	93.39	686564.92	1217052.81
P	POT RADIUS = 2.0'	93.38	686567.84	1217053.02
Q	END VERT. CURB	93.68	686579.00	1217043.22

ALL ELEVATIONS ARE TOP & BACK OF CURB



PARKING LOT CROSS SECTION B-B'

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 2.5'



PARKING LOT PROFILE A-A'

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

APPROVED

APR 22 2019

BY: [Signature]
CITY OF FERNDALE
PUBLIC WORKS DEPARTMENT

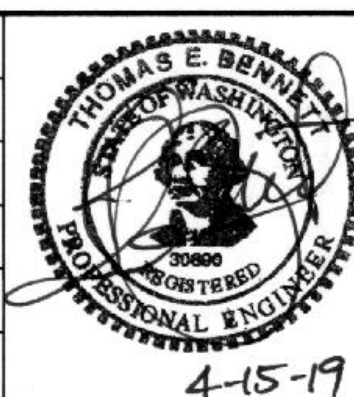
DRAWING:

C-6

SHEET:

6 OF 10

0	ISSUED FOR REVIEW	TEB	1/25/17
1	REVISED PER COF COMMENTS	TEB	2/13/17
2	REVISED PER COF COMMENTS	TEB	4/18/18
3	RECORD DRAWING SET	TEB	4/15/19
4			
NO.	REVISION	BY	DATE



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ENGINEERING, LLC

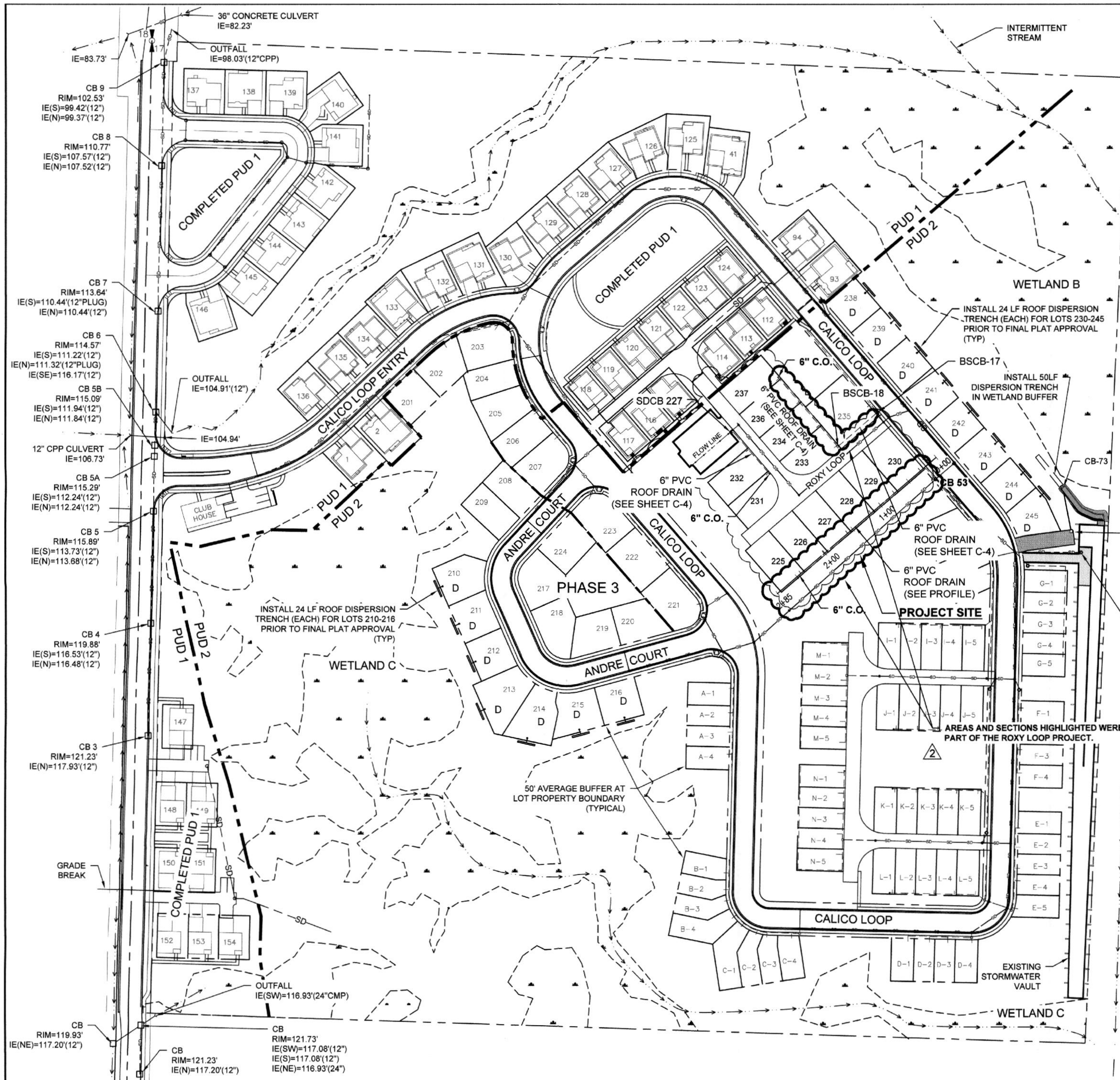
CIVIL
ENVIRONMENTAL
2324 JAMES STREET
BELLINGHAM, WA 98225
Ph: (360) 671-2600
Cell: (360) 739-9844

JOB NO.:	17007
DWG. NAME:	17007 C4 - C6
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

HAMMERHEAD HOLDINGS, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

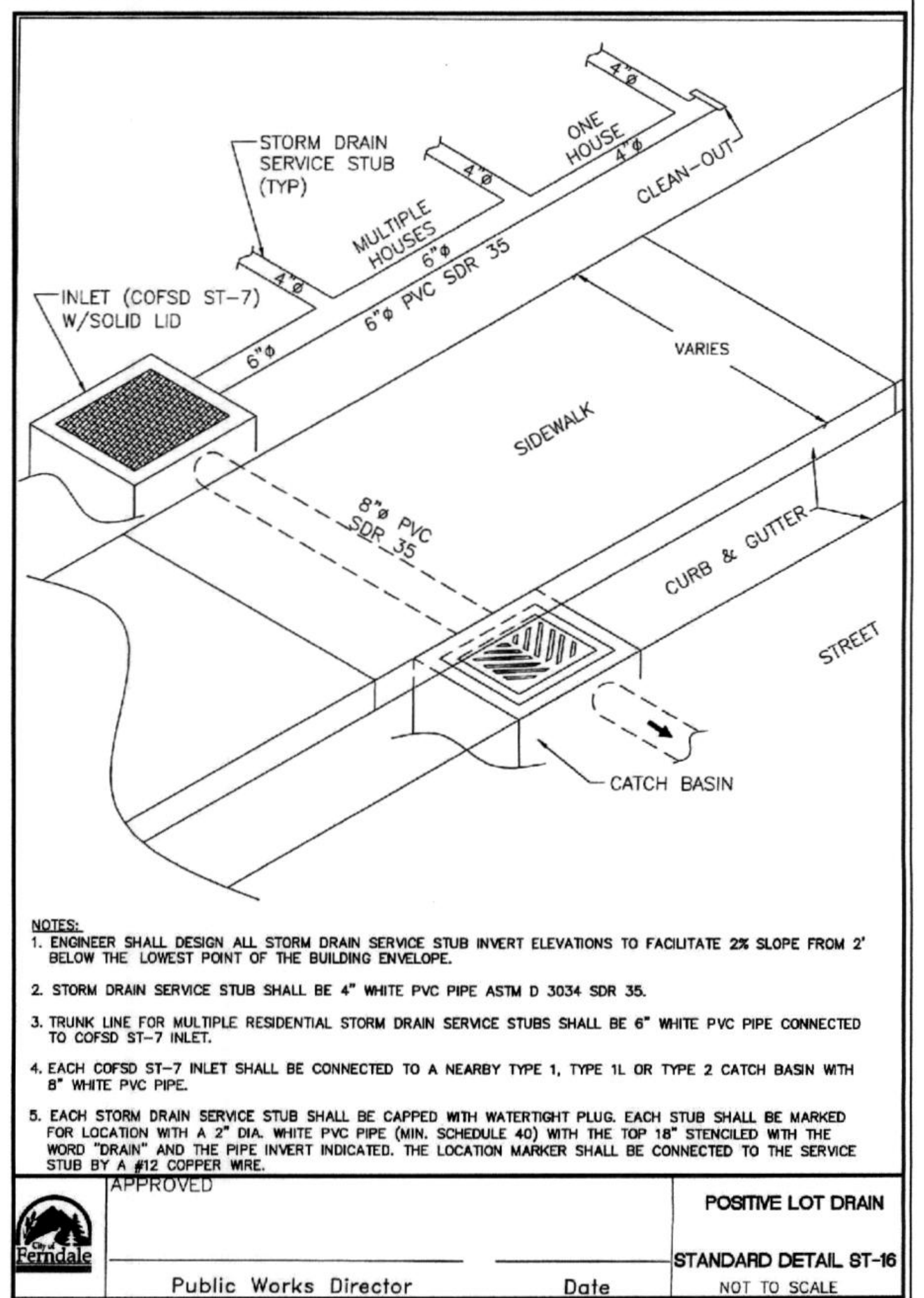
PARKING LOT
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDAL, WASHINGTON

DATE: APRIL 2019 SCALE: H: 1" = 20' V: 1" = 5'



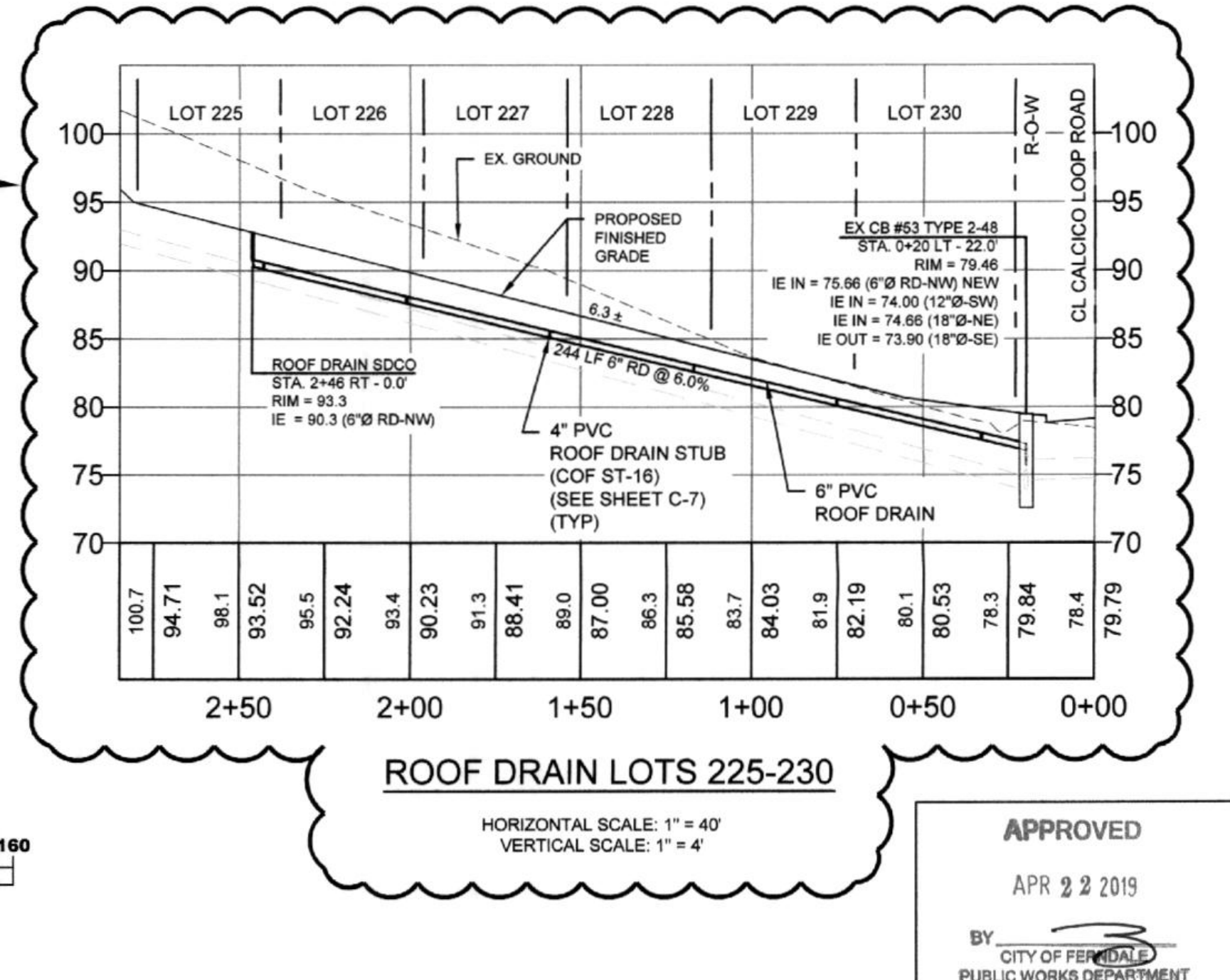
STORM DRAIN SYSTEM

1. ROXY LOOP IS PART OF MALLOY VILLAGE PUD 2. THE CIVIL PLAN SET FOR THE PHASE 1 IMPROVEMENTS AND STORMWATER SITE PLAN REPORT FOR THE OVERALL PUD 2 PROJECT WERE APPROVED BY THE CITY OF FERNDALE ON JULY 12, 2018.
2. THE STORM DRAIN SYSTEM SHALL BE INSTALLED IN ACCORDANCE SHEETS C-4 THROUGH C-7. RUNOFF FROM THE NEW STREET, PARKING LOT, AND THE ROOF AND DRIVEWAY AREAS FOR LOTS 225-237 WILL BE COLLECTED IN THE STREET STORM DRAIN SYSTEM AND ROUTED TO THE EXISTING STORMWATER VAULT FOR BASIC TREATMENT AND DETENTION. TREATED STORMWATER WILL FLOW FROM THE DETENTION VAULT THROUGH THE EXISTING OUTLET CONTROL STRUCTURE (CB-72) AND DISCHARGE TO A NEW 50-FOOT DISPERSION TRENCH LOCATED WITHIN THE WETLAND BUFFER NORTH OF THE VAULT.
3. THE ROOF DRAIN PIPING FOR LOTS 225-230 WILL BE INSTALLED ALONG THE SOUTH PROPERTY LINE OF THOSE LOTS AND FLOW TO CATCH BASIN CB-53. THE ROOF DRAINS FOR LOTS 231 AND 232 WILL BE ROUTED TO SDCB-227, LOCATED AT THE EAST END OF THE PARKING LOT. THE ROOF DRAIN PIPING FOR LOTS 233-237 WILL BE INSTALLED ALONG THE EAST PROPERTY LINE OF THOSE LOTS AND FLOW TO BSCB-18.
4. STORM DRAIN PIPING SHALL BE POLYVINYL CHLORIDE PIPE (PVC, ASTM D 3034 SDR 35). ALL STORM DRAIN PIPING WITHIN THE STREET SECTIONS SHALL HAVE A MINIMUM OF 2 FEET OF COVER AND SHALL MEET THE REQUIREMENTS OF WDOT 9-05.
5. ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WDOT 7-08.3(1), INCLUDING LEVELING AND COMPACTING THE TRENCH BOTTOM, TOP OF THE FOUNDATION MATERIAL AND PIPE BEDDING TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY AN UNYIELDING BASE. TRENCH BACKFILL WITHIN PAVEMENT AREAS SHALL CONSIST OF COMPACTED GRAVEL BASE. NATIVE SOIL MAY BE USED FOR TRENCH BACKFILL IN OTHER NON-STRUCTURAL LOCATIONS, AS APPROVED BY THE PROJECT ENGINEER.
6. A MINIMUM OF 18 INCHES OF CLEARANCE SHALL BE PROVIDED AT ALL CROSSINGS OF STORM DRAIN OVER SEWER PIPING, AND 12 INCHES OF CLEARANCE SHALL BE PROVIDED AT STORM DRAIN CROSSINGS UNDER WATER PIPING.
7. CATCH BASINS SHALL BE TYPE 1 OR 48-INCH TYPE 2, WITH STANDARD FRAMES AND GRATES, PER COF STD DWGS ST-1 AND ST-2. BACK OF SIDEWALK CATCH BASINS SHALL BE INLET CB'S PER COF ST-7.

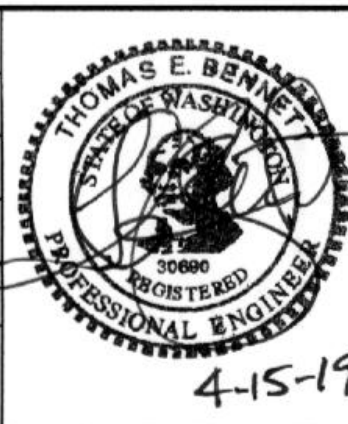


- NOTES:
1. ENGINEER SHALL DESIGN ALL STORM DRAIN SERVICE STUB INVERT ELEVATIONS TO FACILITATE 2% SLOPE FROM 2' BELOW THE LOWEST POINT OF THE BUILDING ENVELOPE.
 2. STORM DRAIN SERVICE STUB SHALL BE 4" WHITE PVC PIPE ASTM D 3034 SDR 35.
 3. TRUNK LINE FOR MULTIPLE RESIDENTIAL STORM DRAIN SERVICE STUBS SHALL BE 6" WHITE PVC PIPE CONNECTED TO COFSD ST-7 INLET.
 4. EACH COFSD ST-7 INLET SHALL BE CONNECTED TO A NEARBY TYPE 1, TYPE 1L OR TYPE 2 CATCH BASIN WITH 8" WHITE PVC PIPE.
 5. EACH STORM DRAIN SERVICE STUB SHALL BE CAPPED WITH WATERTIGHT PLUG. EACH STUB SHALL BE MARKED FOR LOCATION WITH A 2" DIA. WHITE PVC PIPE (MIN. SCHEDULE 40) WITH THE TOP 18" STENCILED WITH THE WORD "DRAIN" AND THE PIPE INVERT INDICATED. THE LOCATION MARKER SHALL BE CONNECTED TO THE SERVICE STUB BY A #12 COPPER WIRE.

APPROVED
Public Works Director
Date
STANDARD DETAIL ST-16
NOT TO SCALE



0	ISSUED FOR REVIEW	TEB	1/25/17
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3	RECORD DRAWING SET	TEB	4/15/19
4			
NO.	REVISION	BY	DATE



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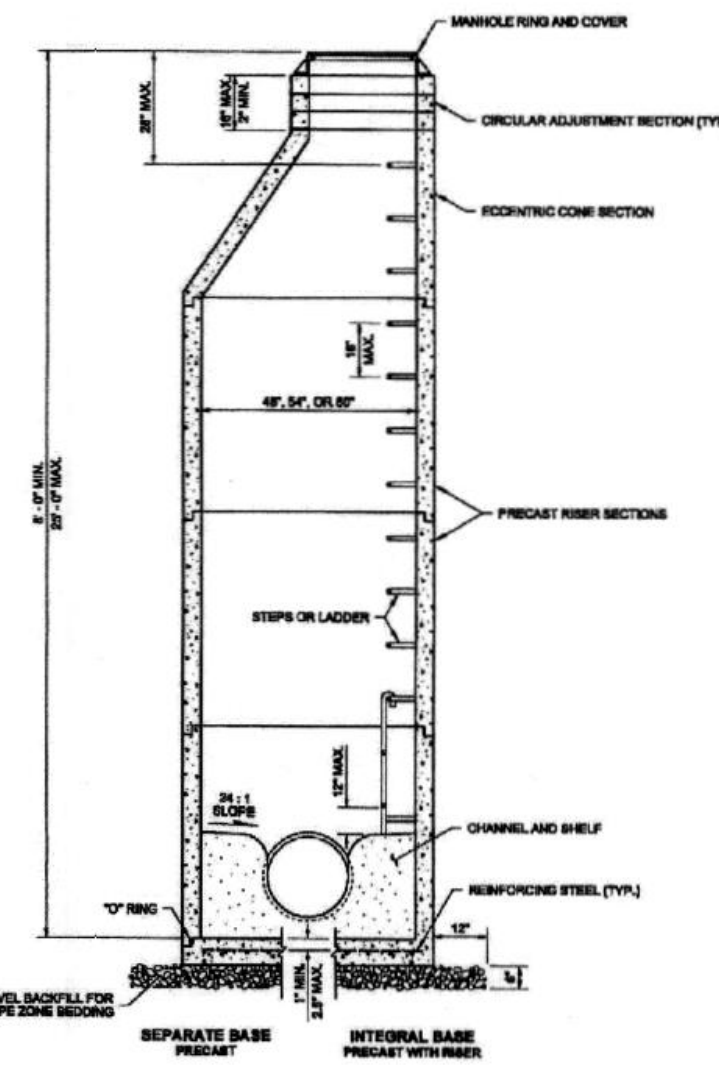
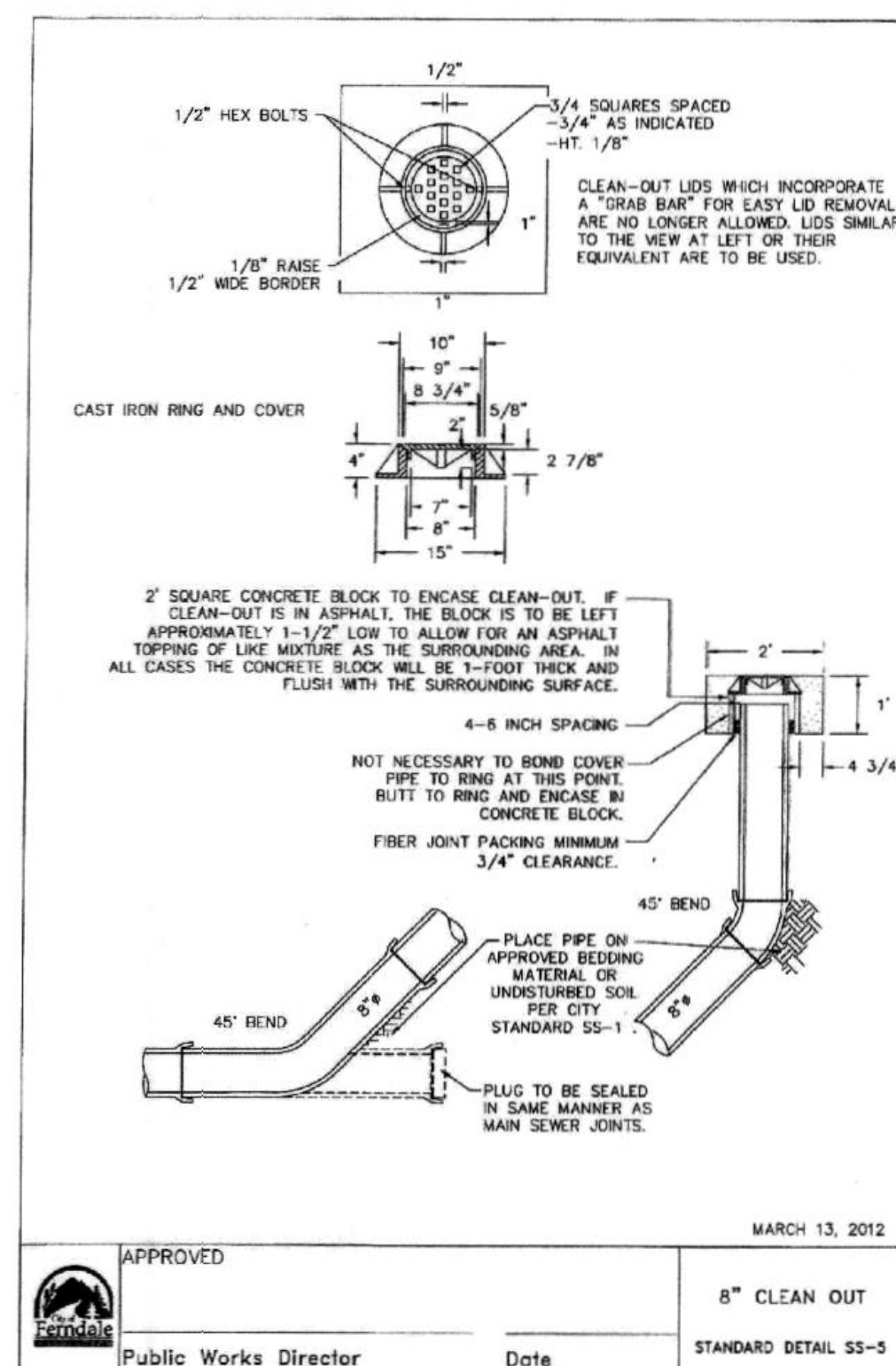
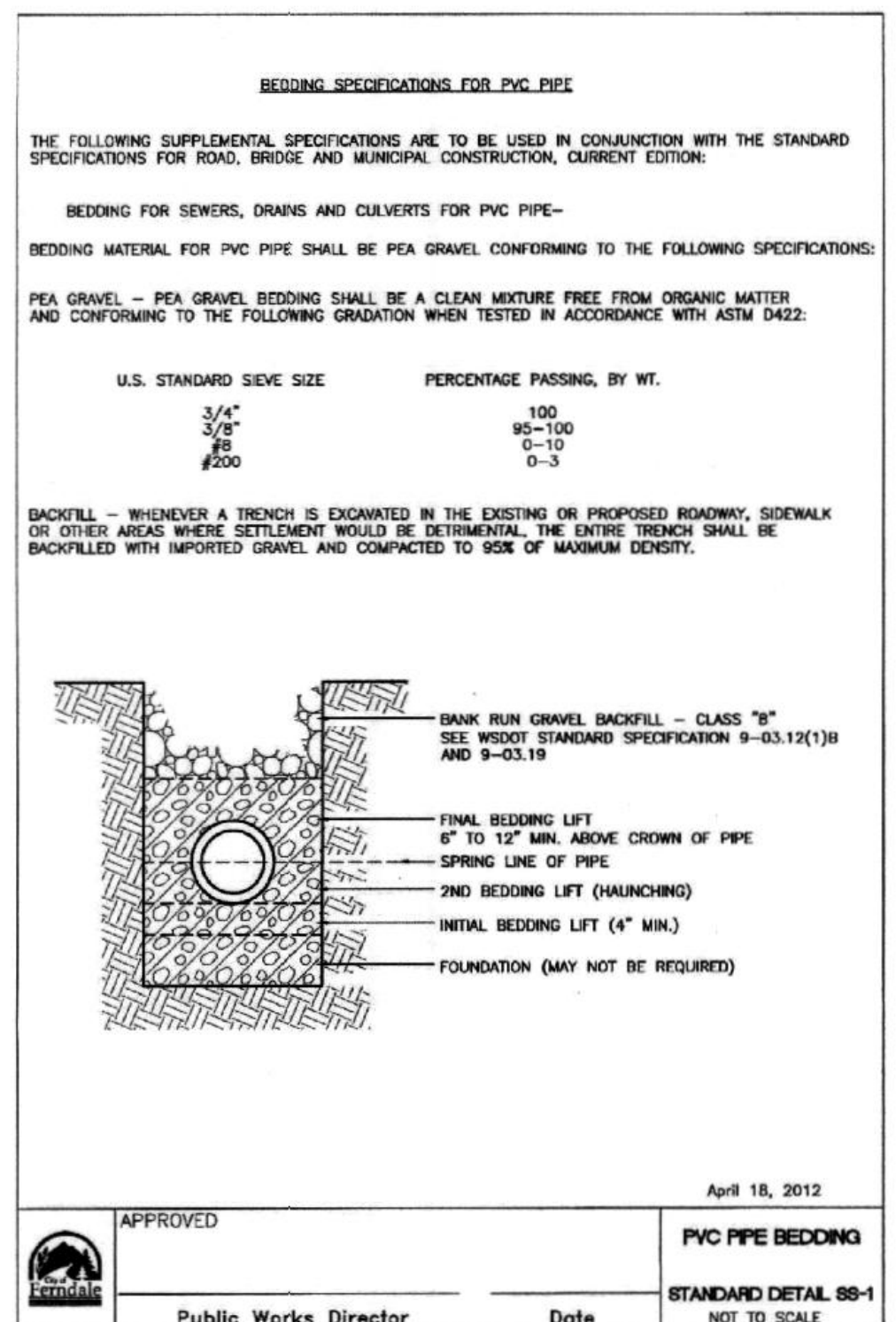
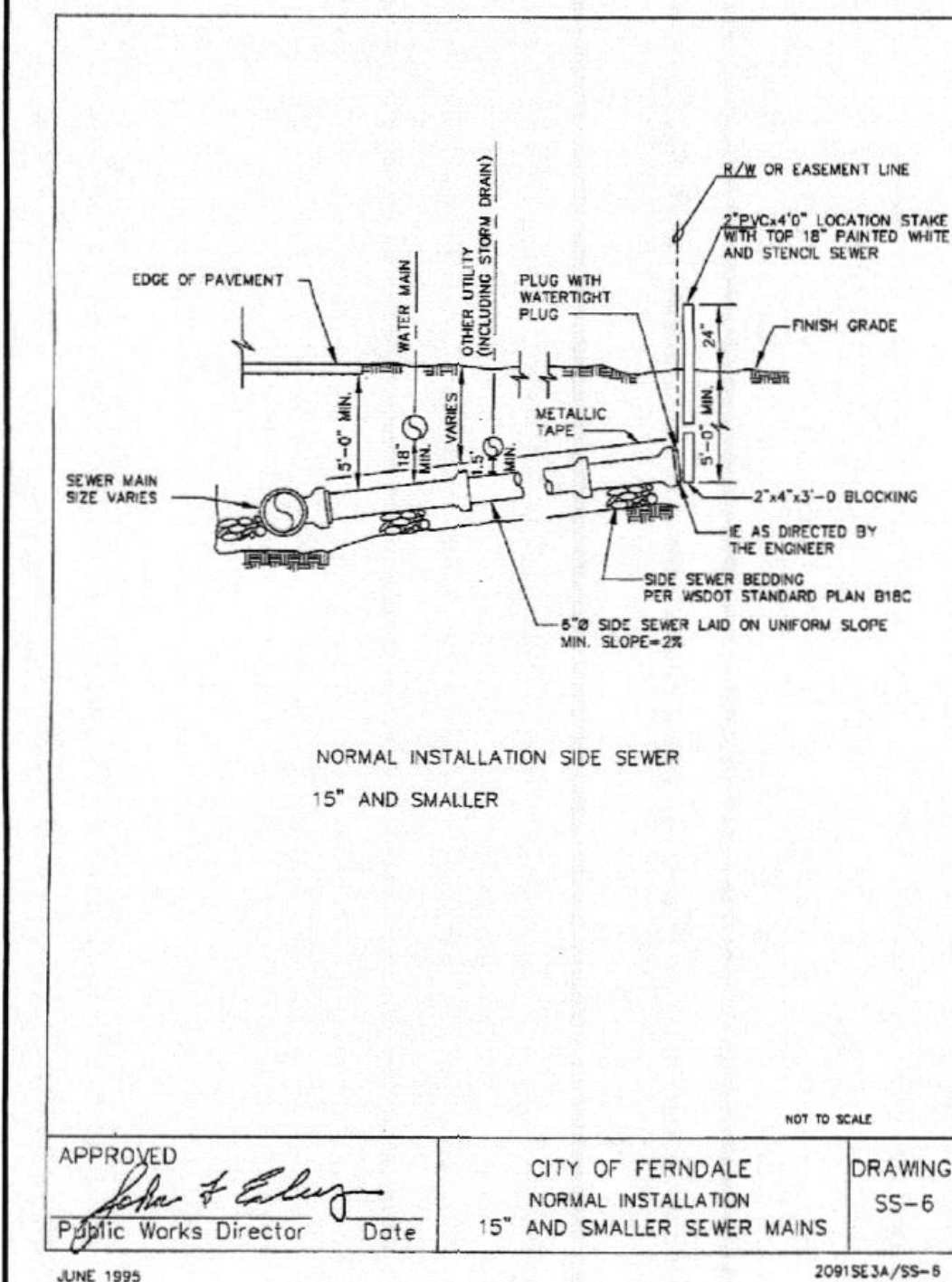
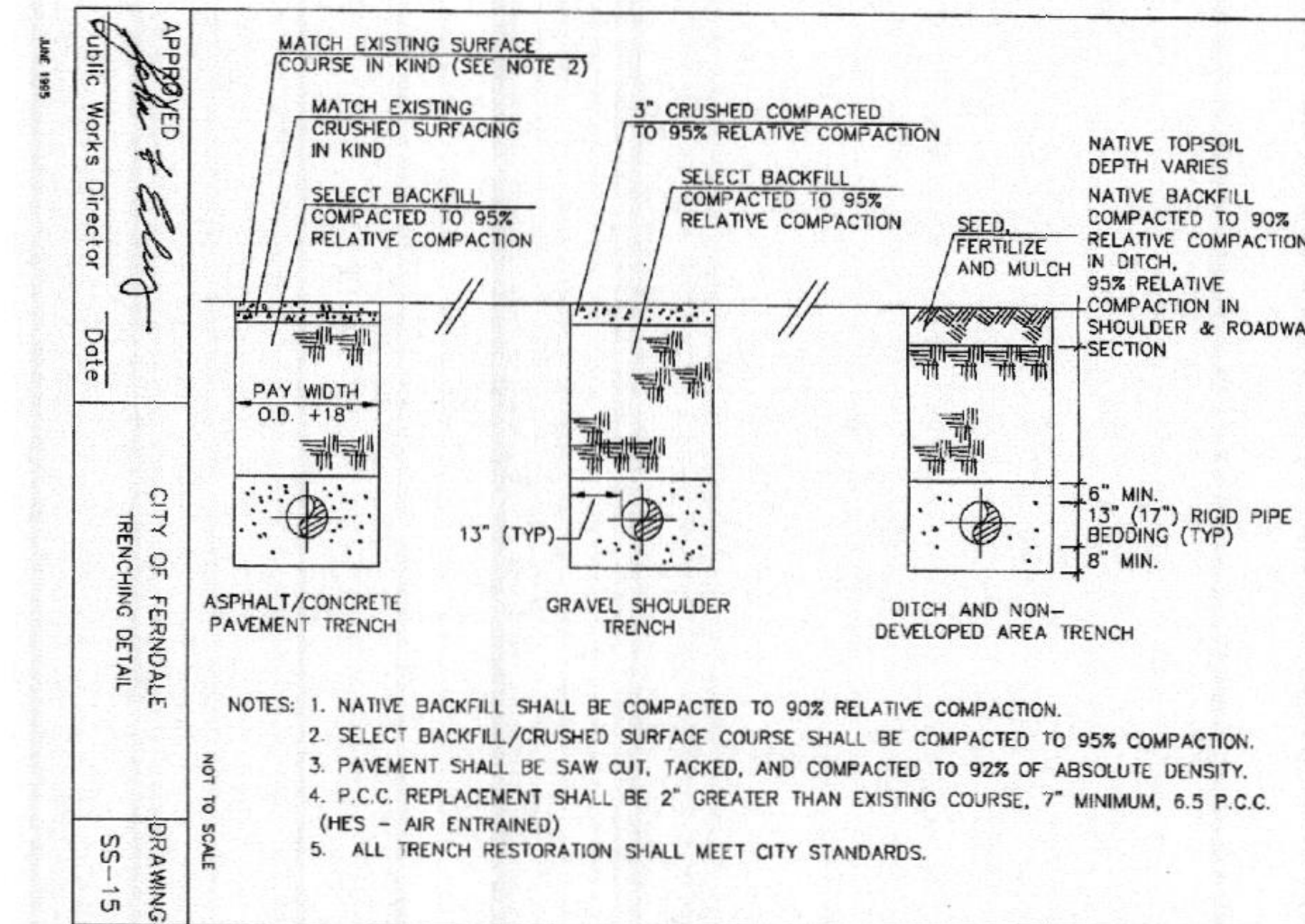
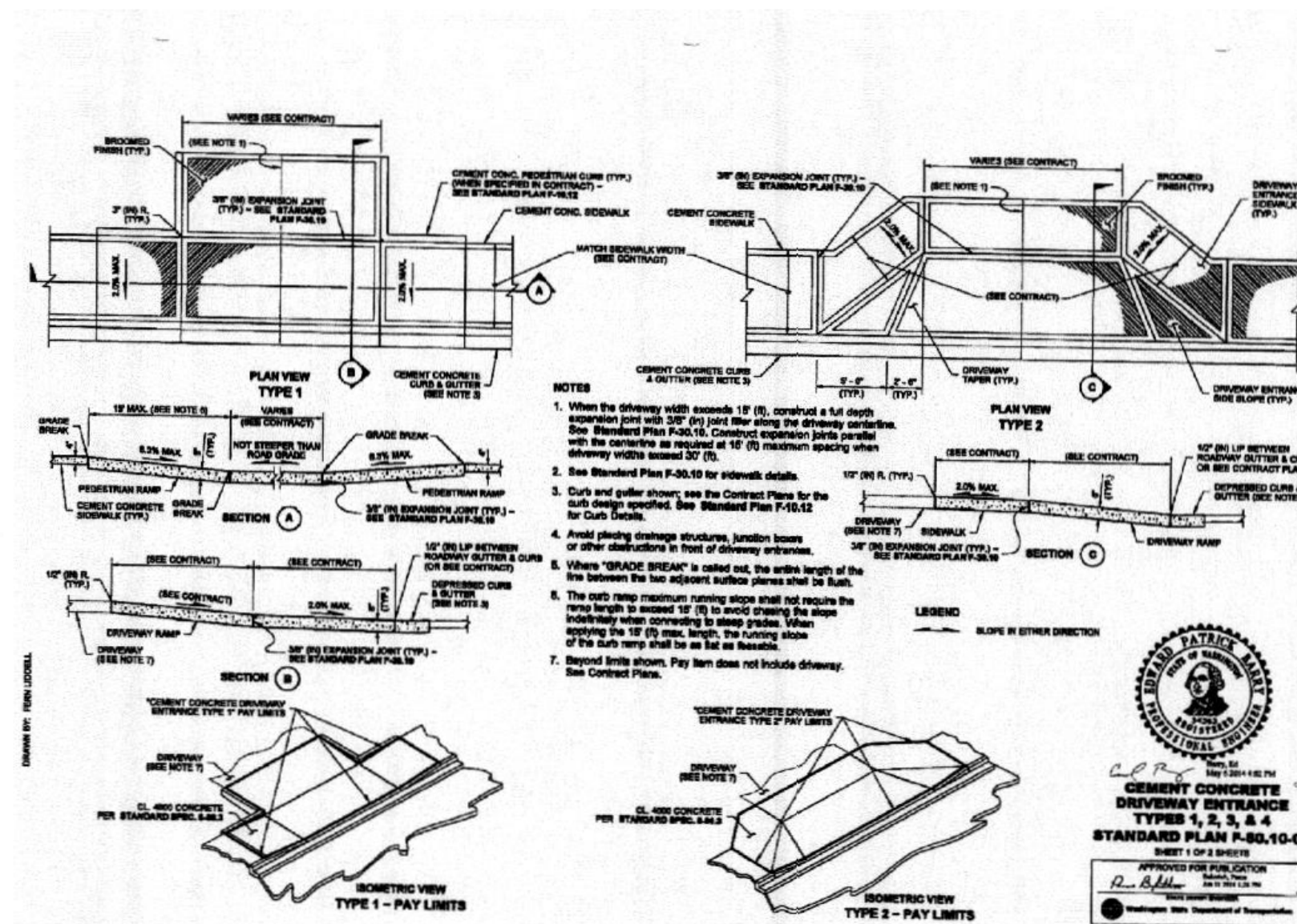
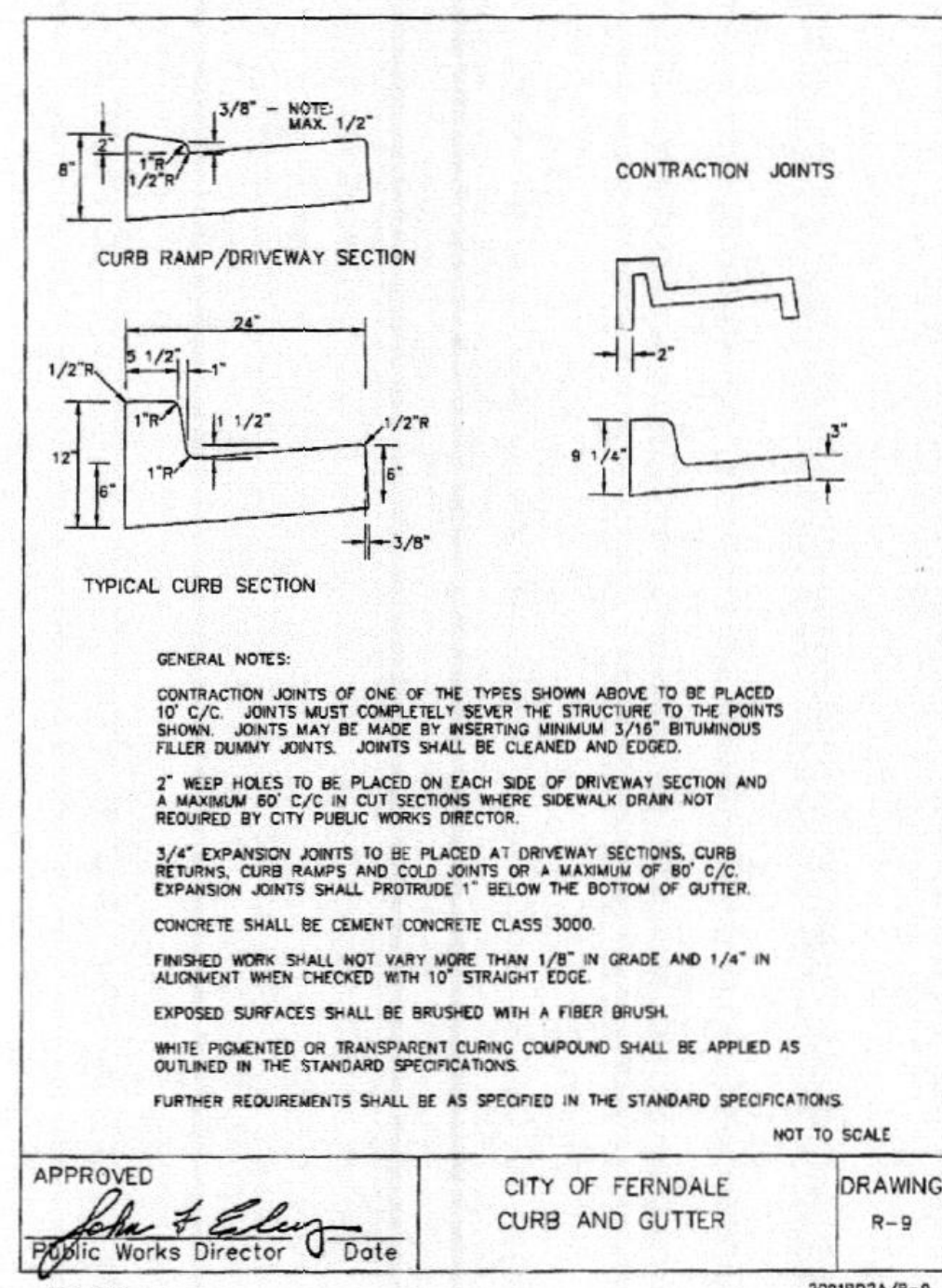
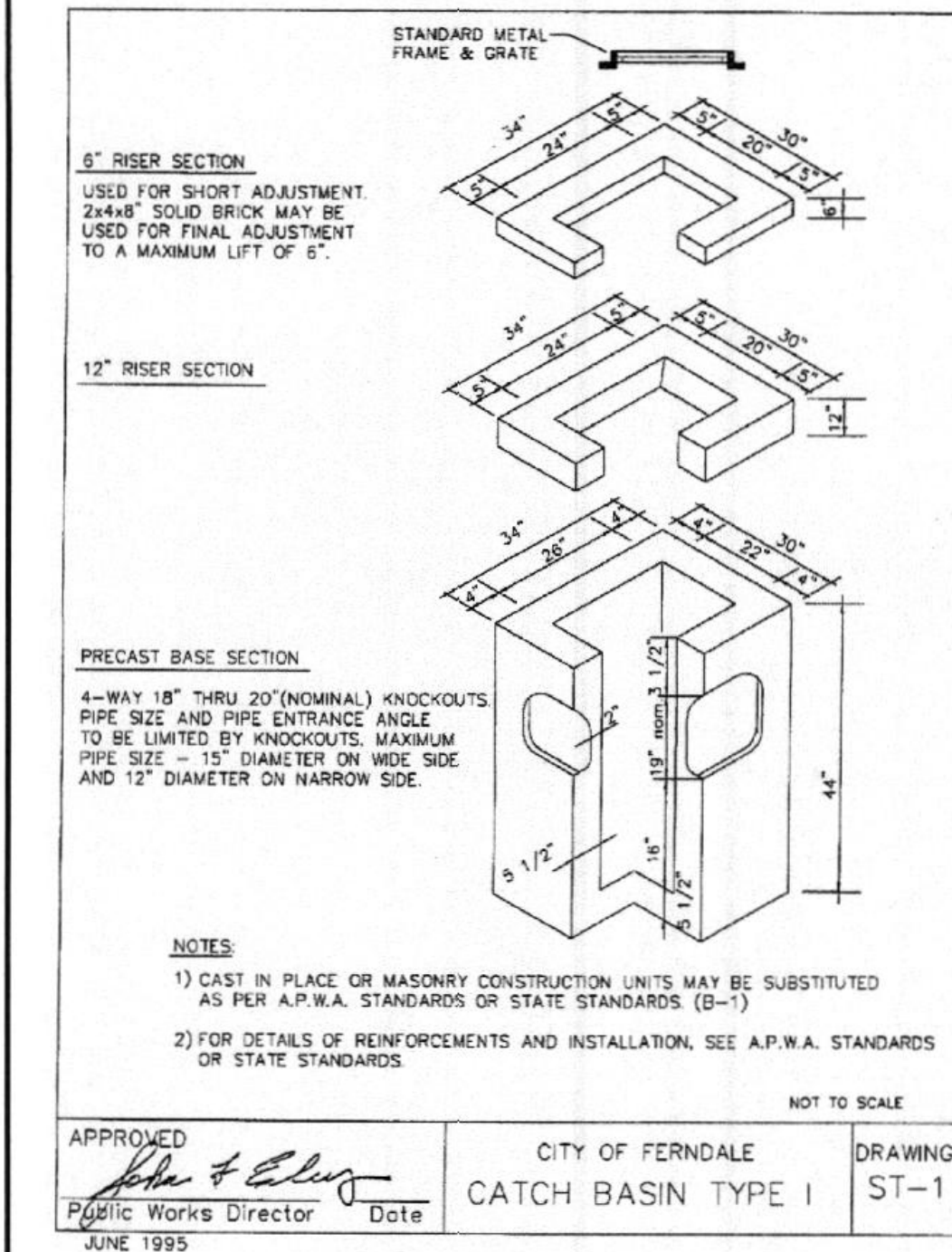
JOB NO.:	17007
DWG. NAME:	17007 C7-STORM
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

HAMMERHEAD HOLDINGS, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

STORMWATER SITE PLAN
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDALE WASHINGTON

DATE: APRIL 2019
SCALE: H: 1"=80'
V: N/A

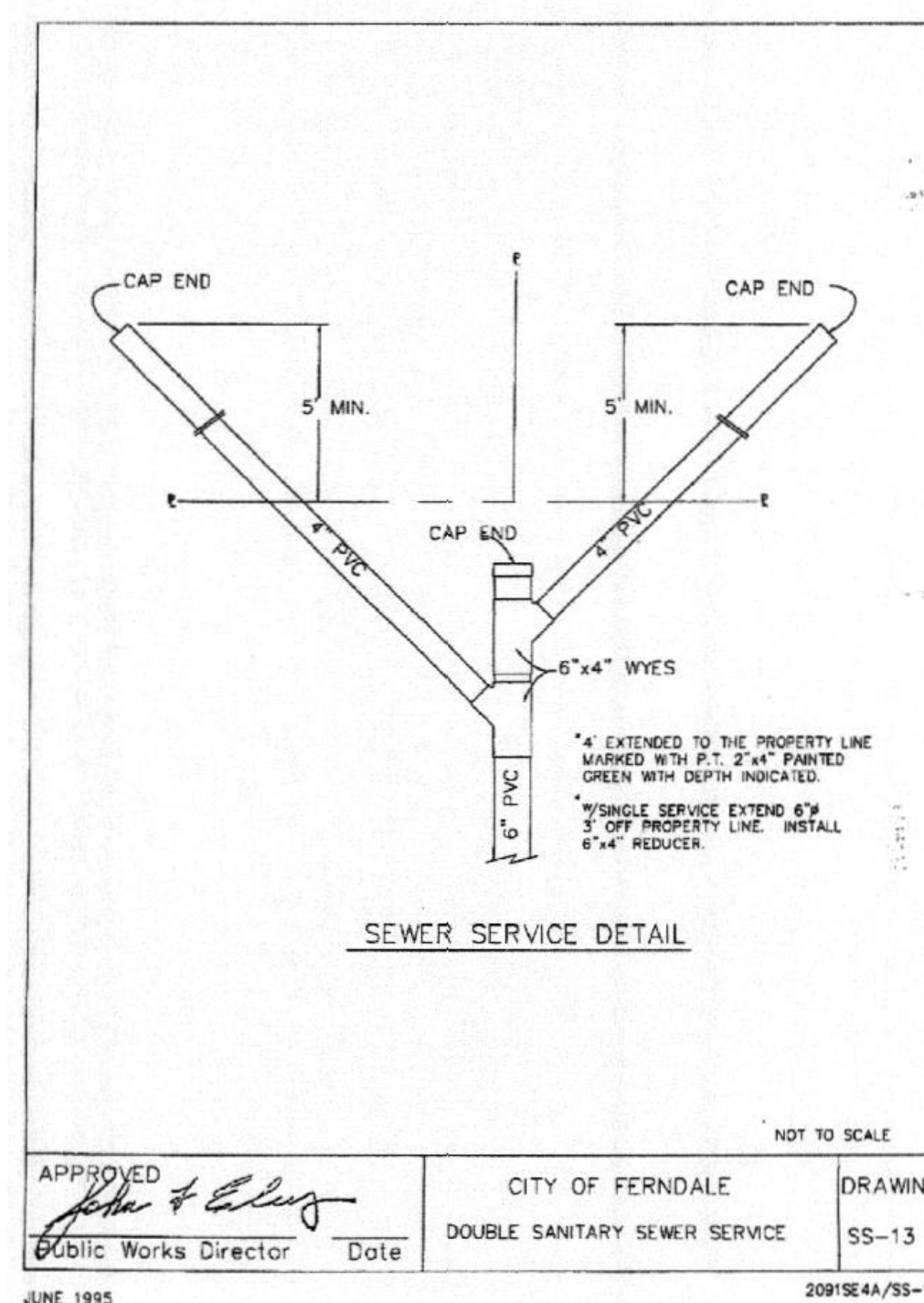
DRAWING:
C-7
SHEET:
7 OF 10



DIAM.	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	8"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"



MANHOLE TYPE 1
STANDARD PLAN B-15.20-0
SHEET 1 OF 1 SHEET
APPROVED FOR PUBLICATION
Pasco Bakotich III 02-07-11
DATE: 02/07/11 DATE:
Washington State Department of Transportation



APPROVED

APR 22 2019

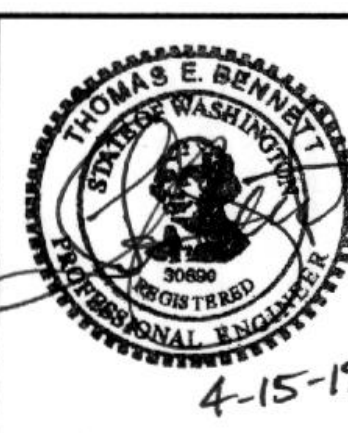
BY 3
CITY OF FERRISDALE
PUBLIC WORKS DEPARTMENT

DRAWING:
C-8

SHEET:

8 OF 10

0	ISSUED FOR REVIEW	TEB	1/25/17
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NO.	REVISION	BY	DATE



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JOB NO.:	17007
DWG. NAME:	17007-C8-C10 DETAILS
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

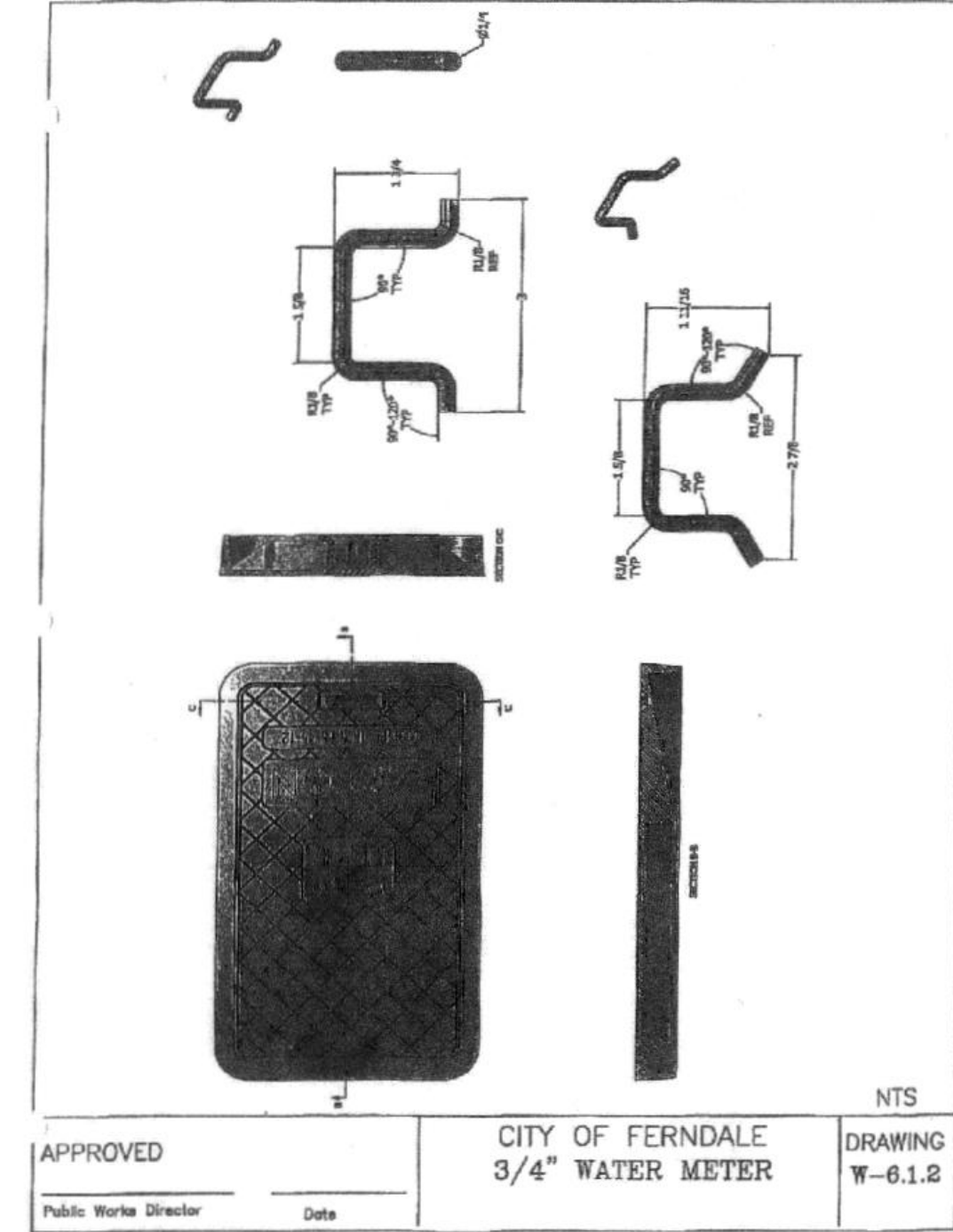
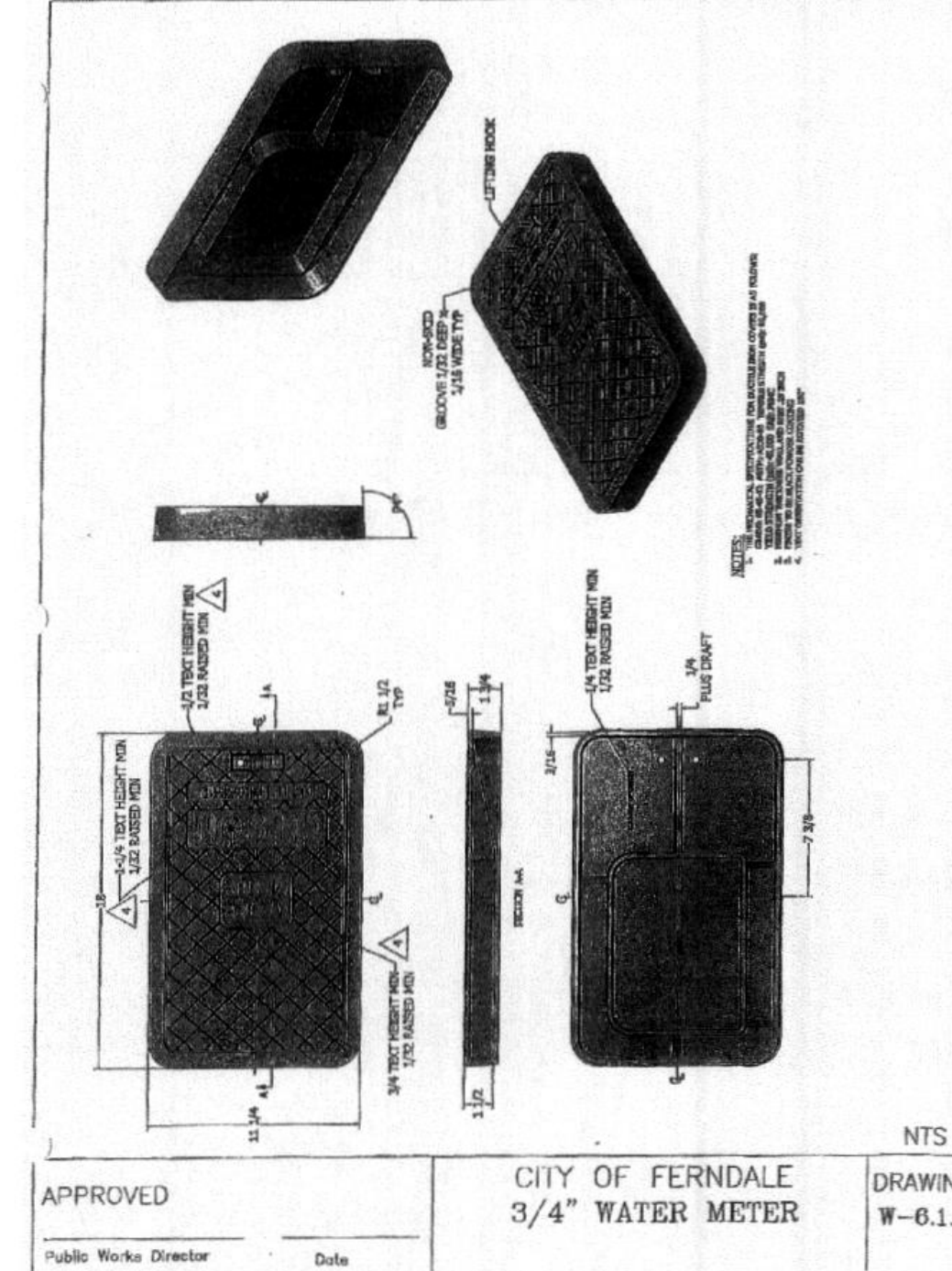
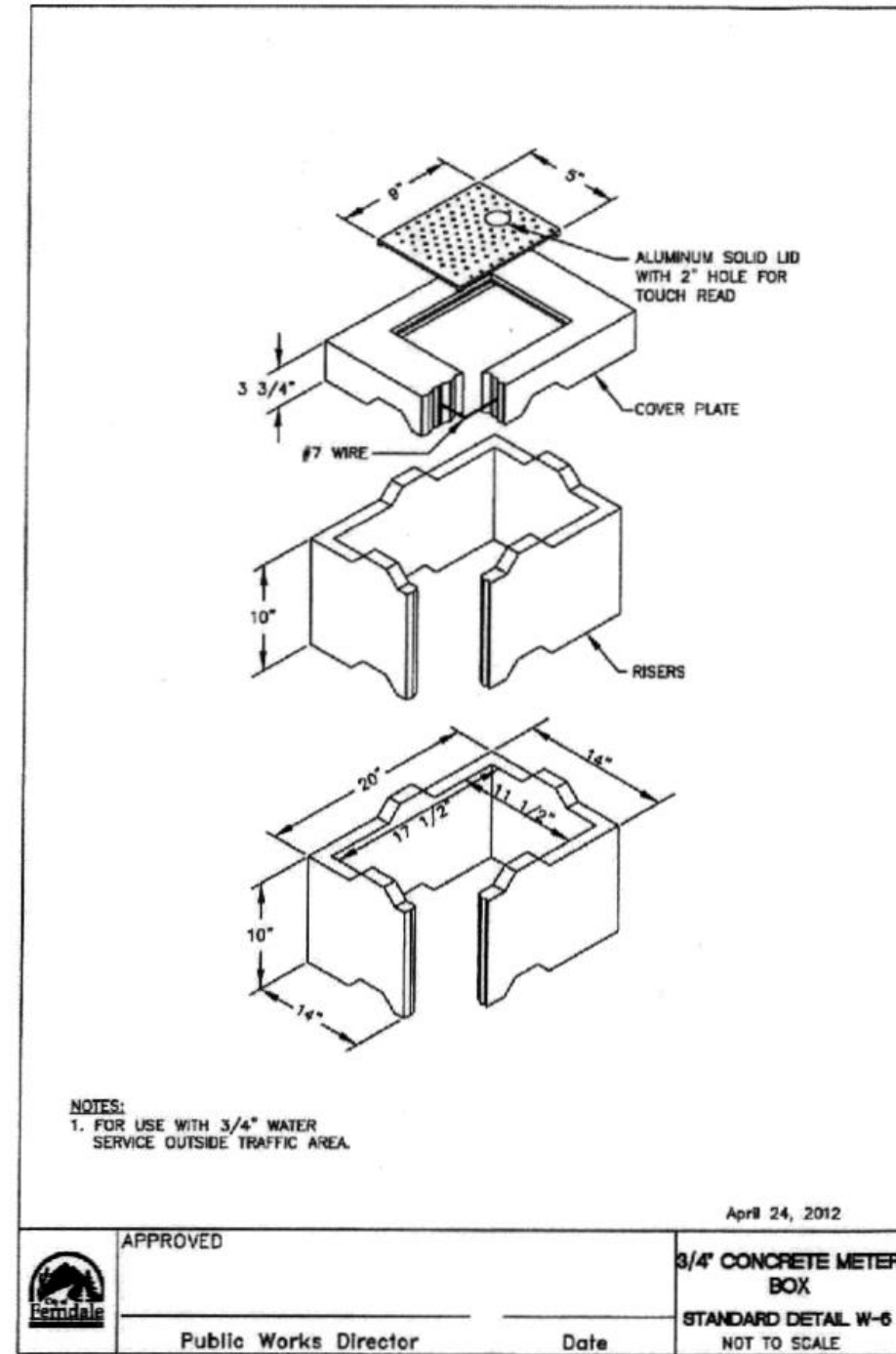
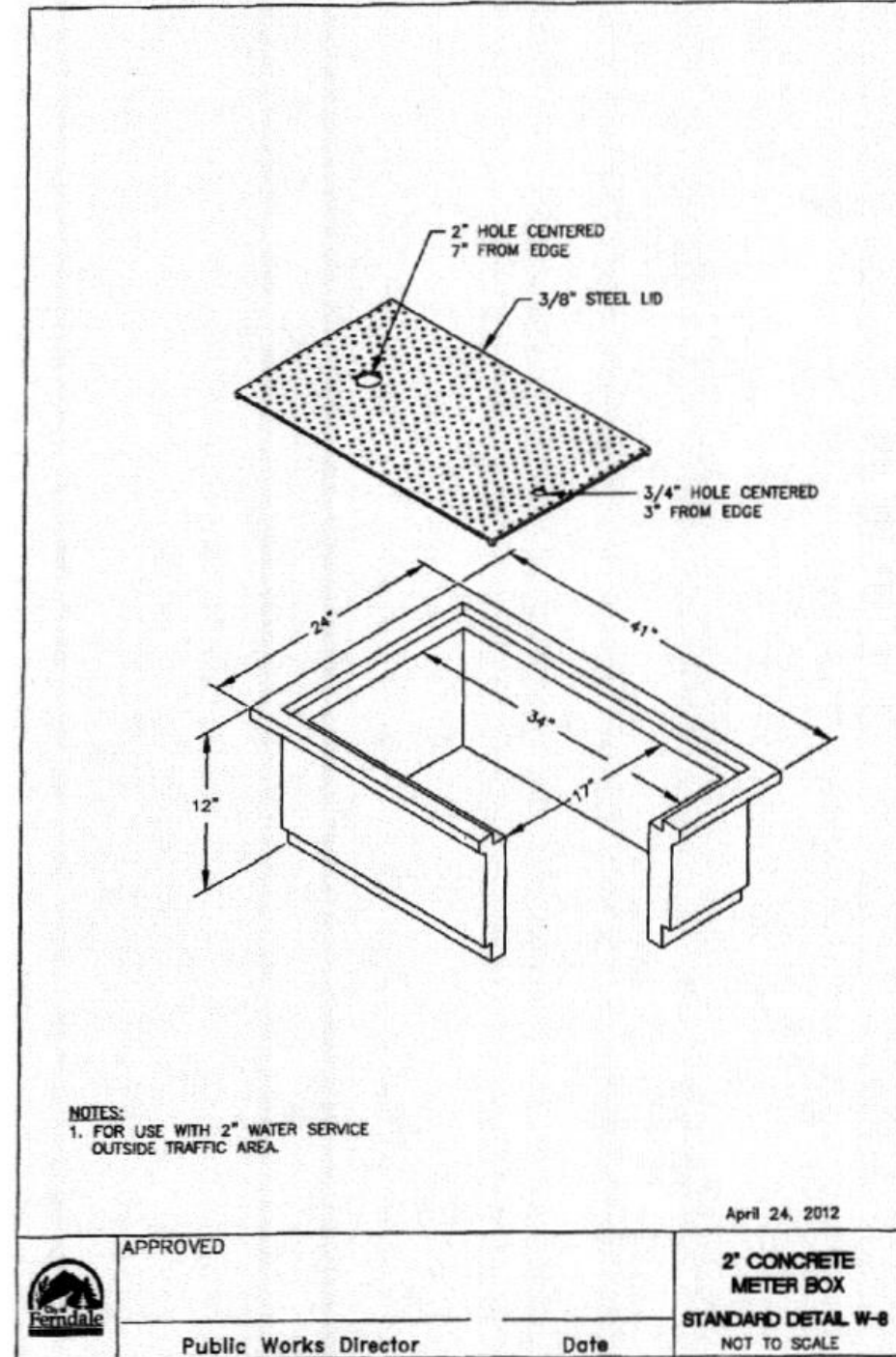
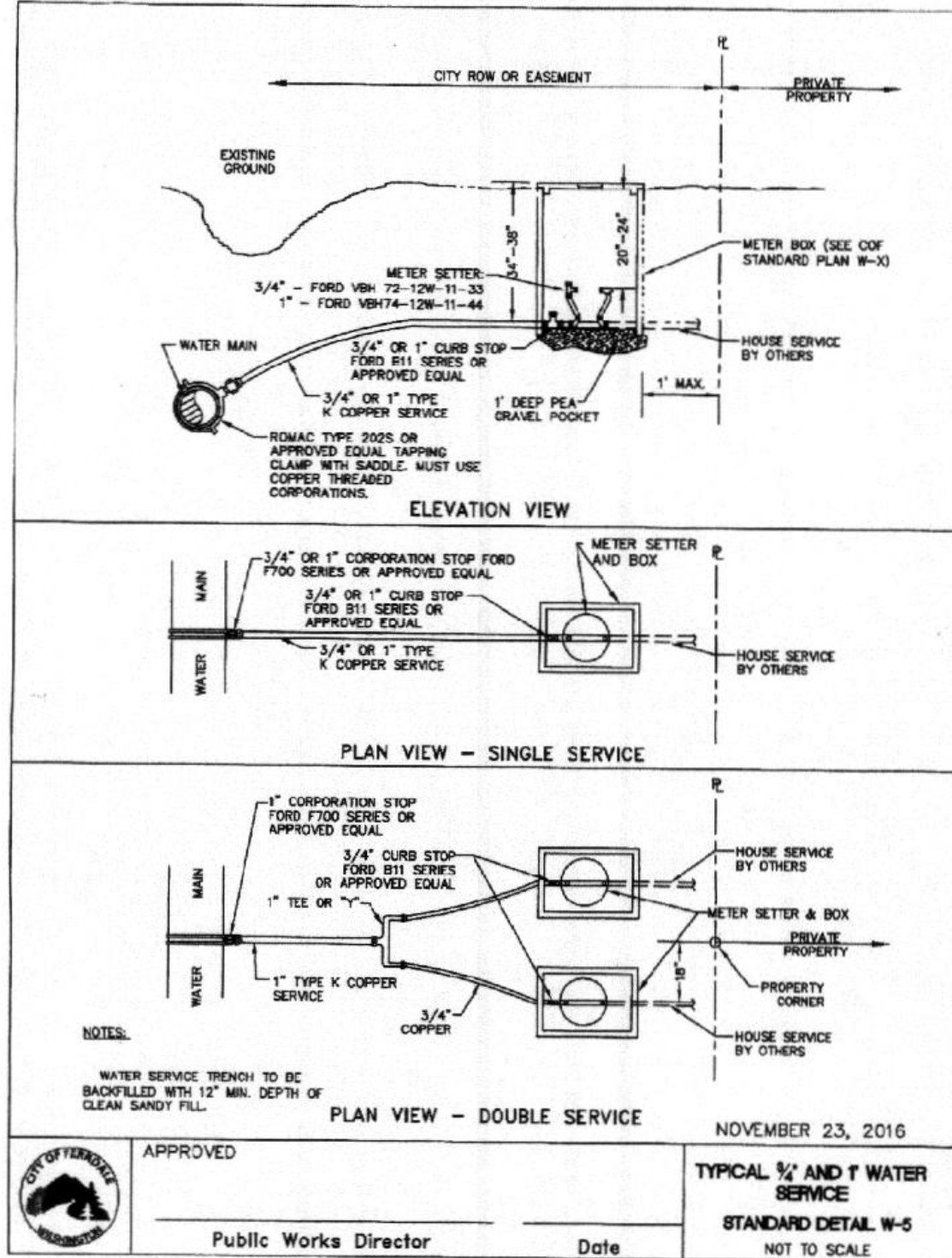
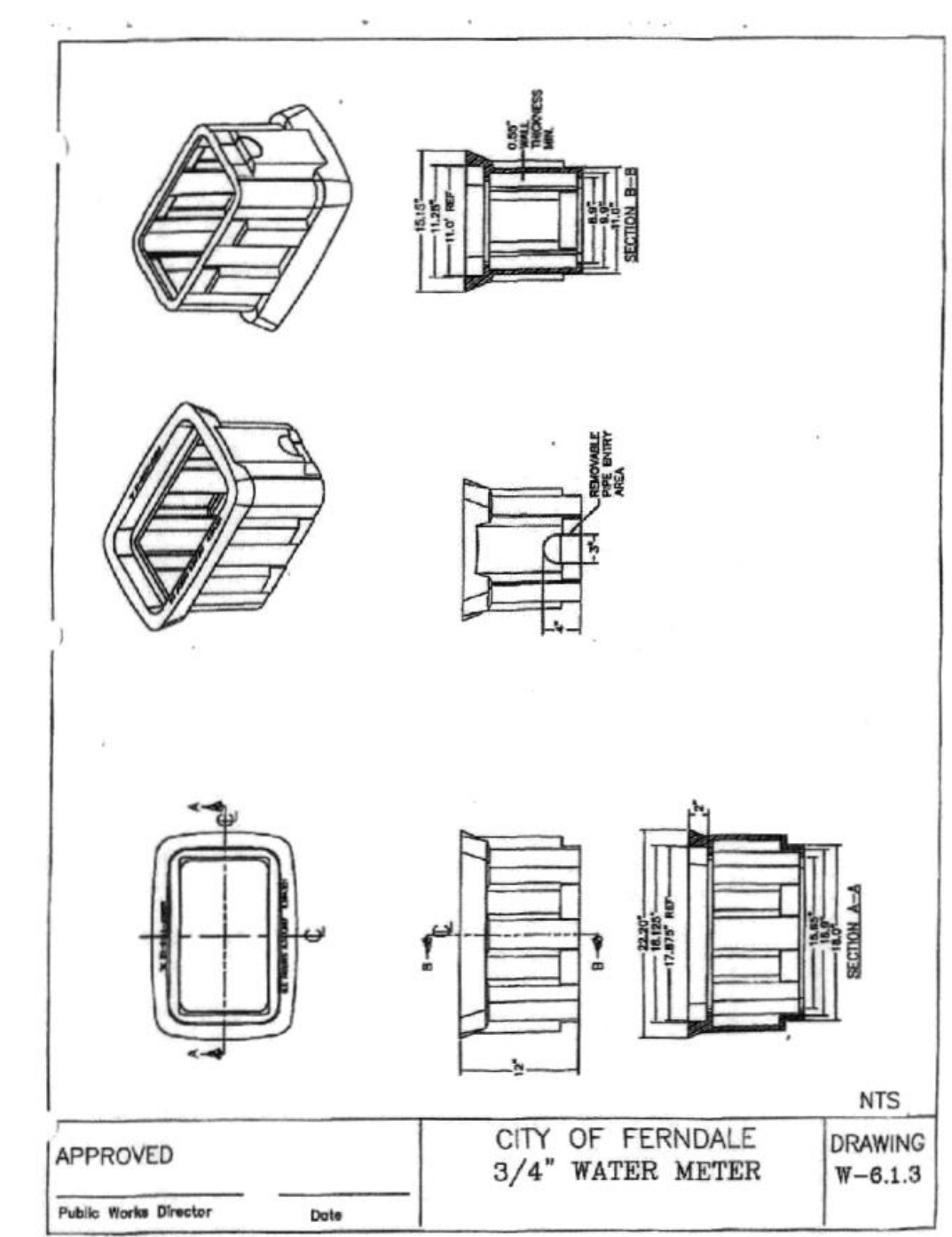
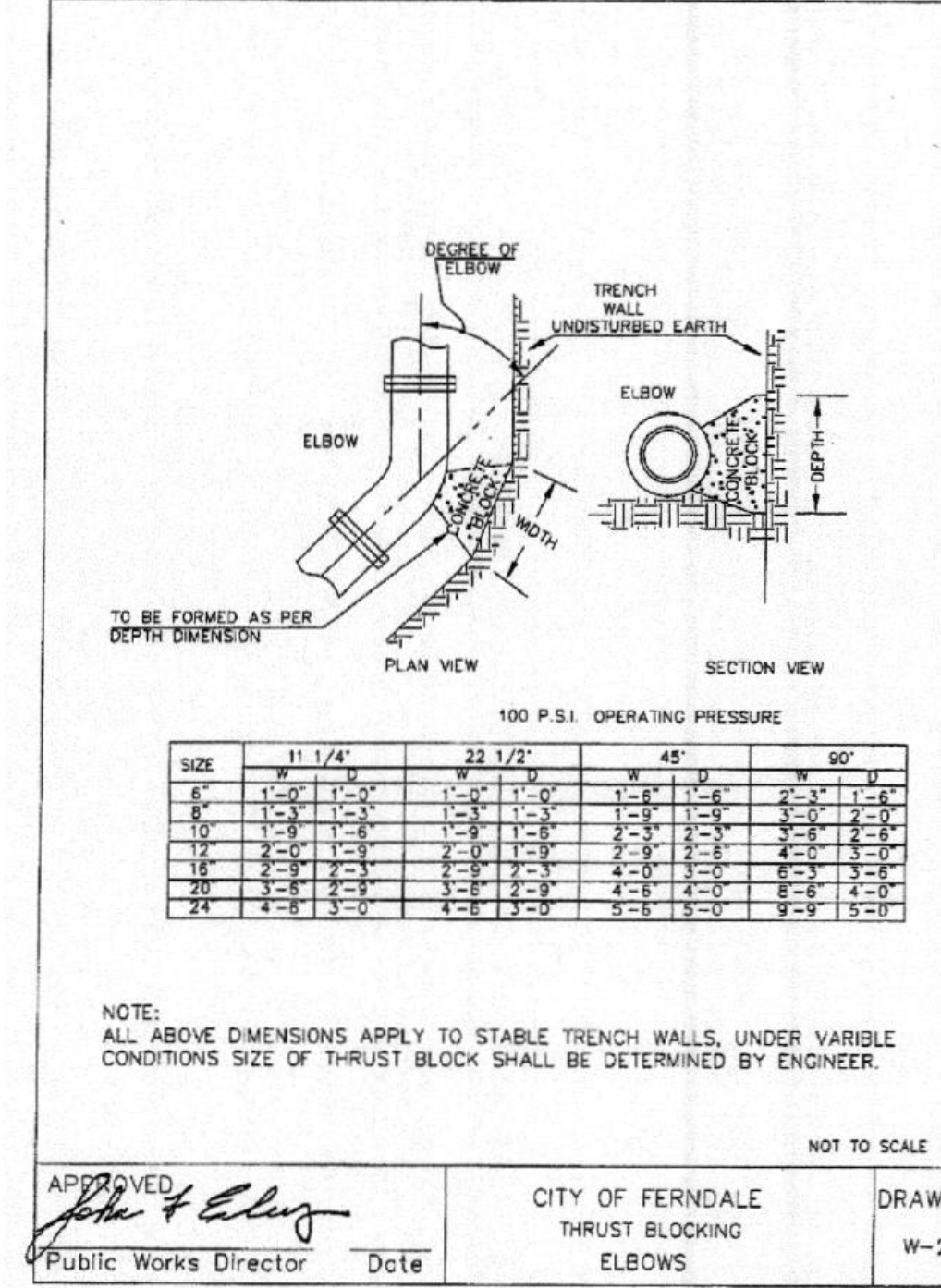
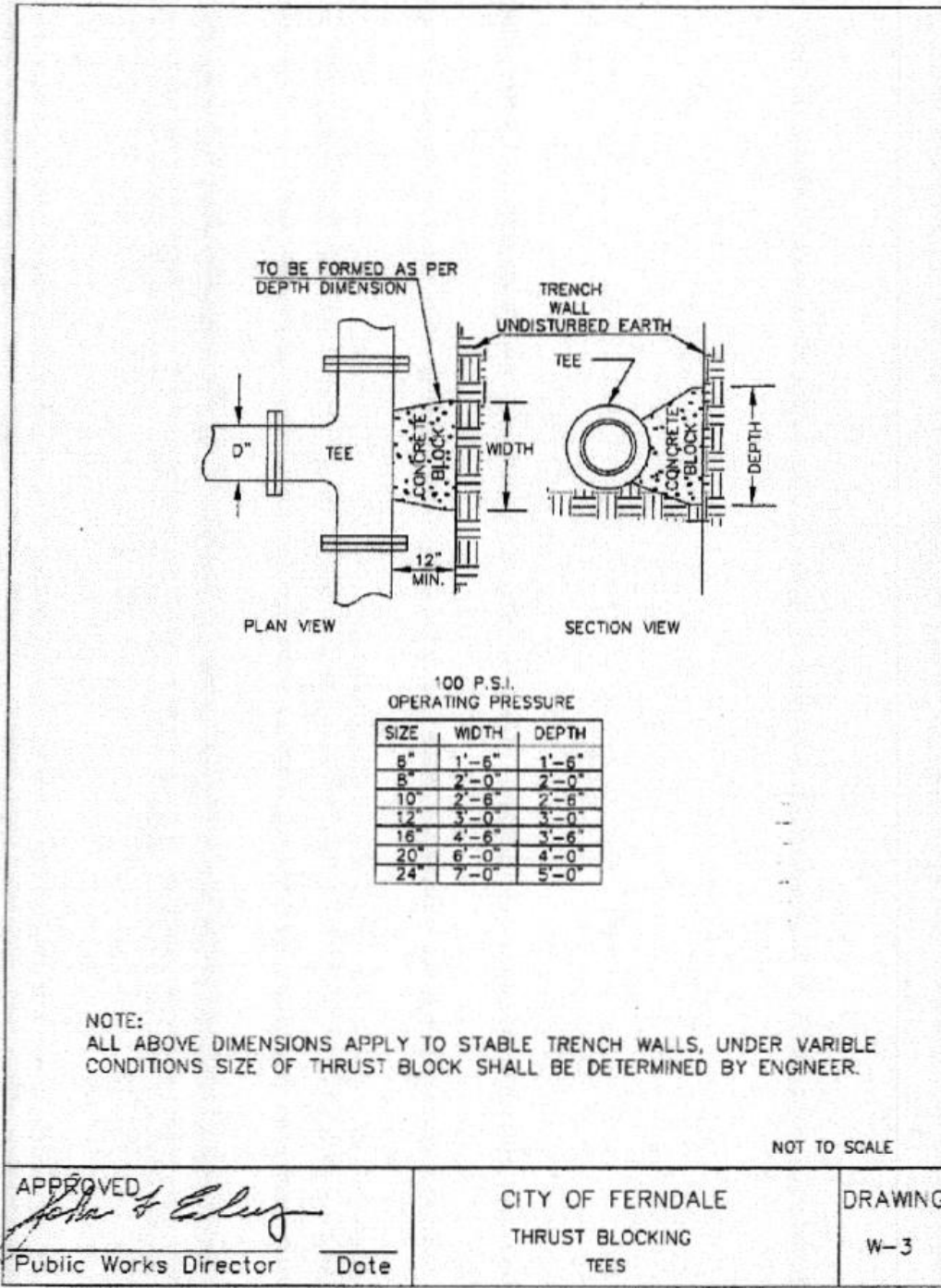
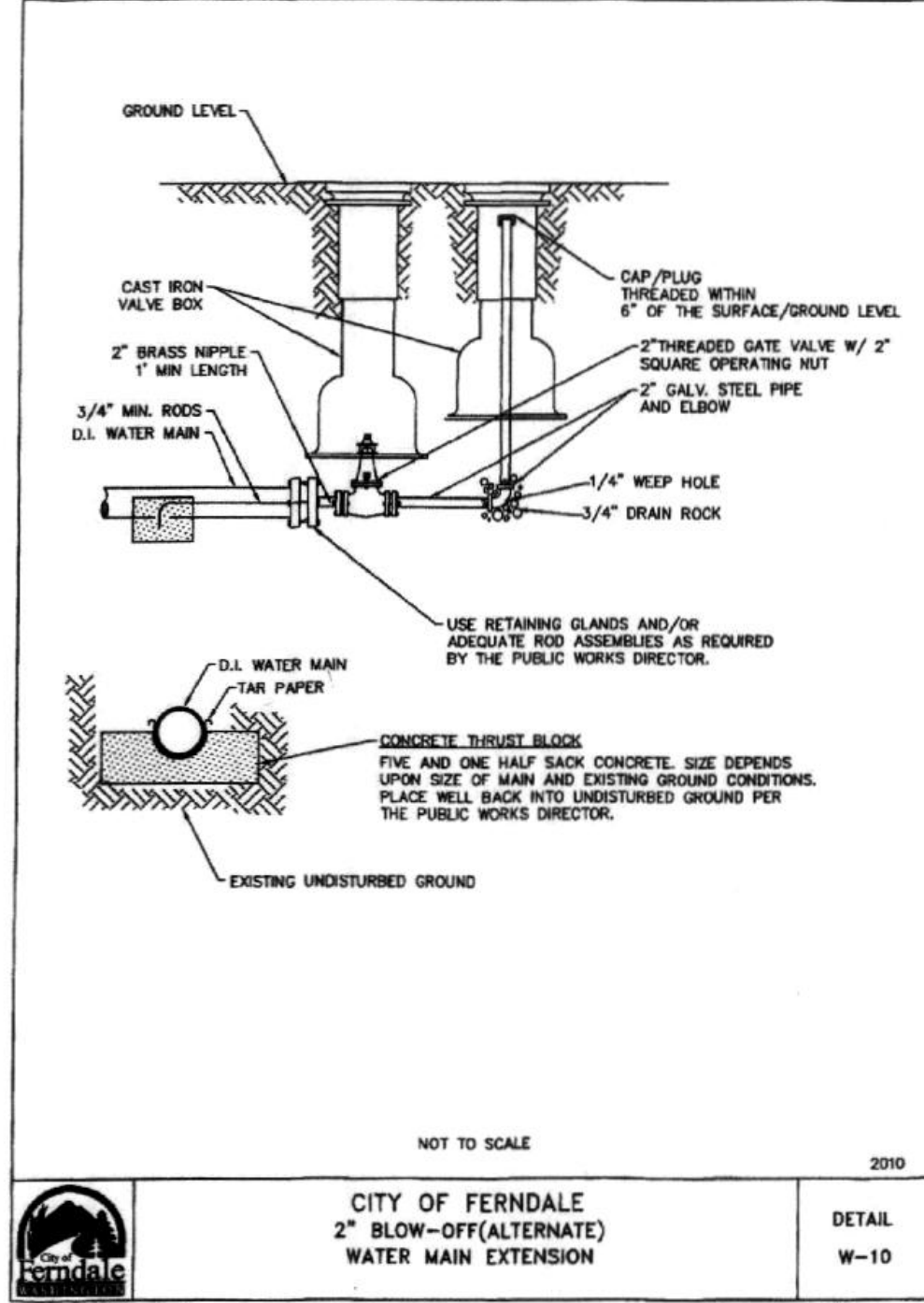
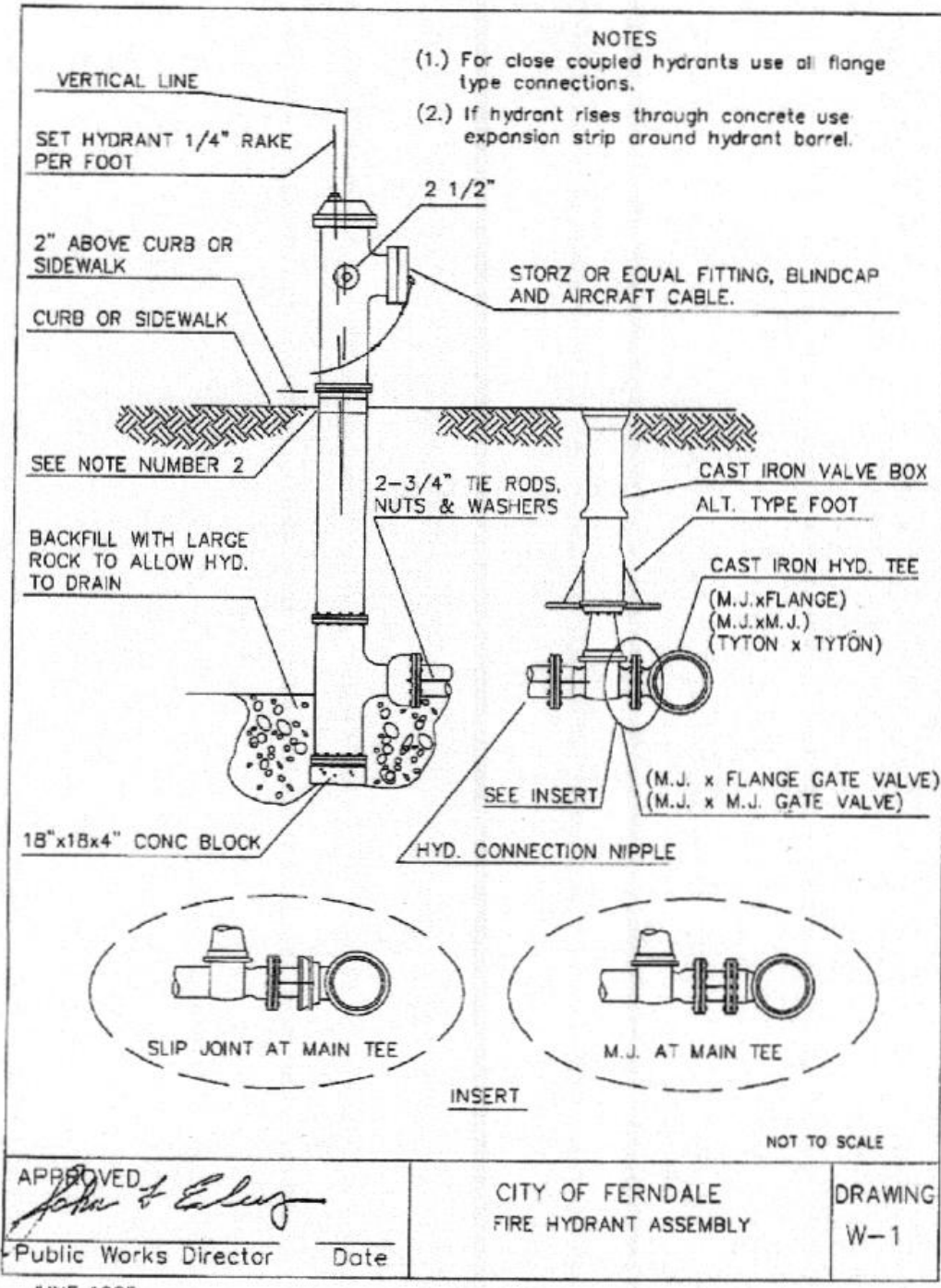
HAMMERHEAD HOLDINGS, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

STREET, STORM & SEWER DETAILS
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDALE, WASHINGTON

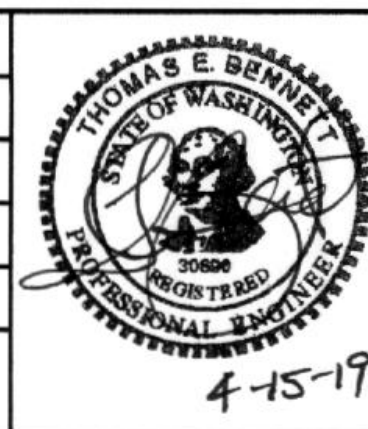
DATE: APRIL 2019

SCALE:
H: N/A

v: N/A



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JOB NO.:	17007
DWG. NAME:	17007-C8-C10 DETAILS
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

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8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

WATER DETAILS
ROXY LOOP - MALLOY VILLAGE PUD 2
FERDALE, WASHINGTON

DATE: APRIL 2019
SCALE: H: N/A V: N/A

APPROVED

APR 22 2019

BY: [Signature]
PUBLIC WORKS DEPARTMENT

DRAWING: C-9

SHEET: 9 OF 10

GENERAL

- THE ROXY LOOP STREET AND UTILITY IMPROVEMENTS ARE LOCATED WITHIN THE MALLOY VILLAGE PUD 2, AND WILL BE SERVED BY THE UPGRADED STORMWATER VAULT AND SEWER PUMP STATION FOR THE PUD 2 PROJECT. A PORTION OF THE ROXY LOOP IMPROVEMENTS, INCLUDING THE WATER MAIN AND HYDRANT, STORM DRAIN CATCH BASINS AND PIPING, AND PARKING LOT IMPROVEMENTS WERE PREVIOUSLY APPROVED BY THE COF AS PART OF THE PHASE 1 IMPROVEMENT PROJECT (SHEETS C-1 THROUGH C-30, APPROVED 7-12-16). THIS PLAN SET INCLUDES THE PHASE 1 WORK, AS WELL AS THE FINAL DESIGN FOR THE SEWER MAIN, MANHOLE, AND SERVICE CONNECTIONS, PAVEMENT SECTION, WATER METERS, AND ROOF DRAIN PIPING.
- ALL WORK AND MATERIALS SHALL CONFORM TO THE CURRENT EDITIONS OF THE CITY OF FERNDALE DEVELOPMENT STANDARDS (COF STANDARDS), THE STANDARD PLANS AND SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (WASHINGTON DEPARTMENT OF TRANSPORTATION, WDOT), AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS (ASHTO), MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND AMENDMENTS TO THESE SPECIFICATIONS AS CONTAINED HEREIN. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.
- PRIOR TO COMMENCEMENT OF SITE WORK, A PRE-CONSTRUCTION CONFERENCE SHALL BE CONDUCTED BETWEEN THE OWNER, GENERAL CONTRACTOR, AND COF STAFF. THE MEETING SHALL BE SCHEDULED A MINIMUM OF THREE WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE COF AND STATE PERMITS. A REVOCABLE ENCROACHMENT PERMIT IS REQUIRED FROM THE COF PRIOR TO COMMENCING CONSTRUCTION OR ALTERATION OF PUBLIC UTILITIES OR WORK WITHIN A PUBLIC STREET RIGHT-OF-WAY.
- EXISTING UNDERGROUND UTILITIES ARE PRESENT WITHIN THE AREA OF CONSTRUCTION. THE LOCATIONS OF EXISTING UTILITIES SHOWN IN THIS PLAN SET ARE APPROXIMATE. THE CONTRACTOR SHALL ORDER A UTILITY LOCATE (800-424-555) A MINIMUM OF TWO WORKING DAYS BEFORE COMMENCING SITE WORK. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO IDENTIFY UTILITY LOCATIONS IN THE FIELD AND MAINTAIN THE INTEGRITY OF THE UTILITIES THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER (THOMAS E. BENNETT, P.E., 360-671-2600) PROMPTLY OF ANY CONFLICT WITH EXISTING UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, BARRIERS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC AND PROPERTY IN CONNECTION WITH PERFORMANCE OF THE WORK. ANY WORK WITHIN THE TRAVELED RIGHTS-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF WDOT 1-07.23 - TRAFFIC CONTROL SHALL APPLY.
- THE CONTRACTOR SHALL RESTORE ALL PUBLIC AND PRIVATE PROPERTY IN-KIND THAT HAS BEEN DISRUPTED BY THE PROJECT, IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION. HARD SURFACED PAVEMENTS SHALL BE REPAIRED AT THE CLOSE OF EACH WORK DAY. REPAIRS CAN BE TEMPORARY WITH ASPHALT COLD MIX OR PERMANENT WITH CLASS B ASPHALT CONCRETE.
- THE CONTRACTOR SHALL KEEP A SET OF APPROVED CONSTRUCTION DRAWINGS ON-SITE AT ALL TIMES. THE CONTRACTOR SHALL COLLECT AS-BUILT DATA, INCLUDING THE LOCATION AND ELEVATION OF ALL UNDERGROUND STRUCTURES AND PIPING. PROPOSED FIELD CHANGES SHALL BE SUBMITTED TO THE COF AND PROJECT ENGINEER FOR REVIEW AND APPROVAL. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE PROJECT ENGINEER FOR USE IN PREPARATION OF RECORD DRAWINGS.
- INSPECTIONS FOR STREET AND UTILITY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH COF STANDARDS.

SURVEY CONTROL

- THE CONTRACTOR SHALL LAYOUT AND SET ANY CONSTRUCTION STAKING AND MARKS NEEDED TO ESTABLISH THE LINES, GRADES, SLOPES, AND CROSS-SECTIONS SHOWN ON THESE PLANS. HORIZONTAL AND VERTICAL SURVEY CONTROL SHALL BE ESTABLISHED IN THE FIELD BY A LICENSED SURVEYOR PRIOR TO COMMENCING SITE CONSTRUCTION ACTIVITIES.
- SURVEY CONTROL SHALL BE BASED ON WASHINGTON STATE NORTH ZONE NAD 83/91 COORDINATES USING CITY OF FERNDALE MONUMENTS #343 AND #351.
- PROJECT STATIONING IS ESTABLISHED WITHIN THE ROXY LOOP ALIGNMENT (ROXY STATIONS) AND THE WEST STREET EXTENSION (WEST STATIONS) SERVING LOTS 225 AND 226. ROXY STATION 0+00 IS SET AT CALICO LOOP STATION 20+09.7 (SHEET C-4).
- ALL UTILITIES ARE LOCATED USING STATIONS AND OFF-SETS.

EARTHWORK

- ALL EARTHWORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERING SERVICES REPORT PREPARED BY GEOENGINEERS, INC., DATED JANUARY 12, 2004. THE NATIVE SOILS IDENTIFIED IN THE GEOTECHNICAL REPORT INCLUDE MEDIUM STIFF TO STIFF SILT AND MEDIUM DENSE SILTY FINE SAND. THESE SOILS ARE CONSIDERED MOISTURE SENSITIVE AND MAY REQUIRE SPECIAL HANDLING ON-SITE TO ACHIEVE THE COMPACTION CRITERIA FOR STRUCTURAL FILL.
- PRIOR TO COMMENCING SITE CLEARING ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL TESC MEASURES CALLED OUT ON SHEET C-2, AND ESTABLISH SOIL STOCKPILE AREAS AND HAUL ROADS, AS NEEDED. THE CONTRACTOR SHALL MAINTAIN ADEQUATE EROSION CONTROLS THROUGHOUT THE COURSE OF THE WORK TO PREVENT CONTAMINATION OF SURFACE WATERS DOWNGRADIANT OF THE PROJECT SITE.
- THE CONTRACTOR SHALL CLEAR AND GRUB ALL VEGETATED AREAS WITHIN THE PROJECT SITE SHOWN ON SHEET C-2.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL STRUCTURES, FENCING, AND OTHER TEMPORARY SOIL STOCKPILES THAT LIE WHOLLY OR PARTIALLY WITHIN THE PROJECT LIMITS.
- THE CONTRACTOR SHALL STRIP TOPSOILS AND OTHER UNSUITABLE SOIL MATERIALS FROM ALL AREAS THAT WILL RECEIVE STRUCTURAL FILL. SOIL MATERIALS SHALL BE TEMPORARILY STOCKPILED ON-SITE OR TRANSPORTED OFF-SITE. THE UNSUITABLE SOILS MAY BE USED AS GENERAL FILL TO ACHIEVE FINAL GRADES IN OPEN SPACE AREAS.
- PRIOR TO PLACEMENT AND COMPACTION OF FILL MATERIALS, THE EXPOSED SUBGRADE IN AREAS TO RECEIVE STRUCTURAL FILL SHALL EITHER BE PROOF ROLLED USING A LOADED DUMPTRUCK OR TESTED USING A METHOD APPROVED BY THE WABO-CERTIFIED INSPECTOR. LOOSE OR SOFT MATERIALS IDENTIFIED DURING PROOF ROLLING SHALL EITHER BE RE-COMPACTED, OR REMOVED AND REPLACED WITH STRUCTURAL FILL. THE INSPECTOR SHALL DOCUMENT THE SUBGRADE PREPARATION WORK.
- STRUCTURAL FILL MATERIALS SHALL BE CLEAN, UNIFORM, AND FREE OF ORGANIC MATERIAL AND STONES, CLUMPS, AND OTHER SIMILAR MATERIALS >4 INCHES IN DIAMETER. THE NATIVE SILT AND SILTY SAND SOILS MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO THEIR USE AS STRUCTURAL FILL. THE CONTRACTOR SHALL PROVIDE MODIFIED PROCTOR DENSITY TESTING RESULTS (PER ASTM D-1557) FOR REPRESENTATIVE SAMPLES TO THE PROJECT ENGINEER FOR REVIEW.
- ALL STRUCTURAL FILL MATERIALS SHALL BE PLACED IN 8-INCH TO 12-INCH LOOSE LIFTS AND UNIFORMLY COMPACTED USING A LARGE SMOOTH-DRUM ROLLER OR SHEEPSFOOT ROLLER TO 95% MODIFIED PROCTOR DENSITY, BASED ON THE ASTM D-1557 TEST METHOD. IN-PLACE DENSITY TESTING SHALL BE PERFORMED WITHIN THE ROXY LOOP SUBGRADE AND UTILITY TRENCHING AT 100-FOOT INTERVALS. THE CONTRACTOR IS RESPONSIBLE FOR ALL COMPACTION TESTING AND SUBMITTAL OF THE TESTING RESULTS TO THE PROJECT ENGINEER.
- BUILDING LOTS RECEIVING FILL REQUIRE A STRUCTURAL FILL CERTIFICATE FROM THE GEOTECHNICAL AGENCY CERTIFYING THAT EACH LOT IS APPROVED FOR FOUNDATION CONSTRUCTION. THE CERTIFICATE SHALL INCLUDE COMPACTION RECORDS AND DOCUMENT THE DEPTH OF FILL. THE BUILDING ENVELOPE FOR EACH LOT SHALL BE DEFINED ON THE FINAL PLAT PRIOR TO RECORDING.
- FOLLOWING FINAL SITE GRADING, A MINIMUM OF 6 INCHES OF TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED SOIL AREAS. TOPSOIL SHALL NOT BE PLACED WHEN THE GROUND IS EXCESSIVELY WET, OR IN THE OPINION OF THE PROJECT ENGINEER, IN A CONDITION DETRIMENTAL TO THE WORK. THE TOPSOIL SHALL BE GRADED TO ESTABLISH A UNIFORM GRADE, TRACKED PARALLEL TO THE SLOPE, AND HYDROSEEDDED.

IMPORTED AGGREGATE AND STRUCTURAL FILL MATERIALS

- GRAVEL BALLAST MATERIALS USED FOR STRUCTURAL FILL AND PAVEMENT SUBGRADE SHALL CONFORM TO WDOT 9-03.9(1).
- CRUSHED SURFACING BASE COURSE SHALL BE 5/8-INCH MINUS MATERIAL CONFORMING TO WDOT 9-03.9(3).
- GRAVEL BASE USED FOR PAVEMENT SUBGRADE AND AS TRENCH BACKFILL IN STREET SECTIONS SHALL CONFORM TO WDOT 9-03.10.
- ALL PAVEMENT SUBGRADE AND STRUCTURAL FILL MATERIALS SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY, BASED ON THE ASTM D-1557 TEST METHOD. THE CONTRACTOR IS RESPONSIBLE FOR ALL COMPACTION TESTING.

ROXY LOOP/PARKING LOT IMPROVEMENTS

- THE ROXY LOOP STREET IMPROVEMENTS ARE SHOWN ON SHEET C-4. THE PAVEMENT SECTION SHALL CONSIST OF 3.5 INCHES OF CLASS B ASPHALT CONCRETE, OVER 3 INCHES CRUSHED SURFACING BASE COURSE, OVER 12 INCHES GRAVEL BALLAST, OVER FIRM, UNYIELDING NATIVE SOIL IN CUT SECTIONS OR COMPACTED STRUCTURAL FILL IN FILL SECTIONS, IN ACCORDANCE WITH COF R-4. THE PAVEMENT WIDTH SHALL BE 20-FEET WIDE WITH A V-SECTION TO CONTROL DRAINAGE.
- THE PARKING LOT IMPROVEMENTS ARE SHOWN ON SHEET C-6, AND WERE PREVIOUSLY APPROVED BY THE COF UNDER THE PHASE 1 IMPROVEMENTS FOR PUD 2 (SHEET C-24 - NORTH ALLEY PARKING LOT). THE PAVEMENT SECTION IN THE PARKING LOT SHALL CONSIST OF 2.5 INCHES OF CLASS B ASPHALT CONCRETE, OVER 2 INCHES CRUSHED SURFACING BASE COURSE, OVER 12 INCHES GRAVEL BALLAST, OVER FIRM, UNYIELDING NATIVE SOIL.
- PAVEMENT RESTORATION AND REPAIR WORK SHALL BE COMPLETED IN ACCORDANCE WITH COF R-11. THE EDGE OF EXISTING PAVEMENT SHALL BE SAWCUT PRIOR TO PAVEMENT REPAIR OR INSTALLING NEW ASPHALT CONCRETE PAVEMENT. EMULSIFIED ASPHALT GRADE CSS-1 TACK, OR EQUAL, SHALL BE APPLIED TO SAW CUT EDGES AND BETWEEN ALL COURSES OF ASPHALT. ALL JOINTS SHALL BE SEALED USING PAVING ASPHALT AR-4000W.
- THE 20-FOOT WIDE CONCRETE DRIVEWAY APRON AT THE INTERSECTION OF ROXY LOOP AND CALICO LOOP SHALL BE INSTALLED AS SHOWN IN ACCORDANCE WITH WDOT STANDARD PLAN F-80.10-03 (TYPE 1 WITHOUT PEDESTRIAN CURB), WITH A 6-INCH CONCRETE THICKNESS. PRIVATE DRIVEWAYS TO LOTS 225 TO 237 SHALL BE 18 FEET WIDE BY 20 FEET LONG AND ABUT THE EDGE OF ROXY LOOP.
- ALL NEW SIGNAGE SHALL COMPLY WITH THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD, CURRENT EDITION).
- SIGN POSTS SHALL BE 2-INCH SQUARE X 10-FOOT TALL GALVANIZED SIGN POSTS (12-GAUGE STEEL, ASTM DES A-525, DES G-90, GRADE 33). THE POSTS SHALL BE PAINTED EPOXY (DARK GREEN) AND HOT DIP GALVANIZED PER ASTM A-525, DES G-90, OR EQUAL.
- BASE PIECES SHALL BE 2.25-INCH SQUARE SLIP-OVER FIT POST PIECES (12-GAUGE STEEL, ASTM DES A-570, GRADE 33). THE PIECES SHALL BE HOT DIP GALVANIZED PER ASTM A-525, DES G-90, OR EQUAL. BASE PIECES SHALL BE 36-INCHES IN LENGTH, WITH A 30-INCH BURIAL DEPTH AND 8-INCH EXPOSURE ABOVE THE FINAL GRADE.
- STRIPING IN THE PARKING LOT SHALL BE 4-INCH WIDE, WHITE MARKINGS. LOW VOC WATERBORNE PAINT SHALL BE USED. THE PAVEMENT SURFACE SHALL BE PREPARED IN ACCORDANCE WITH PAINT MANUFACTURER'S SPECIFICATIONS PRIOR TO STRIPING.
- A PRIVATE UTILITY TRENCHING AND STREET LIGHTING PLAN SHALL BE DEVELOPED BY PUGET SOUND ENERGY AND SUBMITTED TO THE PUBLIC WORKS DIRECTOR FOR REVIEW AND APPROVAL.

WATER

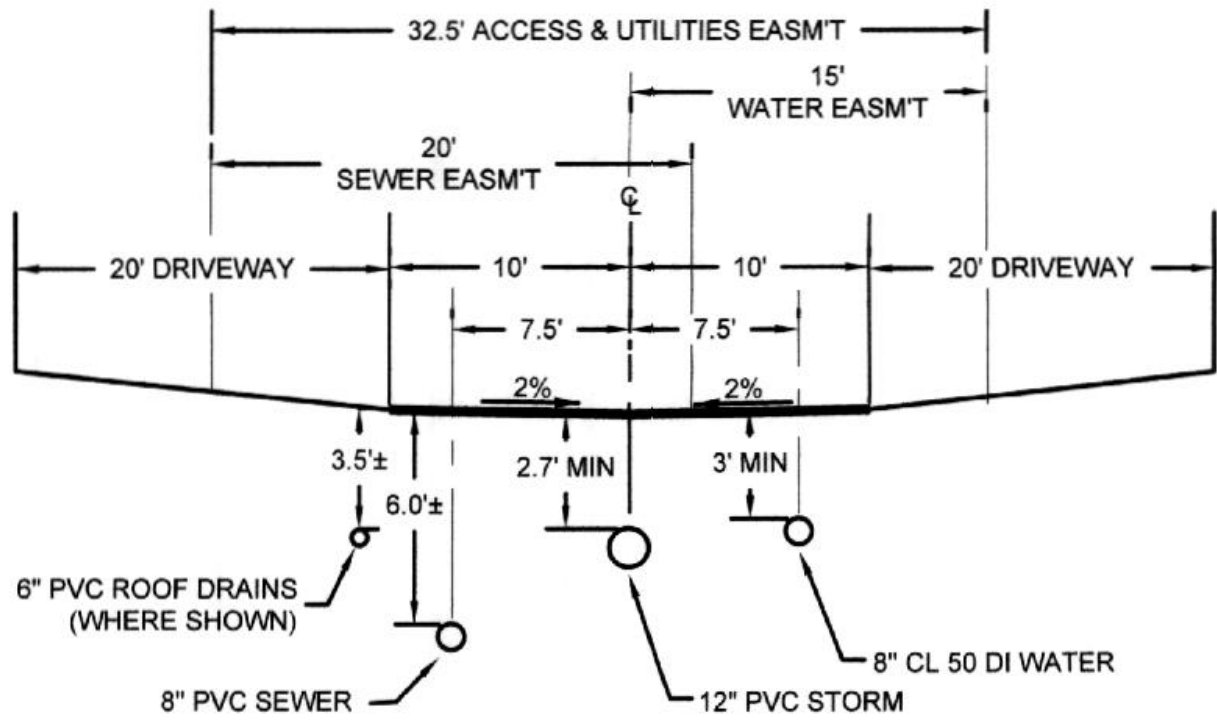
- THE WATER SYSTEM IMPROVEMENTS SHOWN ON SHEET C-5 WERE PREVIOUSLY APPROVED AS PART OF THE PHASE 1 IMPROVEMENTS. STANDARD DETAILS FOR WATER SYSTEM WORK ARE PRESENTED ON SHEET C-9. THE CONTRACTOR SHALL NOTIFY THE FERNDALE PUBLIC WORKS DIRECTOR OF ALL PROPOSED CONNECTIONS TO THE EXISTING MAIN AT LEAST FOUR WORKING DAYS IN ADVANCE.
- THE NEW WATER MAIN SHALL MEET AWWA STANDARDS H3-71, C151-71, AND CEMENT LINING C104-71, AND SHALL BE DUCTILE CAST-IRON, STANDARD THICKNESS CLASS 50, WITH PUSH-ON JOINTS OR M.J. JOINTS. THE PIPE SHALL BE OF 150 PSI WORKING PRESSURE, PLUS 100 PSI SURGE PRESSURE. NO PVC OR AC PIPE IS ALLOWED. SEE TESTING REQUIREMENT FOR WATER MAIN IN NOTE 10.
- PIPE LAYING SHALL MEET THE REQUIREMENTS OF WDOT 7-11. PIPE BEDDING AND TRENCH BACKFILLING SHALL COMPLY WITH COF W-11, WITH 3.0 TO 3.5 FEET COVER. A MINIMUM 18-INCH VERTICAL SEPARATION SHALL BE MAINTAINED AT ALL CROSSINGS BETWEEN THE WATER MAIN AND STORM/SEWER MAINS. A FULL-LENGTH SECTION OF WATER MAIN PIPING SHALL BE CENTERED AT THE CROSSING, IN ACCORDANCE WITH COF W-12.
- FITTINGS FOR TEES, BENDS, AND CROSSES SHALL BE DUCTILE IRON. JOINTS SHALL BE M.J., FLANGED, OR PUSH-ON JOINTS CONFORMING TO AWWA C-110-71 OR C-104-71.
- CONCRETE THRUST BLOCKING SHALL BE CAST IN-PLACE AND SHALL CONFORM TO COF W-2 AND W-3, AND WDOT 7-11.3(13). NO PRE-CAST BLOCKS ARE ALLOWED.
- VALVES ON THE NEW WATER MAINS SHALL BE IRON-BODY, FULL-BRONZE, RESILIENT-SEATED GATE VALVES, SUITABLE FOR DIRECT BURIAL AND INSTALLATION WITH THE TYPE AND CLASS OF PIPE USED. VALVES SHALL BE INSTALLED WITH CAST-IRON VALVE BOXES. SHORT-BODY VALVES SUITABLE FOR A NON-SHOCK SHUTOFF PRESSURE OF 130 PSI ARE SPECIFIED. ALL VALVES SHALL HAVE NON-RISING STEMS, OPEN COUNTERCLOCKWISE, AND BE EQUIPPED WITH A 2-INCH SQUARE OPERATING NUT. VALVES SHALL HAVE FLANGE OR M.J. JOINTS.
- THE HYDRANT SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH COF W-1 AND SHALL BE M.H. 929T HYDRANTS. A 4.5-INCH NST PUMPER NOZZLE AND A 5-INCH STORZ PORT WITH CAP AND CABLE FACING THE STREET SHALL BE SUPPLIED. THE BASE FLANGE OF THE HYDRANT SHALL BE MORE THAN ONE FOOT ABOVE THE ADJACENT STREET GRADE, AND THE LOWEST STEM SHALL BE 14 INCHES MINIMUM ABOVE THE GROUND.
- THE BLOW-OFF ASSEMBLY AT THE WEST WATER MAIN END SHALL BE INSTALLED IN ACCORDANCE WITH COF W-9.
- DOMESTIC SERVICES TO THE INDIVIDUAL LOTS SHALL BE 3/4-INCH, TYPE K COPPER WITH 3/4-INCH METER SETTINGS INSTALLED IN NO. 1 METER BOXES SET 1.0 FOOT INSIDE THE 32.5-FOOT ACCESS AND UTILITY EASEMENT, IN ACCORDANCE WITH COF W-5 AND W-6. DUAL WATER SERVICES SHALL BE 1-INCH, TYPE K COPPER FROM THE MAIN TO SPLITTER TEE. WATER METERS SHALL BE FURNISHED AND INSTALLED BY THE COF PUBLIC WORKS DEPARTMENT. METER BOXES INSTALLED IN PAVED AREAS SHALL COMPLY WITH COF 6.1.1, 6.1.2, AND 6.1.3 (SHEET C-9).
- TESTING AND DISINFECTION OF THE WATER SYSTEM IMPROVEMENTS SHALL COMPLY WITH THE COF STANDARDS, AND WDOT 7-11.3 (11) AND (12). THE CITY OF FERNDALE REQUIRES THAT NEW WATER MAINS BE PRESSURE-TESTED AT 225 PSI FOR A MINIMUM OF 15 MINUTES. THE CONTRACTOR SHALL SCHEDULE REGULAR INSPECTIONS OF THE WATER SYSTEM WORK IN ACCORDANCE WITH COF PERMITS. ALL UNDERGROUND WORK MUST BE ACCEPTED BY THE COF INSPECTOR PRIOR TO BACKFILLING.

SANITARY SEWER

- THE NEW PUBLIC 8-INCH SEWER MAIN SHALL BE INSTALLED WITHIN THE ROXY LOOP ALIGNMENT, AS SHOWN ON SHEET C-5. STANDARD DETAILS FOR SEWER SYSTEM WORK ARE PRESENTED ON SHEET C-8.
- THE SEWER MAIN SHALL BE 8-INCH POLYVINYL CHLORIDE (PVC) PIPE, CONFORMING TO ASTM D 3034 SDR 35 AND WDOT 9-05.12. SEWER PIPE BEDDING AND TRENCH BACKFILL SHALL CONFORM TO COFS SS-1 AND SS-15. MINIMUM COVER OVER THE SEWER MAIN SHALL BE 3.0 FEET, AND THE MINIMUM PIPE SLOPE SHALL BE 0.5%.
- THE SEWER MAIN SHALL BE INSTALLED AT 15 FEET HORIZONTALLY FROM THE NEW WATER MAIN, AS SHOWN IN SECTION A-A', SHEET C-4. WHERE SEWERS MUST CROSS UNDER WATER MAINS, A MINIMUM 1.5-FOOT VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE MAINS AND WATER SERVICE CONNECTIONS TO THE RESIDENTIAL LOTS. A 1.0-FOOT MINIMUM VERTICAL SEPARATION SHALL BE MAINTAINED AT ALL STORM DRAIN CROSSINGS OVER SEWER MAINS AND SIDE SEWER CONNECTIONS. AT THE WATER AND SEWER CROSSINGS, ONE FULL PIPE LENGTH OF WATER MAIN SHALL BE CENTERED RELATIVE TO THE SEWER MAIN SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER MAIN AS POSSIBLE.
- SEWER MANHOLES SHALL BE 48-INCH (TYPE I AND II), AND INSTALLED IN ACCORDANCE WITH COF SS-2 AND SS-3.
- SEWER CLEANOUTS SHALL BE INSTALLED IN ACCORDANCE WITH COF SS-5.
- SIX-INCH PVC SIDE SEWER SERVICES SHALL BE EXTENDED TO THE INDIVIDUAL LOTS IN ACCORDANCE WITH COF SS-6. DUAL SIDE SERVICES, WHERE SHOWN, SHALL COMPLY WITH COF SS-13. SIDE SEWERS SHALL BE INSTALLED PERPENDICULAR TO THE SEWER MAIN AND CONNECTED WITH A SANITARY TEE. DIRECTIONAL FLOW FITTINGS ARE REQUIRED AT THE MAIN.
- ALL SEWER WORK SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE COF STANDARDS. NO WORK SHALL BE COVERED UNTIL IT HAS BEEN INSPECTED AND APPROVED BY THE COF INSPECTOR.

CONSTRUCTION MATERIALS AND PRODUCTS

- THE CONTRACTOR SHALL SUBMIT SPECIFICATION SHEETS FOR ALL CONSTRUCTION MATERIALS AND PRODUCTS TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL MATERIALS SHALL BE NEW, STANDARD MATERIALS OF SPECIFIED QUALITY IN FIRST-CLASS CONDITION.
- NON-WOVEN GEOTEXTILE FABRICS SHALL CONFORM TO CLASS A, MODERATE SURVIVABILITY SPECIFICATIONS FOUND IN WDOT 9-33.2(1) AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PANELS SHALL HAVE A MINIMUM 3-FOOT OVERLAP AT ALL SEAMS. THE SEPARATION FABRIC FOR THE BACK OF WALK DRAINS AND CURTAIN DRAINS SHALL BE LAYFIELD LP4.5, OR EQUAL.
- THE 6-INCH ROOF DRAIN PIPING AND 4-INCH PERFORATED PIPING INSTALLED IN THE BACK OF WALK DRAINS SHALL BE SCH 40 OR ASTM 3034, SDR 35.
- CONCRETE: THE CONCRETE MIX DESIGN USED FOR SIDEWALKS, CURBS AND GUTTERS, DRIVEWAYS, AND THRUST BLOCKING SHALL BE CLASS C PORTLAND CEMENT CONCRETE (PCC) COMPLYING WITH AMERICAN CONCRETE INSTITUTE (ACI) 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE AND ASTM C-94 SPECIFICATIONS FOR READY MIX CONCRETE. THE CONCRETE MIX DESIGN SHALL HAVE A 1.5-INCH MAXIMUM AGGREGATE SIZE, 5% AIR ENTRAINED, WITH A COMPRESSIVE STRENGTH OF 3000 PSI AND A MODULUS OF RUPTURE NOT LESS THAN 550 PSI AT 28 DAYS.
- TOPSOIL: TOPSOIL MATERIALS MAY BE OBTAINED FROM ON-SITE SOURCES OR APPROVED OFF-SITE SOURCES. TOPSOIL SHALL BE CLEAN, UNIFORM, AND FREE OF STONES, STUMPS, ROOTS, AND OTHER SIMILAR MATERIALS >3 INCHES IN DIAMETER AND SHALL MEET THE REQUIREMENTS OF TYPE B TOPSOIL, PER WDOT 8-02.3(4) AND 9-14.1. TOPSOIL MATERIALS FROM THE SITE SHALL BE SCREENED PRIOR TO RE-USE.
- HYDROSEED: FOLLOWING FINAL INSTALLATION AND GRADING ACTIVITIES, EXPOSED SOIL AREAS SHALL BE COVERED WITH 6 INCHES MINIMUM OF TOPSOIL AND LANDSCAPED OR HYDROSEEDDED WITH THE FOLLOWING SEED MIX (OR APPROVED EQUAL): 40% CHEWINGS OR ANNUAL BLUEGRASS, 50% PERENNIAL RYE, 5% REDTOP OR COLONIAL BENTGRASS, 5% WHITE DUTCH CLOVER, AND <0.1% WEED SEED (OR APPROVED EQUAL). HYDROSEED SHALL BE APPLIED AT THE FOLLOWING RATES: GRASS SEED - 3 POUNDS PER 1000 SF, FERTILIZER - 10 POUNDS PER 1000 SF OF TYPE 16-16-16 (N-P-K), AND HYDROMULCH - 50 POUNDS PER 1000 SF.



TYPICAL ROXY LOOP SECTION A-A'
(NO SCALE)

APPROVED

APR 22 2019

BY
CITY OF FERNDALE
PUBLIC WORKS DEPARTMENT

DRAWING:
C-10

SHEET:
10 OF 10

0	ISSUED FOR REVIEW	TEB	1/25/17
1	REVISED PER COF COMMENTS	TEB	2/13/17
2	REVISED PER COF COMMENTS	TEB	4/18/18
3	RECORD DRAWING SET	TEB	4/15/19
4			
NO.	REVISION	BY	DATE



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ENGINEERING, LLC

CIVIL
ENVIRONMENTAL

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BELLINGHAM, WA 98225
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Cell: (360) 739-9844

JOB NO.:	17007
DWG. NAME:	17007-C8-C10 DETAILS
DESIGNED BY:	TEB
DRAWN BY:	JSM
CHECKED BY:	TEB

HAMMERHEAD HOLDINGS, LLC
8446 THOMPSON BEACH ROAD
ANACORTES, WA 98221

CONSTRUCTION NOTES
ROXY LOOP - MALLOY VILLAGE PUD 2
FERNDALE, WASHINGTON

DATE: APRIL 2019 SCALE: H: N/A V: N/A