

PURPOSE OF SURVEY

THE PURPOSE OF THIS SURVEY WAS TO PROVIDE TOPOGRAPHIC SURVEY AND RIGHT OF WAY RESOLUTION FOR A PORTIONS OF KROLL ROAD, TOWER ROAD, AND SCHAFFRAN ROAD, AND OTHER PROPERTY, FOR PURPOSES OF DESIGNING NEW WATER SYSTEM IMPROVEMENTS.

VERTICAL DATUM

ELEVATION DATUM: NAVD89 (DERIVED FROM OPUS AS BELOW)
BENCHMARK: CP#12
LOCATION: AS SHOWN HEREON
ELEVATION: 482.80'

BASIS OF BEARINGS / HORIZONTAL COORDINATES / CONTROL SCHEME

WASHINGTON STATE PLANE, SOUTH ZONE (SPC 4602 WA S) - SEE BELOW.

HORIZONTAL COORDINATES AND BASIS OF BEARINGS ARE WASHINGTON STATE PLANE (SOUTH ZONE) - REFERENCE FRAME: NAD83 (2011) (EPOCH:2010.0000), US SURVEY FEET. ALL DISTANCES ARE GRID, AND WERE DETERMINED FROM NGS OPUS SOLUTIONS, WHICH WERE DERIVED FROM 2 HOUR MINIMUM GPS OBSERVATIONS ON CONTROL POINTS 1, 4, 6, 7, 10, AND 11 (SHOWN HEREON), UTILIZING THE FOLLOWING EXISTING BASE STATIONS:

PID	DESIGNATION	LATITUDE	LONGITUDE
AJ7204	CP#X CHARLES PACK CORS MONUMENT	N46°59'24.291"	W122°15'23.407"
AJ7210	TWHL TWHL_PNGA_WA2001 CORS GRP	N47°00'57.244"	W122°55'22.290"
DE6433	WDBN WOODBURN COOP CORS ARP	N45°10'15.096"	W122°52'12.130"
DF4068	ZSE1 SEATTLE WAAS 1 CORS ARP	N47°17'13.161"	W122°11'18.076"
DG8346	P420 FANTASYD_WA2004 CORS GRP	N46°35'18.952"	W122°51'58.733"
DG8349	P432 PACKWOODF_WA2004 CORS GRP	N46°37'22.265"	W121°40'59.567"
DG9893	NWBG ADEPAZ COOP CORS ARP	N45°18'00.172"	W122°58'31.850"
DH4131	P686 MSH_SESLPEWAZ2004 CORS GRP	N46°10'24.461"	W122°09'38.141"
DH6821	P693 MSH_NWDOWEWA2004 CORS GRP	N46°12'37.142"	W122°12'08.394"
DK4153	P446 KELSO_AIR_WA2007 CORS GRP	N46°06'56.369"	W122°53'33.975"
DN2111	JIME JIM ELAM CORS ARP	N45°31'23.214"	W122°59'25.841"
DN6068	GRMD GRAND MOUND CORS GRP	N46°47'43.735"	W123°01'21.288"

CONTROL POINTS 1, 4, 6, 7, 10, AND 11 WERE THEN TIED TOGETHER USING STANDARD TRAVERSE AND RTK TECHNIQUES, THE RESULTS OF WHICH WERE ADJUSTED TOGETHER IN A WEIGHTED LEAST SQUARES ADJUSTMENT, UTILIZING STARNET SOFTWARE. AN AVERAGE PROJECT COMBINED SCALE FACTOR (0.9999023533) WAS CALCULATED IN ORDER TO COMPARE RECORD (GROUND) DIMENSIONS TO MEASURED (GRID) DIMENSIONS. 1000.00' GRID = 1000.10' GROUND. THE CONVERGENCE ANGLE IS -1.72152222" AT CONTROL POINT NUMBER 6, PER OPUS REPORT.

RELATIVE VERTICAL POSITIONAL ACCURACY

THE CONTOURS SHOWN HEREON ARE FROM DIRECT FIELD OBSERVATIONS. THE RELATIVE VERTICAL POSITIONAL ACCURACY OF THE CONTOURS AND SPOT ELEVATIONS SHOWN HEREON MEETS THOSE STANDARDS DEFINED BY THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS (NSPS) PER THAT CERTAIN DOCUMENT ENTITLED "NSPS MODEL STANDARDS FOR TOPOGRAPHIC SURVEYS" (LABELED AS SECTION E), APPROVED 3/12/2002. THOSE STANDARDS ARE AS FOLLOWS FOR A 1' CONTOUR MAP:

CONTOUR LINES AT 1' INTERVALS: ±0.65' VERTICAL POSITIONAL ACCURACY

SPOT ELEVATIONS FOR WELL DEFINED PLANIMETRIC FEATURES: ±0.10' VERTICAL POSITIONAL ACCURACY

METHOD OF SURVEY

FIELD SURVEYS WERE ACCOMPLISHED UTILIZING STANDARD CLOSED TRAVERSE AND RADIAL SURVEY METHODS, AS WELL AS STANDARD GLOBAL POSITIONING SYSTEM (GPS) REAL TIME KINEMATIC (RTK) AND STATIC GPS METHODS. MEASUREMENTS WERE PERFORMED USING A TRIMBLE S7 3-SECOND TOTAL STATION AND TRIMBLE R12, SURVEY GRADE GPS UNITS. THE RELATIVE HORIZONTAL ACCURACY FOR CONTROL AND FOUND MONUMENTS SHOWN ON THIS SURVEY MEETS THE STANDARD OF 0.07 FEET PLUS 200 PARTS PER MILLION AT THE NINETY-FIVE PERCENT CONFIDENCE LEVEL PER WAC332-130-085. A LEAST SQUARES ADJUSTMENT OF THE DATA WAS PERFORMED IN ORDER TO DETERMINE THAT IT MET THIS STANDARD.

NOTES

1) SEE FIELD NOTES IN CCPWFB 2023-01.

2) THE BOUNDARY LINES SHOWN HEREON ARE PER MY RECORD OF SURVEY FOR THIS PROJECT, A COPY OF WHICH IS ON FILE IN THE OFFICE OF THE COWLITZ COUNTY ROAD ENGINEER. SEE SAID SURVEY FOR ALL NOTES, RESOLUTION, NARRATIVE, ETC.

SYMBOL LEGEND		LINETYPE LEGEND	
SYMBOL	DESCRIPTION	LINETYPE	DESCRIPTION
	BOLLARD	== == == ==	DRAINAGE CULVERT
	FENCE GATE POST	----	DRAINAGE / ROAD DITCH
	FENCE POST	-X-X-X-X-	FENCE, TYPE AS NOTED
	MAILBOX	----	EDGE OF CONCRETE
	BOULDER	----	EDGE OF PAVEMENT
	SIGN	----	EDGE OF GRAVEL
	STORM CATCH BASIN	----	OVERHEAD WIRE
	STORM MANHOLE	----	STORM SEWER LINE
	FIRE HYDRANT	----	WATER LINE
	WATER VAULT	----	GAS LINE
	WATER METER	----	FIBER OPTIC LINE
	WATER VALVE	----	TELEPHONE LINE
	NATURAL GAS MARKER	----	TELEVISION LINE
	NATURAL GAS VENT	----	ELECTRIC LINE UNDERGRND
	GUY ANCHOR	OP	ELECTRIC LINE OVERHEAD
	GUY POLE	----	UTILITY LINE PAINT ENDS
	LIGHT POLE	----	HERE, CONNECTION NOT LOCATED OR UNKNOWN
	POWER METER	----	
	POWER VAULT	----	GUARD RAIL
	POWER TRANSFORMER	----	BUILDING LINE
	UTILITY POLE	----	MAJOR CONTOUR - SPACED AT 5' INTERVALS
	FIBER OPTIC MARKER	----	MINOR CONTOUR - SPACED AT 1' INTERVALS
	FIBER OPTIC VAULT	----	
	TELEPHONE MARKER	----	
	TELEPHONE PEDESTAL	----	
	CABLE TV MARKER	----	
	CABLE TV PEDESTAL	----	
	SHRUB	----	
	CONIFER TREE*	----	
	CONIFER TREE CLUMP** (2 OR MORE TRUNKS FROM 1 SINGLE ROOT BALL)	----	
	DECIDUOUS TREE*	----	
	DECIDUOUS TREE CLUMP** (2 OR MORE TRUNKS FROM 1 SINGLE ROOT BALL)	----	

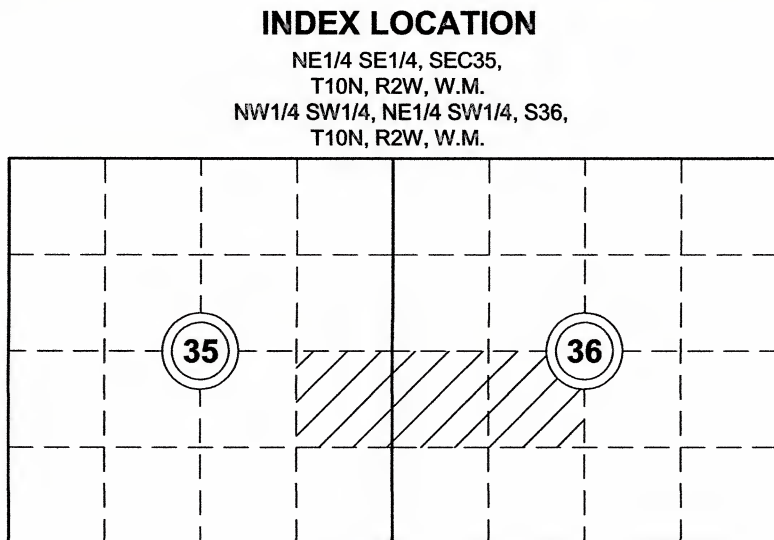
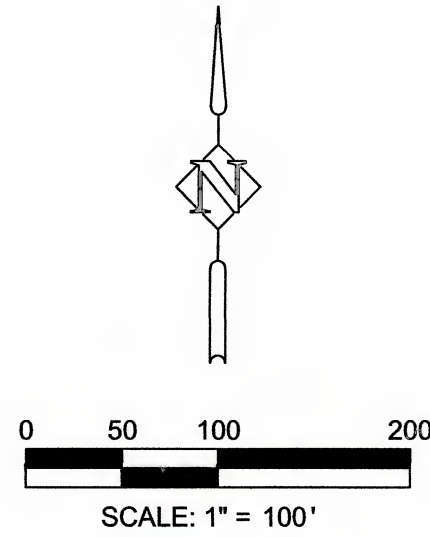
* NOTE THAT APPROXIMATE TREE DIAMETERS (6" AND LARGER) WERE COLLECTED, BUT NOT SHOWN HEREON DUE TO CLARITY ISSUES. PLEASE REQUEST THIS INFORMATION IF NECESSARY.
** NOTE: A CLUMP WAS CONSIDERED TO BE WHERE 2 OR MORE TRUNKS SPLIT AT APPROXIMATELY CHEST HEIGHT AND SHARE A SINGLE ROOT BALL. THE QUANTITY AND SIZES OF THE TRUNKS ARE NOT SHOWN HEREON. PLEASE REQUEST THIS INFORMATION IF NECESSARY.

MONUMENT TABLE				
POINT	NORTHING	EASTING	DESCRIPTION	ORIGIN
1	363388.878	1037614.732	5/8" REBAR W/RPC "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
2	363728.209	1038023.222	5/8" REBAR W/RPC "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
3	363851.509	1038508.365	5/8" REBAR W/RPC "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
4	363939.809	1039878.319	5/8" REBAR W/RPC "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
12	363857.036	1038888.984	5/8" REBAR W/RPC "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
13	364276.145	1039731.885	MAGNETIC NAIL W/WASHER "COWLITZ COUNTY CONTROL"	THIS SURVEY
113	363921.225	1039338.352	1/2" REBAR W/YPC "STONEX 26352"	16/ROS/167
114	363880.498	1039010.759	1/2" REBAR W/YPC "STONEX 26352"	16/ROS/167
115	363895.666	1039027.129	1/2" REBAR W/YPC "STONEX 26352"	16/ROS/167
117	363970.207	1039162.390	5/8" REBAR NO CAP/MUSHROOMED TOP OF REBAR	08/ROS/136
118	364017.242	1039260.930	1/2" REBAR W/YPC "OLSON 9025"	08/ROS/136
119	363871.276	1039318.964	1/2" REBAR W/YPC "STONEX 26352"	16/ROS/167
165	364045.778	1039164.413	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
166	364005.529	1039115.049	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
167	363961.434	1039002.364	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
168	363908.592	1038947.878	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
169	363895.028	1038908.378	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
170	363898.842	1038879.489	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
171	364085.232	1039201.910	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
172	364286.235	1039393.491	1/2" REBAR W/YPC "KBLUHM LS 29269"	18/SP/LATS/130
174	363914.391	1039020.209	1/2" REBAR W/YPC "STONEX 26352"	16/ROS/167
175	363806.569	1039257.980	1/2" REBAR W/YPC UNREADABLE	16/ROS/167
176	363705.727	1039484.411	5/8" REBAR, NO CAP	6/ROS/190
177	363663.113	1039564.164	4" X 4" SQUARE CONCRETE WSDOT MONUMENT, UP 1.0'	WSDOT "PSH SR5 TO SALMON CREEK" SHT 5
178	363825.766	1039546.638	5/8" REBAR W/YPC "COWLITZ CNTY PLS 34667"	2005 COUNTY SURVEY
179	363760.119	1039373.465	5/8" REBAR W/YPC "COWLITZ CNTY PLS 34667"	2005 COUNTY SURVEY
180	363393.580	1037651.226	4" X 4" SQUARE CONCRETE WSDOT MONUMENT, UP 1.0'	WSDOT "PSH SR5 TO SALMON CREEK" SHT 4
182	363512.528	1037818.518	4" X 4" SQUARE CONCRETE WSDOT MONUMENT, BROKEN	WSDOT "PSH SR5 TO SALMON CREEK" SHT 4
183	363511.780	1037819.048	1/2" REBAR W/YPC "KBLUHM LS 29269"	40/ROS/105
184	363630.910	1038040.801	1/2" REBAR W/YPC "KBLUHM LS 29269"	40/ROS/105
188	363637.585	1037737.310	4" X 4" SQUARE CONCRETE WSDOT MONUMENT, UP 1.0'	WSDOT "PSH SR5 TO SALMON CREEK" SHT 4
189	363814.759	1038104.986	2" ALUMINUM CAP "NORTHWEST PIPELINE CORPORATION"	UNKNOWN
190	363568.915	1039529.400	2" IRON PIPE W/PIN IN WSDOT MONUMENT BOX	WSDOT "PSH SR5 TO SALMON CREEK" SHT 5
201	363982.626	1039118.501	1-1/2" IRON PIPE W/NAIL	CCPWFB 1941-07-01
207	364802.138	1039458.370	1-1/2" IRON PIPE IN CONCRETE W/NAIL IN CONCRETE	CCPWFB 1941-07-03
208	364807.442	1039493.400	1-1/2" IRON PIPE IN CONCRETE W/NAIL IN CONCRETE	CCPWFB 1941-07-03
210	363971.349	1039131.934	3/4" COMMON METAL SPIKE	CCPWFB 1941-07-01
214	363452.705	1037607.134	2" IRON PIPE W/PIN IN WSDOT MONUMENT BOX	WSDOT "PSH SR5 TO SALMON CREEK" SHT 4
215	363661.232	1037423.998	5/8" REBAR W/YPC & TACK "COWLITZ COUNTY"	CCPWFB1970-01
218	363503.265	1037508.476	3-1/2" BRASS MON IN 8" X 8" CONCRETE POST "KRALL 1947"	USC&G

MONUMENT LEGEND:

- - FOUND MONUMENT AS NOTED. PROTECT / PRESERVE WHERE POSSIBLE.
- IF TO BE DESTROYED, A PERMIT TO REMOVE A MONUMENT MUST BE FILED WITH THE DEPARTMENT OF NATURAL RESOURCES, THEN REPLACE MONUMENT AFTER CONSTRUCTION
- △ ELEV. DESC. - TEMPORARY CONTROL POINT
- (###) - SEE MONUMENT DESCRIPTIONS

- NOTES:
- ALL PIPE DIAMETERS ARE INSIDE DIMENSIONS, UNLESS NOTED OTHERWISE.
 - THE TERM "IRON ROD" REFERS TO REINFORCING BAR. SMOOTH RODS (IF ANY) ARE NOTED AS SUCH.
 - ALL FOUND MONUMENTS WERE VISITED AND TIED DURING THIS SURVEY (4/24/2023 - 6/22/2023)



UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM UTILITY PAINT MARKINGS PROVIDED BY OTHERS, THAT WERE AVAILABLE DURING THE FIELD SURVEY. AS-BUILT MAPS WERE REQUESTED FROM THE NOTIFIED UTILITIES - NONE WERE RECEIVED.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, AND ARE LOCATED FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS MUST BE VERIFIED BY THE STATE
UTILITY NOTIFICATION CENTER IMMEDIATELY PRIOR TO
ANY EXCAVATION.

UTILITY LOCATES WERE REQUESTED: 4/25/2023 UNDER TICKET NUMBER 23152985
5/01/2023 UNDER TICKET NUMBER 23164048

FOLLOWING IS A LIST OF UTILITY PROVIDERS NOTIFIED:

DISTRICT	COMPANY	MARKING CONCERNS	CUSTOMER SERVICE	REPAIR
CCWAU02	COMCAST CABLE	(800)778-9140	(800)934-6489	(855)537-6296
CCWDPW01	COWLITZ COUNTY	(360)577-3030	(360)577-3030	(360)577-3030
CCWPU03	COWLITZ COUNTY PUD	(360)501-9546	(360)501-9546	(360)501-9546
LEV1301	LEVEL 3 NOW CENTURYLINK	(877)366-8344	(877)366-8344	(877)366-8344
OLYFE01	BPI/OLYMPIC PIPE	(800)548-6482	(800)548-6482	(800)548-6482
OLYFE01	LINE COMPANY			
OLYFE01	CTGL-CENTURYLINK	(800)778-9140	(800)283-4237	(800)573-1311
OLYFE01	WILLIAMS NW PIPELINE	(800)972-7733	(800)972-7733	(800)972-7733

* - DENOTES ASBUILT MAPS RECEIVED

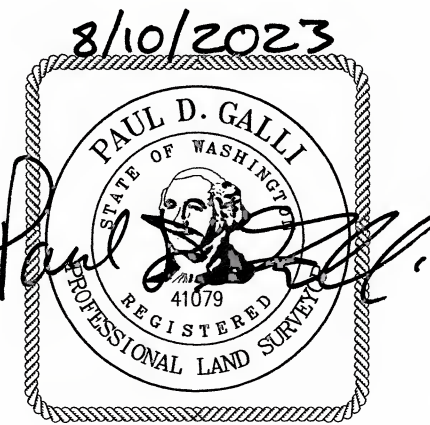
MANHOLE LOCATION INFORMATION:

DUE TO THE HAZARDOUS NATURE AND APPLICABLE OSHA REQUIREMENTS REGARDING CONFINED SPACES, IT IS COUNTY POLICY TO NOT SEND OUR FIELD STAFF INTO UTILITY MANHOLES TO RETRIEVE DEPTH AND SIZE INFORMATION (PIPE SIZES AND DEPTHS ARE OBTAINED THROUGH GROUND METHODS). THEREFORE, ANY MANHOLE ELEVATION INFORMATION SHOWN HEREON IS SUBJECT TO AN UNCERTAINTY IN ACCURACY OF PLUS OR MINUS 0.1' OR GREATER (DEPENDENT ON DEPTH, SIZE, FLOW, AND CONSTRUCTION OF MANHOLE). MANHOLE PIPE SIZES ARE ALSO SUBJECT TO AN UNCERTAINTY OF TWO INCHES OR MORE (DEPENDENT ON DEPTH, SIZE, FLOW, AND CONSTRUCTION OF MANHOLE). IF A HIGHER ACCURACY IS NEEDED, ADDITIONAL TIME, EQUIPMENT, AND PERSONNEL WILL BE REQUIRED TO ENTER THE MANHOLE AND RETRIEVE SAID INFORMATION.

MANHOLE LOCATIONS SHOWN ARE TO CENTER OF LID, NOT CENTER OF STRUCTURE.

ABBREVIATIONS:

ABS	= PLASTIC ABS PIPE
AFN	= AUDITOR'S FILE NUMBER
ALC	= ALUMINUM CAP
CCPWFB	= COWLITZ COUNTY PUBLIC WORKS FIELD BOOK
CMP	= CORRUGATED METAL PIPE
CONC	= CONCRETE PIPE
CPP	= CORRUGATED PLASTIC PIPE
DI	= DUCTILE IRON PIPE
DWS	= DASHED WHITE STRIPE
DYS	= DASHED YELLOW STRIPE
IE	= INVERT ELEVATION
IP	= IRON PIPE
OPC	= ORANGE PLASTIC CAP
PG	= PAGE
PKA	= PREVIOUSLY KNOWN AS
POST	= POINT ON SEMI TANGENT
PVC	= PLASTIC PIPE
REBAR	= REINFORCING BAR
RPC	= RED PLASTIC CAP
SWS	= SOLID WHITE STRIPE
SYS	= SOLID YELLOW STRIPE
YPC	= YELLOW PLASTIC CAP



PH PROJECT MANAGER	N/A
PDG DRAWN BY	08/10/2023
CWB, BOH CHECKED BY	08/10/2023

HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1' CONTOURS
AREA: TOUTLE WATER SYSTEM
PROJECT: SR504 - KROLL TO SSL
COMPUTER FILE: Toutle Water System-SR504andTower-TOPO.dwg
FIELD BOOK(S): 2023-01



DEPARTMENT OF PUBLIC WORKS
1600 13TH AVENUE SOUTH
KELSO, WASHINGTON 98626

LOCATED IN SECTION 35 AND 36,
TOWNSHIP 10 NORTH, RANGE 2 WEST, WILLAMETTE MERIDIAN
COWLITZ COUNTY, WASHINGTON
FIELD WORK DATE: 4/24/2023 TO 6/22/2023

TOUTLE WATER SYSTEM
LOW PRESSURE ZONE IMPROVEMENTS
TOPOGRAPHIC SURVEY
SR504-KROLL RD TO TOWER RD PUMP STA

SHEET
1
OF
5

SITE PHOTOS:

PHOTOS WERE TAKEN ON 06/06/2023, AND REFLECT SITE CONDITIONS AT THE TIME OF SURVEY.
ADDITIONAL PHOTOS ARE AVAILABLE UPON REQUEST



TAKEN FROM THE NE CORNER OF THE INTERSECTION OF SR504 WITH KROLL ROAD, LOOKING SOUTHERLY TOWARDS THEIR CENTERLINE INTERSECTION.



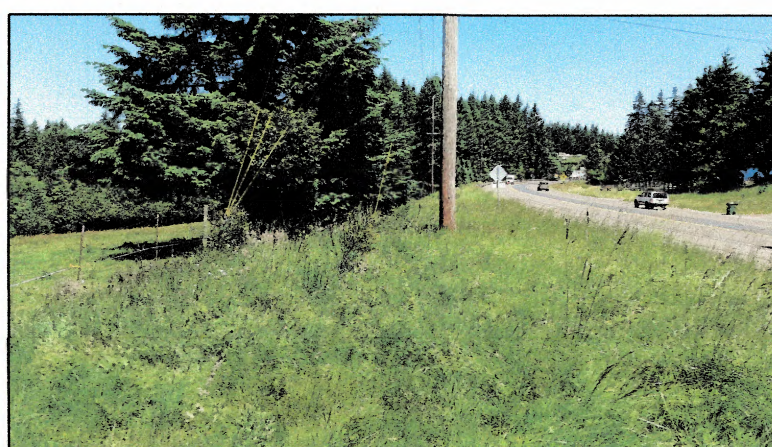
TAKEN ON THE EASTERLY SIDE OF KROLL ROAD, LOOKING SOUTHERLY TOWARDS ITS INTERSECTION WITH SR504.



TAKEN FROM THE WESTERLY SIDE OF KROLL ROAD, LOOKING NORTHERLY ALONG KROLL.



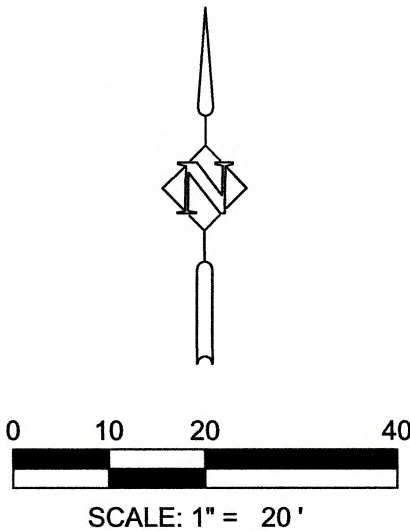
TAKEN ON THE WEST SIDE OF SR504, JUST NORTH OF KROLL ROAD, LOOKING NORTHERLY AT THE EDGE OF ROADWAY AND CUT BANK



TAKEN JUST WEST OF SR504, NEAR MONUMENT #188, LOOKING NORTHERLY AT THE AREA BETWEEN THE HIGHWAY AND THE FENCE

ARTHUR B. SANDFORD AND
CHARLOTTE M. SANDFORD
AFN 3538005
PARCEL: WK3611005

SEE SHEET 3



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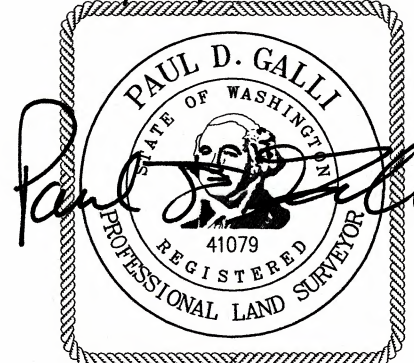
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⊞	LIGHT POLE	- - -	UTILITY LINE PAINT ENDS
⊞	POWER METER	- - -	HERE, CONNECTION NOT LOCATED OR UNKNOWN
⊞	POWER VAULT	- - -	GUARD RAIL
⊞	POWER TRANSFORMER	- - -	BUILDING LINE
⊞	UTILITY POLE	- - -	MAJOR CONTOUR - SPACED AT 5' INTERVALS
⊞	FIBER OPTIC MARKER	- - -	MINOR CONTOUR - SPACED AT 1' INTERVALS
⊞	FIBER OPTIC VAULT	- - -	
⊞	TELEPHONE MARKER	- - -	
⊞	TELEPHONE PEDESTAL	- - -	
⊞	CABLE TV MARKER	- - -	
⊞	CABLE TV PEDESTAL	- - -	
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⊞	CONIFER TREE*	- - -	
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⊞	DECIDUOUS TREE*	- - -	
⊞	DECIDUOUS TREE CLUMP** (2 OR MORE TRUNKS FROM 1 SINGLE ROOT BALL)	- - -	

HATCH	DESCRIPTION
▨	EXISTING ASPHALT SURFACE
▩	EXISTING CONCRETE SURFACE
▧	EXISTING GRAVEL SURFACE

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8/10/2023



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PDG DRAWN BY 08/10/2023 DATE
CWB, BOH CHECKED BY 08/10/2023 DATE

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SR504-KROLL RD TO TOWER RD PUMP STA

SHEET
2
OF
5

SITE PHOTOS:

PHOTOS WERE TAKEN ON 06/06/2023, AND REFLECT SITE CONDITIONS AT THE TIME OF SURVEY.
ADDITIONAL PHOTOS ARE AVAILABLE UPON REQUEST



TAKEN FROM EASTERLY EDGE OF TOWER ROAD, NEAR ITS INTERSECTION WITH SR504, LOOKING WESTERLY DOWN SR504.



TAKEN FROM NORTHERLY EDGE OF SR504, NEAR CONTROL POINT #12, LOOKING WESTERLY ALONG SR504.



TAKEN NEAR EASTERLY END OF GUARDRAIL ON NORTHERLY SIDE OF SR504, LOOKING WESTERLY ALONG SR504.



TAKEN FROM NEAR THE CENTER OF THE GUARD RAIL ON THE NORTH SIDE OF SR504, LOOKING SOUTHWESTERLY ALONG SR504.



TAKEN ON THE EAST SIDE OF TOWER RD, JUST NORTH OF SR504, LOOKING EASTERLY AT THE FENCE AND MANY UTILITIES IN THE AREA



TAKEN JUST NORTH OF CONTROL #3, LOOKING EASTERLY AT THE FLAT AREA NEAR THE EDGE OF SR504 RIGHT OF WAY

ROBERT E. BREKKE
AFN 3083756
PARCEL: WK3611004

ARTHUR B. SANDFORD AND
CHARLOTTE M. SANDFORD
AFN 3538005
PARCEL: WK3611005

A=57°13'10"
D=3°30'00"
R=1637.02'
L=1634.84'
LC=N85°45'11"E
1567.74'

MONUMENT LEGEND:

- FOUND MONUMENT AS NOTED. PROTECT / PRESERVE WHERE POSSIBLE.
- IF TO BE DESTROYED, A PERMIT TO REMOVE A MONUMENT MUST BE FILED WITH THE DEPARTMENT OF NATURAL RESOURCES, THEN REPLACE MONUMENT AFTER CONSTRUCTION

TEMPORARY CONTROL POINT

SEE MONUMENT DESCRIPTIONS

NOTES:

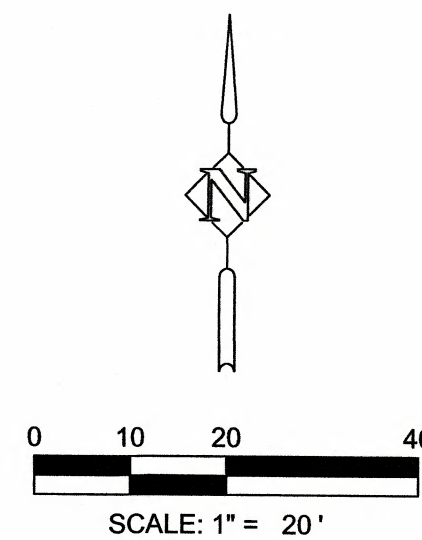
- ALL PIPE DIAMETERS ARE INSIDE DIMENSIONS, UNLESS NOTED OTHERWISE.
- THE TERM "IRON ROD" REFERS TO REINFORCING BAR. SMOOTH RODS (IF ANY) ARE NOTED AS SUCH.
- ALL FOUND MONUMENTS WERE VISITED AND TIED DURING THIS SURVEY (4/24/2023 - 6/22/2023)

HARRY RICE JR. AND REBECCA RICE
AFN 3309528
PARCEL: WK3603004

LOT 1
18/SPLATS/132

ABBREVIATIONS:

ABS = PLASTIC ABS PIPE
AFN = AUDITOR'S FILE NUMBER
ALC = ALUMINUM CAP
CPWFEB = COWLITZ COUNTY PUBLIC WORKS FIELD BOOK
CMP = CORRUGATED METAL PIPE
CONC = CONCRETE PIPE
CPP = CORRUGATED PLASTIC PIPE
DI = DUCTILE IRON PIPE
DWS = DASHED WHITE STRIPE
DYS = DASHED YELLOW STRIPE
IE = INVERT ELEVATION
IP = IRON PIPE
OPC = ORANGE PLASTIC CAP
PG = PAGE
PKA = PREVIOUSLY KNOWN AS
POST = POINT ON SEMI TANGENT
PVC = PLASTIC PIPE
REBAR = REINFORCING BAR
RPC = RED PLASTIC CAP
SWS = SOLID WHITE STRIPE
SYS = SOLID YELLOW STRIPE
YPC = YELLOW PLASTIC CAP



SEE ABOVE RIGHT

SEE SHEET 2

SEE SHEET 4

ROBERT E. BREKKE
AFN 3083756
PARCEL: WK3611004

8" CONC Culvert
IE=475.65'

8" CONC Culvert
IE=476.20'

8 WATER METERS

"CABLE ROUTE"

LOT 1
18/SPLATS/132

TOWER RD

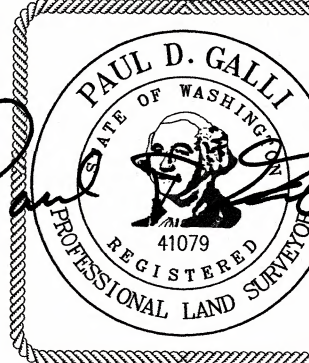
(PKA CASTLE ROCK-SILVER LAKE RD)

12" CPP Culvert
IE=483.88'

R AND D PETROLEUM, LLC
AFN 3238784
PARCEL: WK3603003

16/ROS/167

8/10/2023



PH PROJECT MANAGER N/A
DATE
PDG DRAWN BY 08/10/2023
DATE
CWB, BOH CHECKED BY 08/10/2023
DATE

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 20' CONTOURS
AREA: TOUTLE WATER SYSTEM
PROJECT: SR504 - KROLL TO SSL
COMPUTER FILE: Toutle Water System-
SR504andTower-TOPO.dwg
FIELD BOOK(S): 2023-01

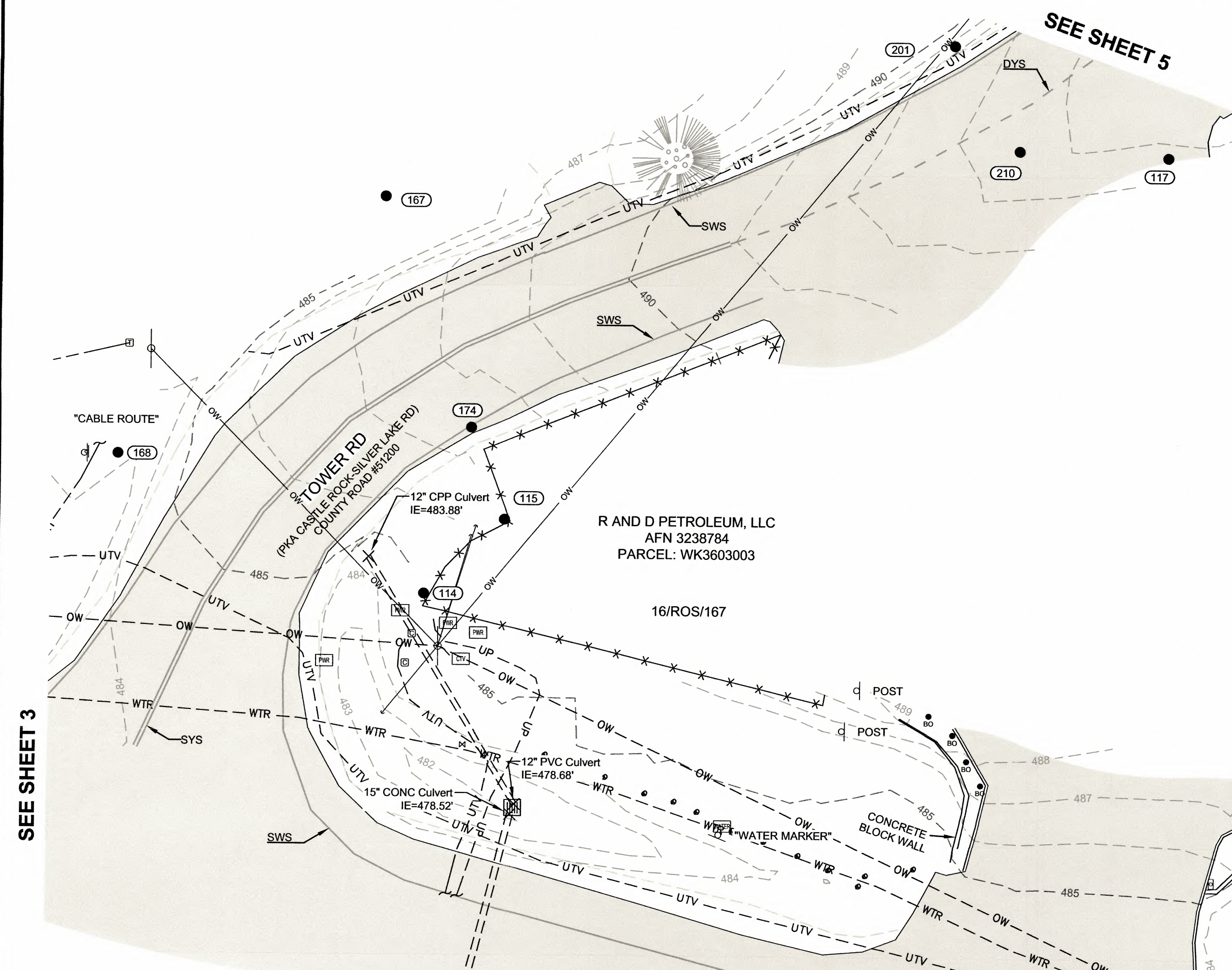


DEPARTMENT
OF
PUBLIC WORKS
1600 13TH AVENUE SOUTH
KELSO, WASHINGTON 98626

LOCATED IN SECTION 35 AND 36,
TOWNSHIP 10 NORTH, RANGE 2 WEST, WILLAMETTE MERIDIAN
COWLITZ COUNTY, WASHINGTON
FIELD WORK DATE: 4/24/2023 TO 6/22/2023

TOUTLE WATER SYSTEM
LOW PRESSURE ZONE IMPROVEMENTS
TOPOGRAPHIC SURVEY
SR504-KROLL RD TO TOWER RD PUMP STA

SHEET
3
OF
5



SHEET
4
OF
5

SITE PHOTOS:

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ADDITIONAL PHOTOS ARE AVAILABLE UPON REQUEST



TAKEN FROM SOUTHEASTERLY EDGE OF TOWER ROAD, IN FRONT OF THE GAS STATION, LOOKING UP TOWER AND SCHAFFRAN ROADS.



TAKEN FROM THE SOUTHEASTERLY EDGE OF SCHAFFRAN ROAD, JUST NORTHEASTERLY OF THE KOA ENTRANCE ROAD, LOOKING SOUTHWESTERLY DOWN SCHAFFRAN.



TAKEN FROM SOUTHEASTERLY SIDE OF SCHAFFRAN ROAD, LOOKING SOUTHWESTERLY TOWARDS INTERSECTION WITH TOWER ROAD.



TAKEN AT INTERSECTION OF TOWER AND SCHAFFRAN ROADS, LOOKING NORTHEASTERLY UP BOTH ROADS.

SYMBOL LEGEND		LINETYPE LEGEND	
SYMBOL	DESCRIPTION	LINETYPE	DESCRIPTION
[Symbol]	BOLLARD	[Line Type]	DRAINAGE CULVERT
[Symbol]	FENCE GATE POST	[Line Type]	DRAINAGE / ROAD DITCH
[Symbol]	FENCE POST	[Line Type]	FENCE, TYPE AS NOTED
[Symbol]	MAILBOX	[Line Type]	EDGE OF CONCRETE
[Symbol]	Boulder	[Line Type]	EDGE OF PAVEMENT
[Symbol]	SIGN	[Line Type]	EDGE OF GRAVEL
[Symbol]	STORM CATCH BASIN	[Line Type]	OVERHEAD WIRE
[Symbol]	STORM MANHOLE	[Line Type]	STORM SEWER LINE
[Symbol]	FIRE HYDRANT	[Line Type]	WATER LINE
[Symbol]	WATER VAULT	[Line Type]	GAS LINE
[Symbol]	WATER METER	[Line Type]	FIBER OPTIC LINE
[Symbol]	WATER VALVE	[Line Type]	TELEPHONE LINE
[Symbol]	NATURAL GAS MARKER	[Line Type]	TELEVISION LINE
[Symbol]	NATURAL GAS VENT	[Line Type]	ELECTRIC LINE UNDERGRND
[Symbol]	GUY ANCHOR	[Line Type]	ELECTRIC LINE OVERHEAD
[Symbol]	GUY POLE	[Line Type]	UTILITY LINE PAINT ENDS
[Symbol]	LIGHT POLE	[Line Type]	HERE, CONNECTION NOT LOCATED OR UNKNOWN
[Symbol]	POWER METER	[Line Type]	GUARD RAIL
[Symbol]	POWER VAULT	[Line Type]	BUILDING LINE
[Symbol]	POWER TRANSFORMER	[Line Type]	MAJOR CONTOUR - SPACED AT 5' INTERVALS
[Symbol]	UTILITY POLE	[Line Type]	MINOR CONTOUR - SPACED AT 1' INTERVALS
[Symbol]	FIBER OPTIC MARKER	[Line Type]	
[Symbol]	FIBER OPTIC VAULT	[Line Type]	
[Symbol]	TELEPHONE MARKER	[Line Type]	
[Symbol]	TELEPHONE PEDESTAL	[Line Type]	
[Symbol]	CABLE TV MARKER	[Line Type]	
[Symbol]	CABLE TV PEDESTAL	[Line Type]	
[Symbol]	SHRUB	[Line Type]	
[Symbol]	CONIFER TREE*	[Line Type]	
[Symbol]	CONIFER TREE CLUMP** (2 OR MORE TRUNKS FROM 1 SINGLE ROOT BALL)	[Line Type]	
[Symbol]	DECIDUOUS TREE*	[Line Type]	
[Symbol]	DECIDUOUS TREE CLUMP** (2 OR MORE TRUNKS FROM 1 SINGLE ROOT BALL)	[Line Type]	

HATCH

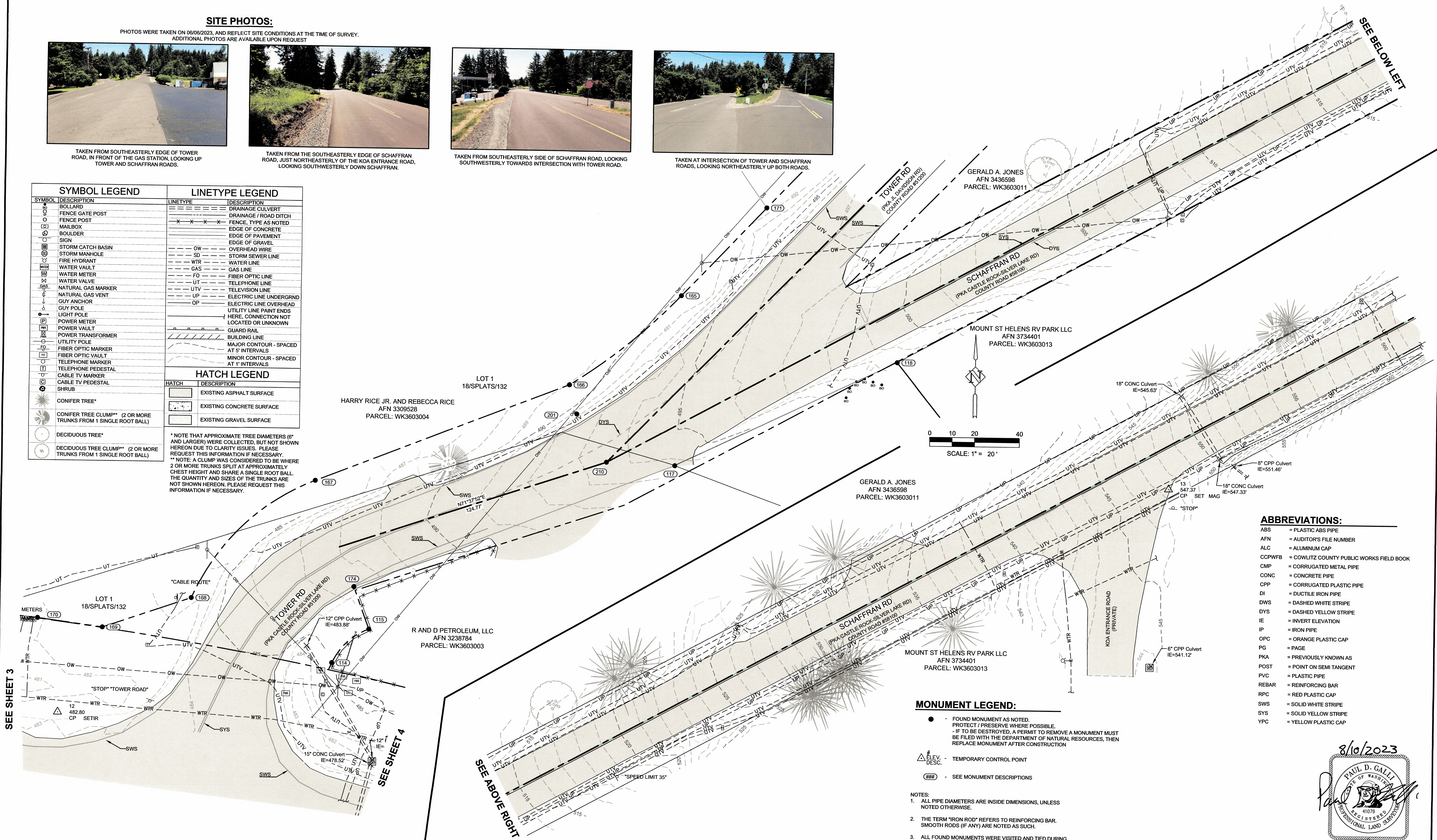
EXISTING ASPHALT SURFACE

EXISTING CONCRETE SURFACE

EXISTING GRAVEL SURFACE

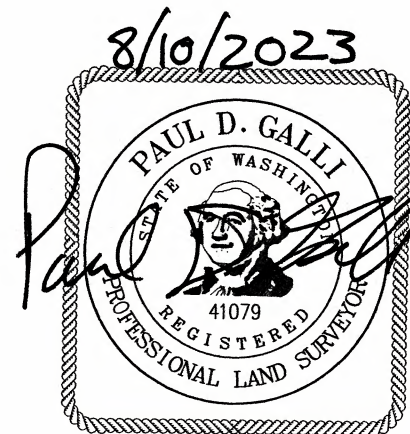
* NOTE THAT APPROXIMATE TREE DIAMETERS (6" AND LARGER) WERE COLLECTED, BUT NOT SHOWN HEREON DUE TO CLARITY ISSUES. PLEASE REQUEST THIS INFORMATION IF NECESSARY.

** NOTE: A CLUMP WAS CONSIDERED TO BE WHERE 2 OR MORE TRUNKS SPLIT AT APPROXIMATELY CHEST HEIGHT AND SHARE A SINGLE ROOT BALL. THE QUANTITY AND SIZES OF THE TRUNKS ARE NOT SHOWN HEREON. PLEASE REQUEST THIS INFORMATION IF NECESSARY.



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PH PROJECT MANAGER N/A DATE
PDG DRAWN BY 08/10/2023 DATE
CWB, BOH CHECKED BY 08/10/2023 DATE

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VERT. SCALE: 1" = 20' VERT. SCALE
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SHEET
5
OF
5