# INGLEWOOD HILL RD @ 211TH PL NE WATER MAIN REPLACEMENT

# ENGINEER

THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KRRLAND, WA 98033
(425) 216-4051 k289
CONTACT: DEANNA L. MARTIN, PE

# SURVEYOR

SITE SURVEYING, INC. 21923 NE 11TH ST SAMMANSH, INA 98074 (425) 298-4412 CONTACT: THOMAS N. WOLDENDORP, PLS

LEGEND								
PROPOSED FEATURES								
	- MATER MAIN	)+C	GATE VALVE					
	- MATER SERVICE	苗	TEE My COMO BLOCKING					
			BEND W/ CONC BLOCKING					
8.	FIRE HYDRANT							
	AIR/WAC RELEASE WALKE		REDUCER					
9-	BLOW OFF	$_{\bowtie}$	SLEEVE					
59-	MATER METER	*	COUPLING					
	EXISTING FEATL							
	ADJACENT PLAT/PARCEL LINE	p	AIR/VAC RELEASE VALVE					
	ADJACENT RIGHT-OF-WAY/LOTS	9-	BLOW OFF					
	CENTERLINE	50	IRRIGATION WETER					
	- EASEMENT	-	POWER POLE					
	SURFACE FEATURES							
	10" CONTOURS	-						
	2' CONTOURS	$p \rightarrow$	STREET LIGHT					
	- STORM DRAIN PIPE - SENER MAIN	•	POLE LIGHT					
	SEMER FORCE WAIN	P	POWER VALUET					
	- NO TER MAIN		POWER MALE!					
	AERIAL POWER LINE	Δ	TRANSFORMER					
	BURIED POWER LINE							
	GAS MAIN	Ø	AMOTON BOX					
c-	BURIED CABLE	•						
	- BURNED TV	100	GAS METER					
	AERIAL TV	Ф	GAS WALVE					
	- BURNED TELEPHONE LINE	(2)	FIBER OPTICS MANHOLE					
	AERIAL TELEPHONE LINE	T	TELECOMM VALLET					
	- BURNED POWER/TELEPHONE - AERIAL POWER/TELEPHONE	_						
	- BURNED FIBER OPTIC CABLE	0	TELECOWN RISER					
		[20]	TELECOWN JUNCTION BOX					
andens			MAIL BOX					
	CATCH BASIN, TYPE !		SIGN					
0	CATCH BASIN, TYPE II	-5	301					
⊲	SO PIPE FLOW		CONFEROUS TREE					
0.0	SEWER WANHOLE	11%						
0	SEMER CLEANOUT	-	DECIDUOUS TREE					
⊲	SS PIPE FLOW	~						
7 Q	ARE HIDRANT	133	ASPHALT					
A.		-						
_			COMCRETE					
×	GATE VALVE	1000						
@	INTER MANHOLE	500	GRAVEL					

# **DWNER**

SAMMAMISH PLATEAU WATER AND SEWER DISTRICT

CONTACT: JACKSON DOVE, P.E. PHONE: (425) 392-6256

SE 1/4, SEC 29, TWP 25N, RGE 6E, W.M



# LIST OF DRAWINGS

# SHEET DESCRIPTION

- 1 COVER SHEET
- 2 KEY MAP
- 3 CONSTRUCTION NOTES & DETAILS
- 4 WATER MAIN 211TH PL NE
- 5 WATER MAIN 211TH PL NE
- 6 WATER MAIN 211TH PL NE
- 7 WATER MAIN 211TH PL NE B WATER MAIN - 211TH PL NE
- 9 WATER MAIN NE INGLEWOOD HILL RD
- 10 WATER MAIN NE INGLEWOOD HILL RD
- 11 WATER MAIN NE INGLEWOOD HILL RD
- 12 WATER MAIN 212TH AVE NE
- 13 WATER MAIN CONNECTION DETAILS
- 14 WATER MAIN CONNECTION DETAILS
- 15 UTILITY ADJUSTMENT PLAN
- 16 UTILITY ADJUSTMENT PLAN

# DISTRICT STANDARDS

- 17 STANDARD WATER DETAILS SHEET 1 OF 2
- 18 STANDARD WATER DETAILS SHEET 2 OF 2
- 19 STANDARD MATERIALS AND CONSTRUCTION NOTES SHEET 1 OF 3
- 20 STANDARD MATERIALS AND CONSTRUCTION NOTES SHEET 2 OF 3
- 21 STANDARD MATERIALS AND CONSTRUCTION NOTES SHEET 3 OF 3



# UNDERGROUND UTILITY NOTE

UNDERGROUND UTILES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO CURRANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACULTES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (NASHINGTONBILCOM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACULTES BEFORE CONSTRUCTION.

SAMMAMISH PLATEAU WATER AND SEWER DISTRICT SAMMAMISH PLATEAU WATER & SEWER DISTRICT
APPROVED FOR CONSTRUCTION

AND RESPECT 1 3/4/2016





1510 228TH S.E. SAMMAMISH, WA 98075 (425) 392-6256 / FAX 391-5389

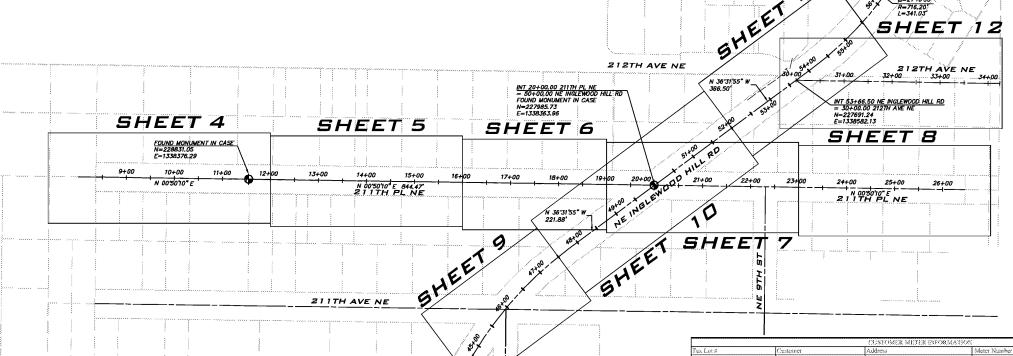
SAMMAMISH PLATEAU WATER AND SEWER DISTRI

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# VERTICAL DATUM AND CONTOUR INTERVAL

ELEVATIONS SHOWN ON THIS DRAWING WERE DERIVED FROM INFORMATION PROVIDED BY WCCS SURVEY CONTROL DATABASE.

THE MARK IS A CONCRETE MONUMENT W/ COPPER TACK IN LEAD, IN MONUMENT CASE AT THE INTERSECTION OF 211TH PLACE NE AND INGLEWOOD HILL ROAD.

ELEVATION: 351.922 FEET (107.266 METERS) NAVD 88

2.0' CONTOUR INTERVAL — THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 THE CONTOUR INTERVAL OR PLUS / MINUS 1.0' FOR THIS PROJECT.

# GENERAL SURVEY NOTES

THIS SURVEY WAS COMPLETED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.

INSTRUMENTATION FOR THIS SURVEY WAS A 3-SECOND NIKON NIVO 5.C TOTAL STATION. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET BY WAC 332-130-090.

THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN JULY 2015 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE GROUND OBSERVATIONS AND AS—BUILT PLANS WHERE AVAILABLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.

ALL MONUMENTS WERE LOCATED DURING THIS SURVEY UNLESS OTHERWISE NOTED.

		2010/04 CARRELL MOTO CIRC TOO ANGMOST COLOR	5.9	
Tea Lot#	Customer	Address	Motor Number	Comment
357530-5810	Daniel & Verna Harrison	801 212 <sup>h</sup> Ave NE	54885817	Water service to be replaced
357530-5812	Doniel & Laxie Klimasara	811 212 <sup>6</sup> Ave NE	75500649	Water service to be replaced
357539-5813	Jade Do	819 212 <sup>th</sup> Aye NE	51818518	Water service to be replaced
357530-5820	Brnce Vandertrik	835 212 <sup>th</sup> Ave NE	41224582	Water service to be replaced
357830+5807	Van De	904-211 <sup>8</sup> PL N6	53,223788	Water service to be replaced
357530-5825	Deniel Kest	840 211 <sup>8</sup> PL NE	44012431	Water service to be replaced
357530-5830	Rubert Arnold	832.211 <sup>2</sup> PL NB	67970973	Water service to be replaced
357530-5835	Don Smith	828 211 Pt. NE	87970976	Water service to be replaced
357530-5837	Anna Rybak	818 21 (** PL NE	49840105	Water service to be replaced
357530-5840	Edward & Sobra Jenny	830 211° PC.NE	44012409	Water service to be replaced
357539-5845	Mast Huntzinger	302 211 ° PLNE	47928138	Water service to be replaced
357530-5360	Pawei & Agnisszka Prokopiuk	803 211 ° PL NE	64175727	Water service to be replaced
357530-5371	Peter Wiest	813 211 <sup>6</sup> PL NE	48293781	Water service to be replaced
357830-5362	Francis Addison	*19 211 <sup>8</sup> PL NR	67971010	Water service to be replaced
357530-5364	Patricia M Clayman	827 211 <sup>8</sup> PL NR	67671012	Water service to be replaced
357530-5365	Scott Kielty	833 211 <sup>8</sup> Pt. NB	84770212	Water service to be replaced
35753045366	Anthony Spencer	21119 ME 9 <sup>th</sup> ST	3673311.7	Water service to be replaced
357530-5380	Christopher Lawson	905 21 ( <sup>6)</sup> PC 3/di	37841267	Water service to be raplaced
357530-5382	Heather Vandom	915 211 <sup>81</sup> PC NE	38122664	Water service to be neplaced
357530-5383	Luciano Rueda	21121 ME INGLEWOOD THILL RD	38122543	Water service to be replaced
357530+5387	Cndy Holdaway	1021-211 <sup>5</sup> PL NE	52844895	Water service to be replaced
357530-5415	Joel Ventre	1103 211 <sup>8</sup> PL NE	58490054	Water service to be replaced
357530-5416	Claire Weters	1109 211 <sup>45</sup> PL NE	52197226	Water service to be replexed
357530-5420	Jason and Chelisea Jarott	11172U SPLNE	67973073	Water service to be replaced
357590-5435	Paul & Lisa Laine	1125 2116 PL NE	87971074	Water service to be replaced
557530-5436	Ajay Kumar Guthikonda	1307 213 FU NE	77022682	Water service to be replaced
357530-5442	Széptasadh Rojagopalan	1219 211 <sup>6</sup> 21. NE.	77460225	Water service to be toplaced
357530-5437				No meter
357530-5440	Sibraventh Gongireddy	1233 211 <sup>12</sup> PL NE	77072688	Water service to be replaced
357530+5450	Feebate	1305 211 <sup>th</sup> PL NE	67971076	Water service to be replaced
357530-5452	ladika Widanalage	1317 211 FPL/NE	74522313	Reconnect ex. water service to new main
357530-5453	Jinsmy Yu Hin Kan	1321 211 <sup>6</sup> PLNE	74933482	Reconnect ex. water service to new main
357530-5455	Sndhao Pingli	1327 211" PL NE	74522310	Resonnest ex. water service to new main
357530-5457	Gotha Tharon Kinose	1333 2116 PL NE	74522311	Reconnect ex. water service to new main
357530-5459	Joseph Peters	1335 2 U <sup>5</sup> PL NE	48052182	Water service to be explaced
357530-5665	Willian Luna	1336 211 PL NE	48052185	Water service to be replaced
3,575;30-5670	Deursis Fischer	1328 21 !" PL NE	67971126	Water service to be replaced
35753(+5672	Lyke Lohman	1396 211 <sup>8</sup> PL NB	67971125	Water service to be replaced
357530-5707	Philip Barnett	1302 211 <sup>th</sup> PL/NE	67971084	Water service to be replaced
357530-5725	Alex Se	1238 211 <sup>6</sup> PL NE	49718333	Water service to be replaced
357530-5727	Panela Rogers	1208 211 <sup>th</sup> PL Nt:	67971128	Water service to be replaced
357530-5735	James Grinstead	1124 2 U <sup>6</sup> FL NE	75300638	Water service to be replaced
157530-5740	Eriward Roddick	1318 213 5 PL NE	7559641	Water service to be replaced
357539-5742	Joseph R Schmitt	1139-211 <sup>39</sup> -PL NE	67970717	Water service to be applaced
357530-5743	Marielle De La Tome	1104 211" PL NE	67970718	Water service to be replaced
357536+57k9	Cathy Thomas	1022 21 1 to 14, NE	67971094	Water service to be replaced
357830~5792	Wi Kwang Lim	1036-2116 PL NE	5597542	Water service to be replaced
357530-5795	Roberto Long	1008 211 S PL NE	58495055	Water service to be replaced
357530-5797	Cristano Dufredo	226 21 L <sup>th</sup> PL NB	57530255	Water service to be replaced

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- THE CONTRACTOR SHALL CONNECT ALL NEW WATER SERVICES TO EXISTING SUPPLY LINES ONLY AFTER DISTRICT APPROVAL. THE CONTRACTOR SHALL UTILIZE STANDARD CONSTRUCTION PRACTICES AND USE BRASS MATERIALS IN ALL SUPPLY LINE CONNECTIONS UNLESS DIRECTED
- OTHERWISE BY THE DISTRICT.
- 4. THE CONTRACTOR SHALL LOCATE, PROTECT AND REPAIR IN KIND ALL EXISTING WATER SUPPLY LINES.
- THE CONTRACTOR SHALL PROTECT AND RECONNECT ANY CUSTOMER PRVS OR IRRIGATION BOXES ALTERED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR IN KIND ANY PRV OR IRRIGATION SYSTEM DAMAGED DURING CONSTRUCTION.

# GENERAL CONSTRUCTION NOTES

- 1. ALL UNSUITABLE MATERIAL SHALL BE IMMEDIATELY PLACED IN TRUCKS AND REMOVED FROM THE PROJECT SITE.
- 2. WHERE NATIVE MATERIAL IS SUITABLE FOR BACKFILL AND COMPACTION TO 95% MODIFIED PROCTOR CAN BE ACHIEVED, NATIVE MATERIAL IS ACCEPTABLE. OTHERWISE, SELECT IMPORT IS REQUIRED FOR BACKFILL AND SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.
- CONTRACTOR SHALL PROTECT ALL EXISTING LANDSCAPING AND VEGETATION. CONTRACTOR SHALL OBTAIN DISTRICT APPROVAL BEFORE WORKING IN THE VICINITY OF OR REMOVING ANY NECESSARY VEGETATION.
- 4. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE DISTRICT'S STANDARD DETAILS AND NOTES. THESE STANDARDS SHALL BE INCLUDED AS PART OF THIS PLAN. THIS PLAN IS INCOMPLETE WITHOUT THE DISTRICT'S STANDARD DETAILS AND NOTES.
- 5. THE TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) MEASURES OUTLINED IN THE PLANS IS ONLY A MINIMUM REQUIREMENT. THE CONTRACTOR SHALL INSTALL ALL TESC MEASURES AS INCESSARY TO KEEP ALL SIZE OF ISTE. THE CONTRACTOR SHALL PROVIDE A TESC SUPERVISOR TO INSPECT AND APPOINT OF MEAN THE CONTRACTOR SHALL PESCENTRY.
- 6. CONSTRUCTION HOURS ARE LISTED IN THE PROJECT SPECIFICATIONS.
- UNLESS OTHERWISE RESTRICTED BY THE CITY OF SAMMANISH, LANE RESTRICTIONS SHALL BE ALLOWED DURING NORMAL CONSTRUCTION
  HOURS, COMPLETE CLOSURE OF NE INGLEWOOD HILL RD SHALL NOT BE ALLOWED.
- 10. THE CONTRACTOR SHALL KEEP ON HAND DURING EXCAVATION ROAD PLATES TO COVER THE TRENCHES AS NEEDED TO ALLOW TRAFFIC TO PASS THROUGH.
- 11. THE CONTRACTOR SHALL USE EXTREME CARE IN THE PROTECTION OF ALL BUILDINGS, STRUCTURES AND LANDSCAPING ("PROPERTY") AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL REPLACE IN KIND ANY DAMAGED PROPERTY UNLESS OTHERWISE DIRECTED BY THE DISTRICT IN WRITING.
- 13. THE CONTRACTOR SHALL COORDINATE WORK WITH THE LOCAL RESIDENCES AS CONSTRUCTION PROCEEDS SO THAT VEHICULAR ACCESS IS PROVIDED AT ALL TIMES. THIS WORK WILL INVOLVE THE CONTRACTOR TO COMMUNICATE DIRECTLY WITH THE OWNERS OF THE INDIVIDUAL RESIDENCE IMPACTED BY ANY TRAFFIC OR ACCESS RESTRICTIONS THROUGHOUT THE DURATION OF CONSTRUCTION.
- 14. WATER MAIN SHALL BE INSTALLED WITH A MINIMUM OF 3-FEET OF COVER. WATER MAIN SHALL BE INSTALLED AT A DEPTH AND SLOPE PER THE PROFILE DRAWING TO AVOID INTERMEDIATE HIGH POINTS.
- 15. ALL DUCTILE IRON PIPE SHALL BE CLASS 52.
- CONTRACTOR SHALL SURVEY (HORIZONTAL AND VERTICAL LOCATION) ALL INSTALLED FACILITIES INCLUDING WATER BENDS, TEES, VALVES, AIR/VAC ASSEMBLIES, BLOW-OFFS, AND METER BOXES.

# ABANDONMENT OF EXISTING UTILITIES

- 1. ALL PIPE ENDS OF ABANDONED UTILITIES SHALL BE CAPPED OR PLUGGED PRIOR TO BACKFILL.
- WHERE AN EXISTING WATER MAIN WHICH IS TO BE ABANDONED IS CONNECTED TO A PERMANENT MAIN, THE ABANDONED MAIN SHALL BE
  DISCONNECTED FROM THE PERMANENT MAIN, AND THEN BOTH MAINS SHALL BE CAPPED AND/OR PLUGGED. IF A VALVE EXISTS BETWEEN THE
  PERMANENT AND ABANDONED MAIN, THE VALVE SHALL BE REMOVED AND THE TEE PLUGGED OR BLIND FLANGED IN ACCORDANCE WITH
  DISTRICT STANDARDS. A THRUST BLOCK SHALL BE INSTALLED ON THE END OF THE PERMANENT MAIN AS NEEDED OR AS DIRECTED BY THE
  DISTRICT.
- 3. ABANDONMENT OF EXISTING WATER SERVICES SHALL ONLY BE ALLOWED WHEN THE NEW SERVICE HAS BEEN INSTALLED, TESTED, AND ACCEPTED BY THE DISTRICT. AFTER DISTRICT APPROVAL, THE EXISTING SUPPLY LINE SHALL BE RELOCATED AND CONNECTED TO THE NEW METER SETTER. IF NECESSARY, THE CONTRACTOR SHALL INSTALL A TEMPORARY DILER TO PROVIDE WATER TO THE EXISTING CUSTOMER. THE EXISTING METER SHALL BE RETURNED TO THE DISTRICT FOR REPLACEMENT AND OR RE-USE.
- 4. WHEN ABANDONING AN EXISTING WATER SERVICE ON A WATER MAIN THAT IS TO BE ABANDONED, THE CONTRACTOR SHALL REMOVE THE METER BOX, SETTER AND ALL FITTINGS. THE SERVICE LINE SHALL BE CAPPED OR PLUGGED AND LEFT IN PLACE.
- WHEN ABANDONING AN EXISTING BLOW-OFF ON AN ABANDONED WATER MAIN THE EXISTING BLOW-OFF SHALL BE REMOVED, THE PIPING PLUGGED, THE VALVE ABANDONED IN PLACE, AND THE VALVE CAN, MARKER AND METER BOX REMOVED AND BACKFILLED WITH 1-1/4\* MINUS GRUSHED ROCK.
- WHEN ABANDONING EXISTING VALVES IN PLACE, THE VALVE SHALL BE CLOSED, THE VALVE CAN AND VALVE MARKER REMOVED AND THE HOLE BACKFILLED WITH 1-1/4" CRUSHED ROCK.

# PROJECT TESC NOTES

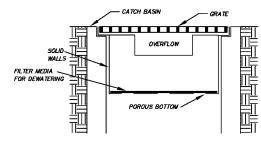
- TEMPORARY STRAW WATTLES AND/OR FILTER FABRIC FENCE MILL BE PLACED ON ALL DOWNHILL SIDES OF EXCAVATION AS SHOWN. FILTER FABRIC FOR THE EROSION PROTECTION BARRIERS WILL BE MIRAFI 140 OR EQUIVALENT AS REQUESTED BY THE DISTRICT IN AREAS AS NEEDED. STRAW WATTLES WILL BE STAKED DOWN WITH STAKES, AS AN ALTERNATIVE, FILTER FABRIC FENCE MY BE ROLLED AT THE BOTTOM TOWARD THE EXCAVATION SIDE AND HELD DOWN WITH SAND BAGS FILLED WITH PEA GRAVEL THE TRENCH MILL BE BACKFILLED WITH NATIVE MATERIAL.
- 2. UNLESS OTHERWISE NOTED OR DIRECTED, EXCAVATED MATERIAL IS TO BE PLACED IN TRUCKS AND NOT SPOILED ON SITE.
- 3. ALL STOCKPILED MATERIALS WILL BE REMOVED BY THE END OF EACH DAY ELIMINATING THE NEED TO USE CLEAR PLASTIC COVERING. IN THE EVENT ANY STOCKPILING MAY OCCUR, CLEAR PLASTIC COVERING WILL BE INSTALLED ON ANY STOCKPILES OF DIRT. THE COVER WILL BE INSTALLED IMMEDIATELY AND THERE WILL BE AT LEAST A 12-INCH OVERLAP AT ALL SEAMS. ALL SEAMS WILL BE TAPED OR WEIGHTED DOWN FOR THE FULL LENGTH OF THE SEAM.
- 4. EXCAVATING WILL OCCUR DURING DRY WEATHER. EXCESS SOIL WILL BE DIRECTLY LOADED INTO A DUMP TRUCK AND WILL BE REMOVED FROM THE SITE
- 5. AT THE END OF EACH DAY, STREETS WILL BE SWEPT AND BROOM CLEANED. ALL EXPOSED AREAS WILL HAVE TEMPORARY ASPHALT PATCHES.
- ALL CATCH BASIN INSERTS WILL HAVE BASIN SOCKS INSERTED INTO THE CATCH BASIN FOR THE DURATION OF THE JOB. THIS WILL BE USED TO PREVENT RUN OFF INTO STREAMS, RIVERS, OR LAKES.
- 7. DO NOT BLOCK ACCESS TO ANY TAX LOTS UNLESS APPROVED BY THE DISTRICT.

# PAVEMENT RESTORATION NOTES

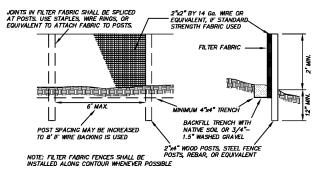
- 1. THE CONTRACTOR SHALL NOT COMPLETE ANY SAW CUTTING UNTIL ALL UTILITY LOCATE MARKINGS HAVE BEEN PROVIDED.
- 2. THE CONTRACTOR SHALL INSTALL AN ASPHALT TRENCH PATCH IN ACCORDANCE WITH THE DISTRICT STANDARDS.
- ASPHALT TRENCH PATCHING WITH HIMA SHALL BE COMPLETED MITHIN 72 HOURS UNLESS OTHERWISE DIRECTED BY THE DISTRICT. COLD MIX
  ASPHALT WILL ONLY BE ALLOWED FOR 72 HOURS UNLESS OTHERWISE DIRECTED BY THE DISTRICT. ROAD PLATES SHALL BE INSTALLED WHERE
  LONG TERM ACCESS TO THE TRENCH IS REQUIRED (IE. CUT-IN/TESTING LOCATIONS).
- 4. ALL ASPHALT PAVEMENT RESTORATION SHALL BE MADE WITH A MINIMUM 6-INCH LIFT OF COMPACTED (95% STANDARD DENSITY) CRUSHED SURFACING TOP COURSE (5/8-INCH MINUS) AND 3-INCH MINIMUM (COMPACTED THICKNESS) OF HMA CL 1/2". THE PAVEMENT RESTORATION SHALL EXTEND A MINIMUM OF 12-INCHES (EACH SIDE) BEYOND THE CONSTRUCTED TRENCH MOTHS, WHEN EXISTING ASPHALT THICKNESS IS FOUND TO BE CREATER THAN 2 INCHES, HID ALL 1/2" SHALL BE PLACED, IN MAXIMUM 2-INCH LIFTS, TO A DEPTH OF 1-INCH OVER EXISTING PAVEMENT THICKNESS, SEAL EDGES WITH SEALER CSSI AND SEAL SURFACE JOINT WITH HOT ASPHALT IN AREAS THAT WILL NOT HAVE AN
- 5. SEAL ALL JOINT WITH AR4000W AND APPLY SAND BLANKET TO THE SURFACE JOINT WHEN MATCHING EXISTING PAVEMENT.
- 6. WHERE EXISTING ASPHALT PAVEMENT HAS BEEN DAMAGED DUE TO CONSTRUCTION ACTIVITIES, TRENCH PATCHING WILL BE EXTENDED BEYOND
- THE CONTRACTOR SHALL PROTECT AND REPAIR IN KIND ALL EXISTING CONCRETE, DRIVEWAYS, SIDEWALKS, CURBS, WALKWAYS, RAILROAD TIES, ROCKERIES, LANDSCAPING, FENCING AND BUILDINGS.
- AFTER FINAL PAYING, THE CONTRACTOR SHALL RESTORE ALL EXISTING SHOULDERS WITH A MINIMUM OF 2-INCH COMPACTED THICKNESS OF CRUSHED SURFACING TOP COURSE, SO THAT THE SHOULDERS ARE LEVEL WITH THE EDGE OF THE ASPHALT.

# GENERAL WATER MAIN NOTES

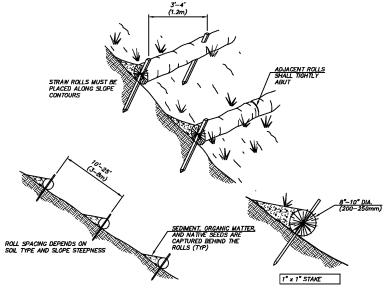
- 1. ALL PROPOSED CONNECTIONS SHALL BE POTHOLED TO VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- 2. THE EXISTING WATER MAIN IS PRIMARILY AC PIPE AND IS UNLOCATABLE. THE LOCATION OF THE EXISTING MAIN SHOWN ON THESE DRAWINGS IS ONLY APPROXIMATE.



# CATCH BASIN INSERT



FILTER FABRIC FENCE



- - 1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL PLACED ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

    2. INSTALL WATTLES AS DIRECTED WITHIN DITCHES AS DETAILED ABOVE AND PER ADDITIONAL ESC NOTE ON SHEET TP-01.

STRAW WATTLES SCALE: NTS



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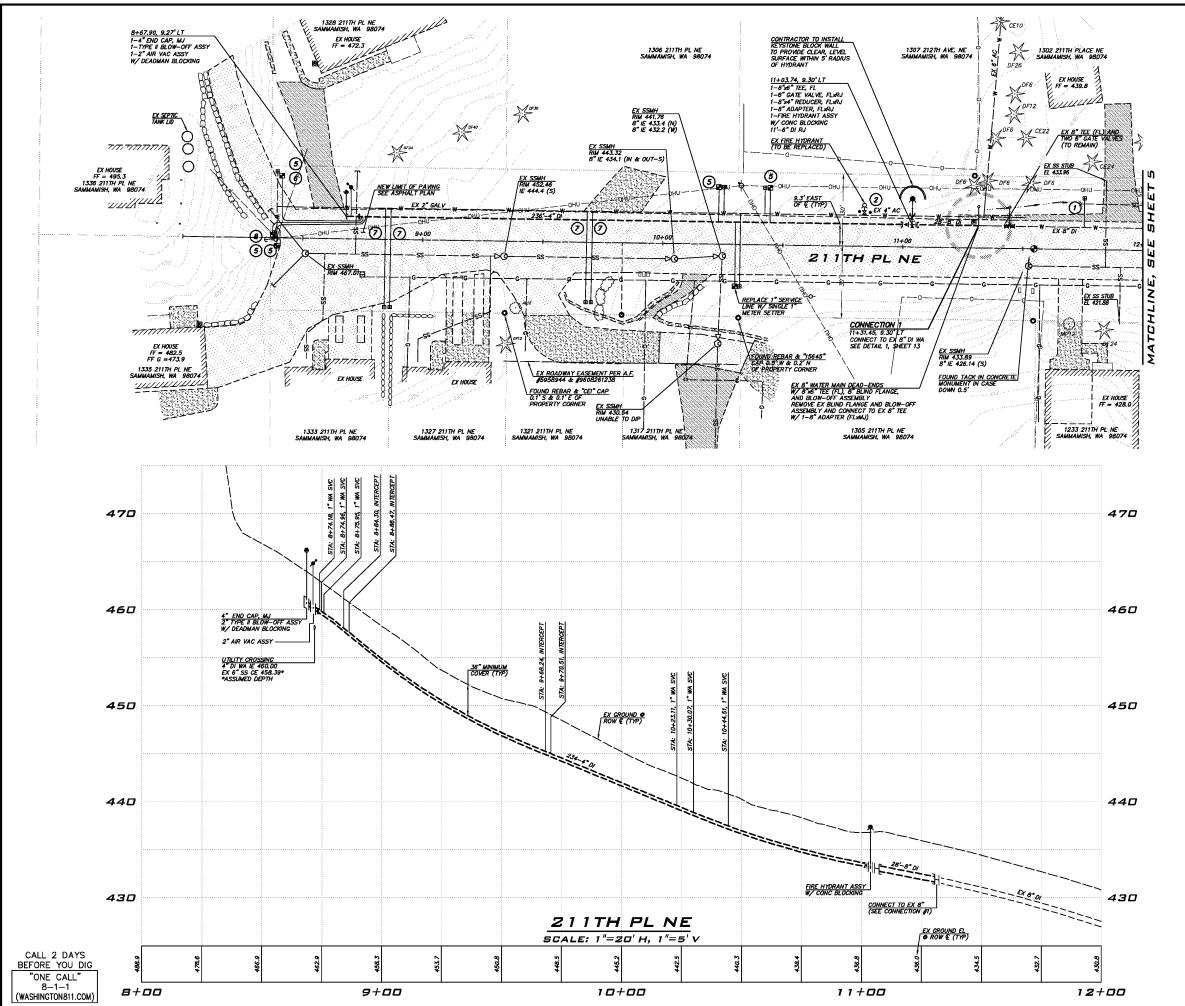
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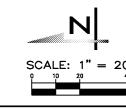
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- 1 EX METER TO REMAIN (INSTALLED RECENTLY OFF NEW MAIN).
- 2 REPLACE EX FH W/ NEW FH ASSEMBLY PER SPWSD STDS.
- ③ EX 6° PVC SS STUB W/ PLUG INSTALLED; REMOVE PLUG, EXTEND SS STUB TO E ₱ AND INSTALL NEW PLUG (TYP OF 7).
- (4) EXTEND SIDE SEWER STUB AFTER EXISTING AC ABANDONED. CONTRACTOR TO PLUG CUT ENDS OF EXISTING AC W/
- (5) INSTALL 1" WATER SERVICE LINE W/ SINGLE ¾" METER SETTER PER SPSWD STD DETAIL.

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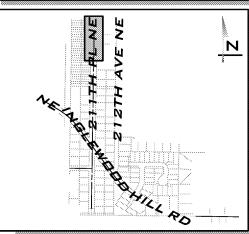
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- (6) INSTALL TRAFFIC BEARING METER BOX LID.
- (7) INTERCEPT EXISTING WATER SERVICE LINE AND RECONNECT TO NEW MAIN.
- (8) EXISTING DOUBLE METER TO BE SEPARATED INTO 2 SERVICES.
- (9) CONTRACTOR TO LOCATE AND RECONNECT CUSTOMER'S SUPPLY LINE BEHIND METER.

# NOTES

- ALL WORK AND MATERIALS TO BE IN CONFORMANCE WITH SAMMAMISH PLATEAU WATER AND SEWER DISTRICT STANDARDS AND SPECIFICATIONS.
- 2. PRIOR TO CONSTRUCTION, CONTRACTOR TO POTHOLE PRIOR TO CONSTRUCTION, CONTRACTOR TO POHNOLE EXISTING WATER MAINS TO DETERMINE HORIZONTAL LOCATIONS AND NOTIFY ENGINEER IF LOCATIONS ARE DIFFERENT THAN SHOWN ON THE PLANS.
- PRIOR TO CONSTRUCTION, CONTRACTOR TO POTHOLE EXISTING UTILITIES AT ALL PROPOSED WATER MAIN CROSSINGS TO DETERMINE HORIZONTAL AND VERTICAL LOCATIONS AND CONSULT ENGINEER IF CONFUCTS ARE
- 4. WATER MAIN TO BE INSTALLED AS SHOWN ON PROFILE.
- 5. CROSSING INFORMATION SHOWN WHERE VERTICAL SEPARATION IS < 4'.



# KEY MAP SCALE: 1"=500"

# UNDERGROUND

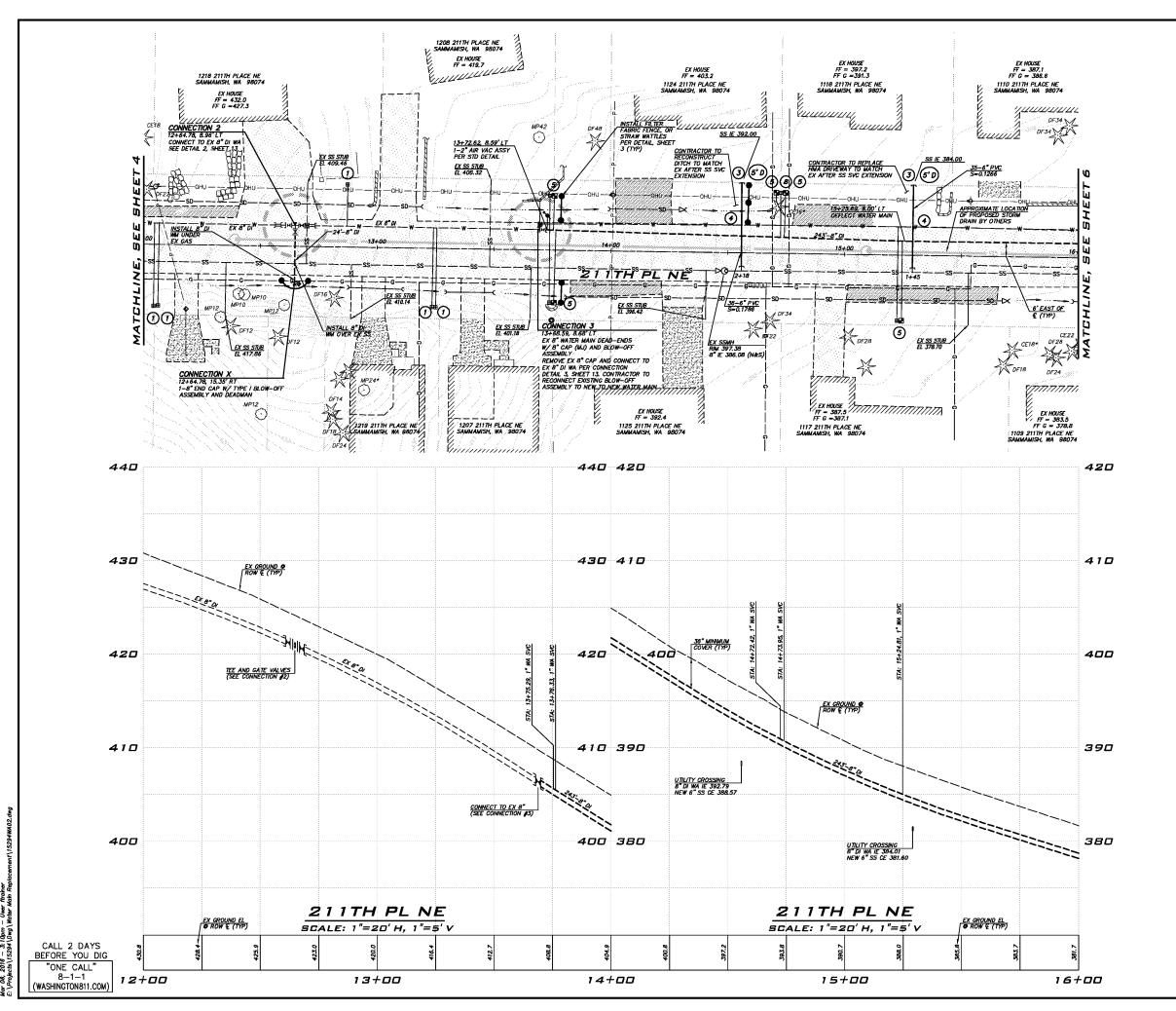
UTILITY NOTE

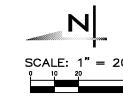
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ALL WATER MAIN PIPE INSTALLED ON INGLEWOOD HILL ROAD SHALL BE RESTRAINED JOINT PIPE



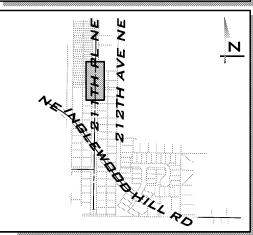




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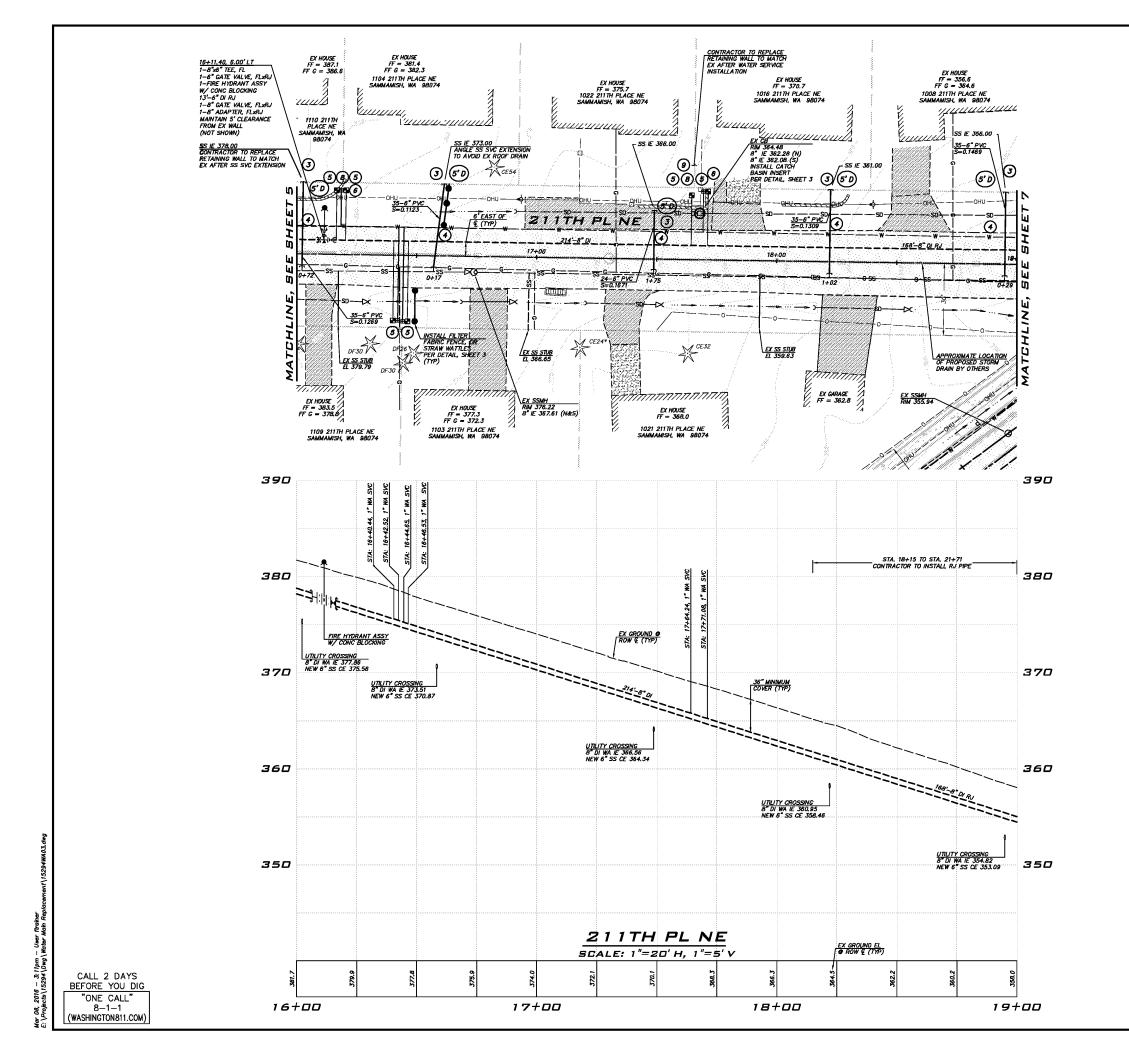
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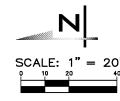
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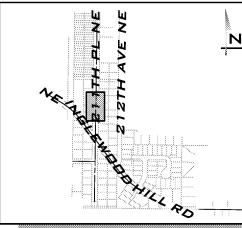




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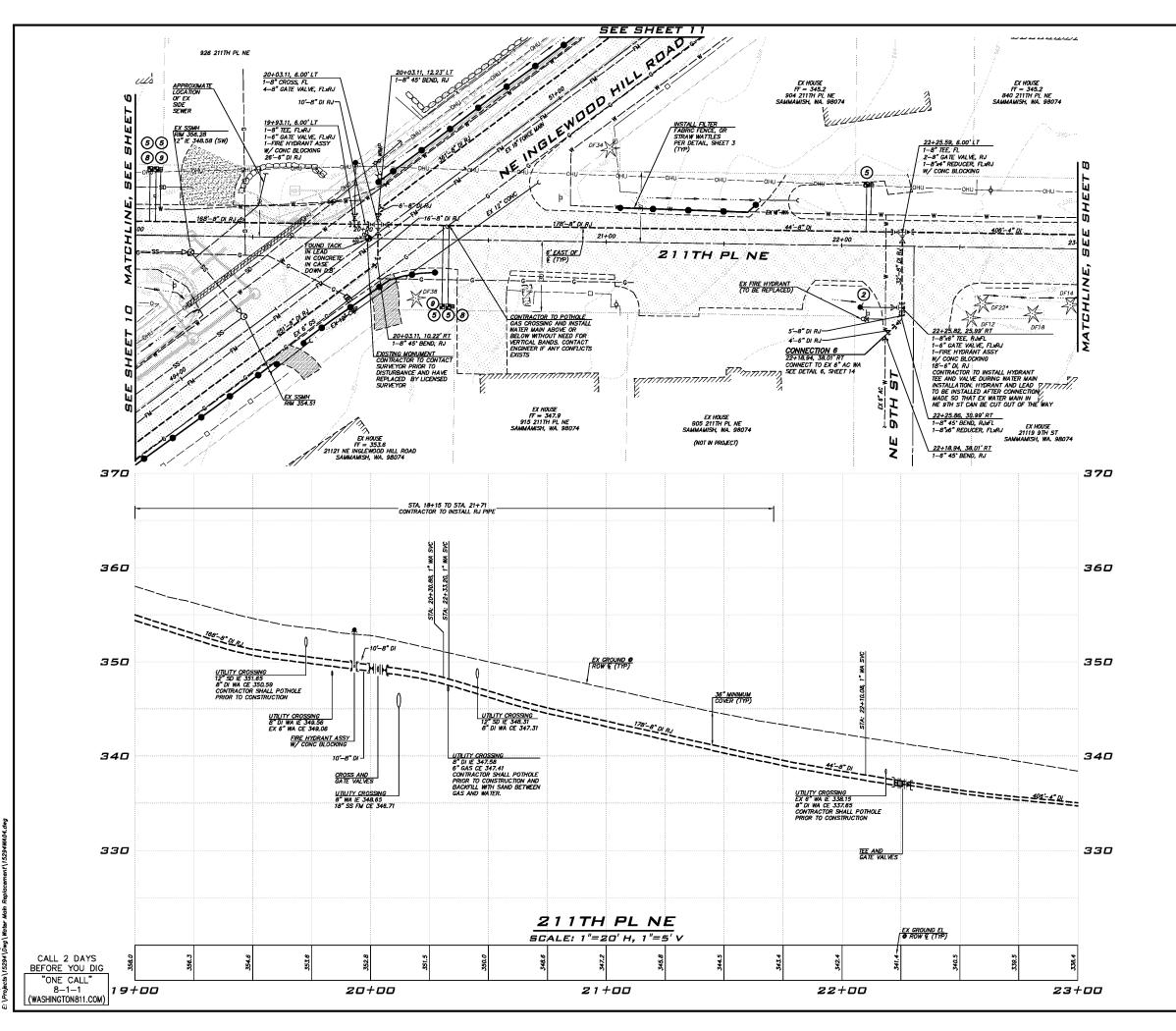
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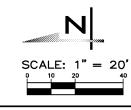
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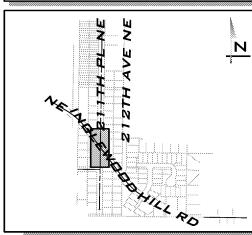




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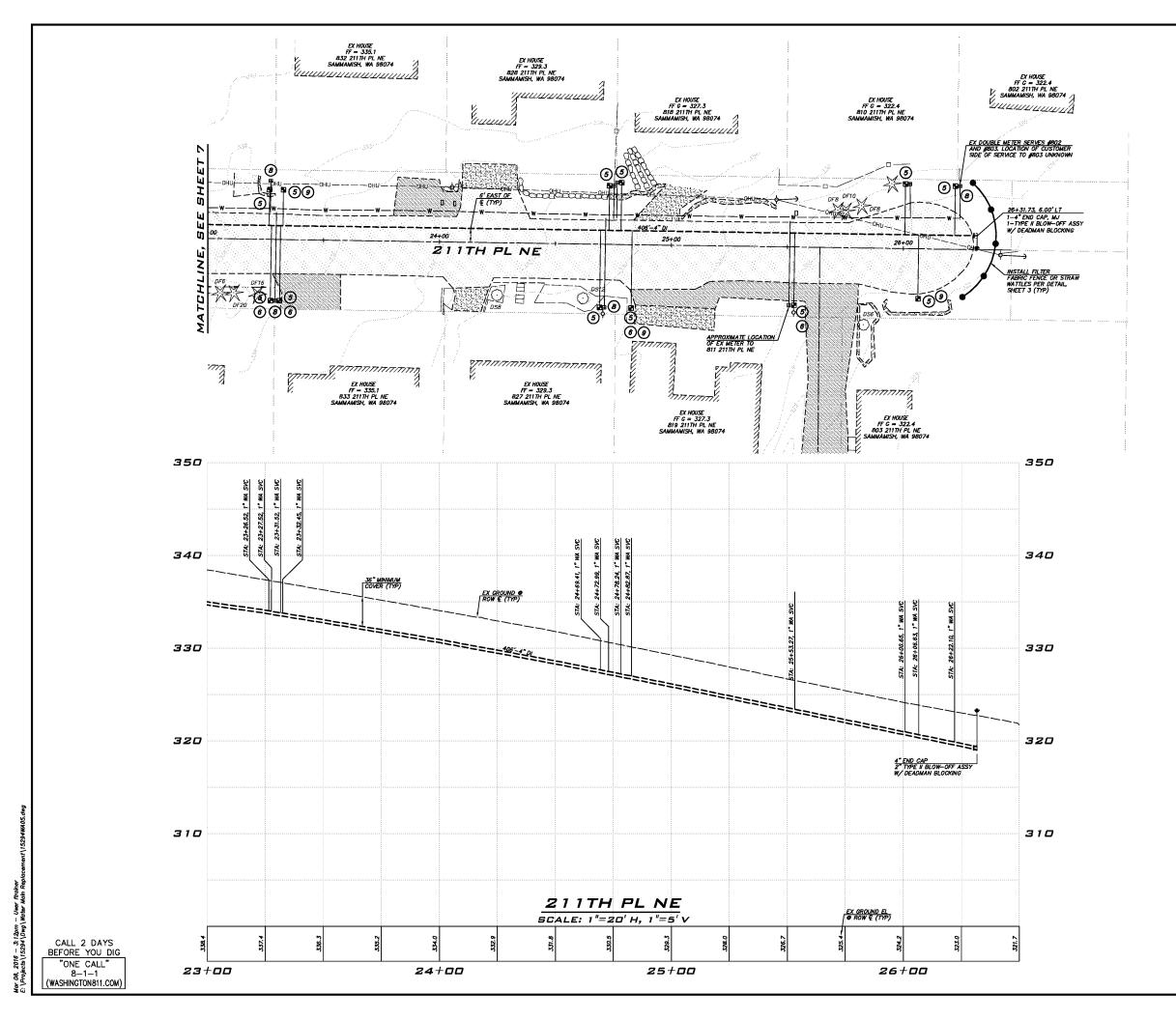
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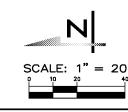
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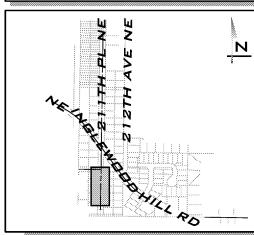
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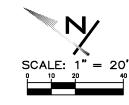
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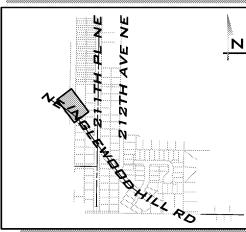




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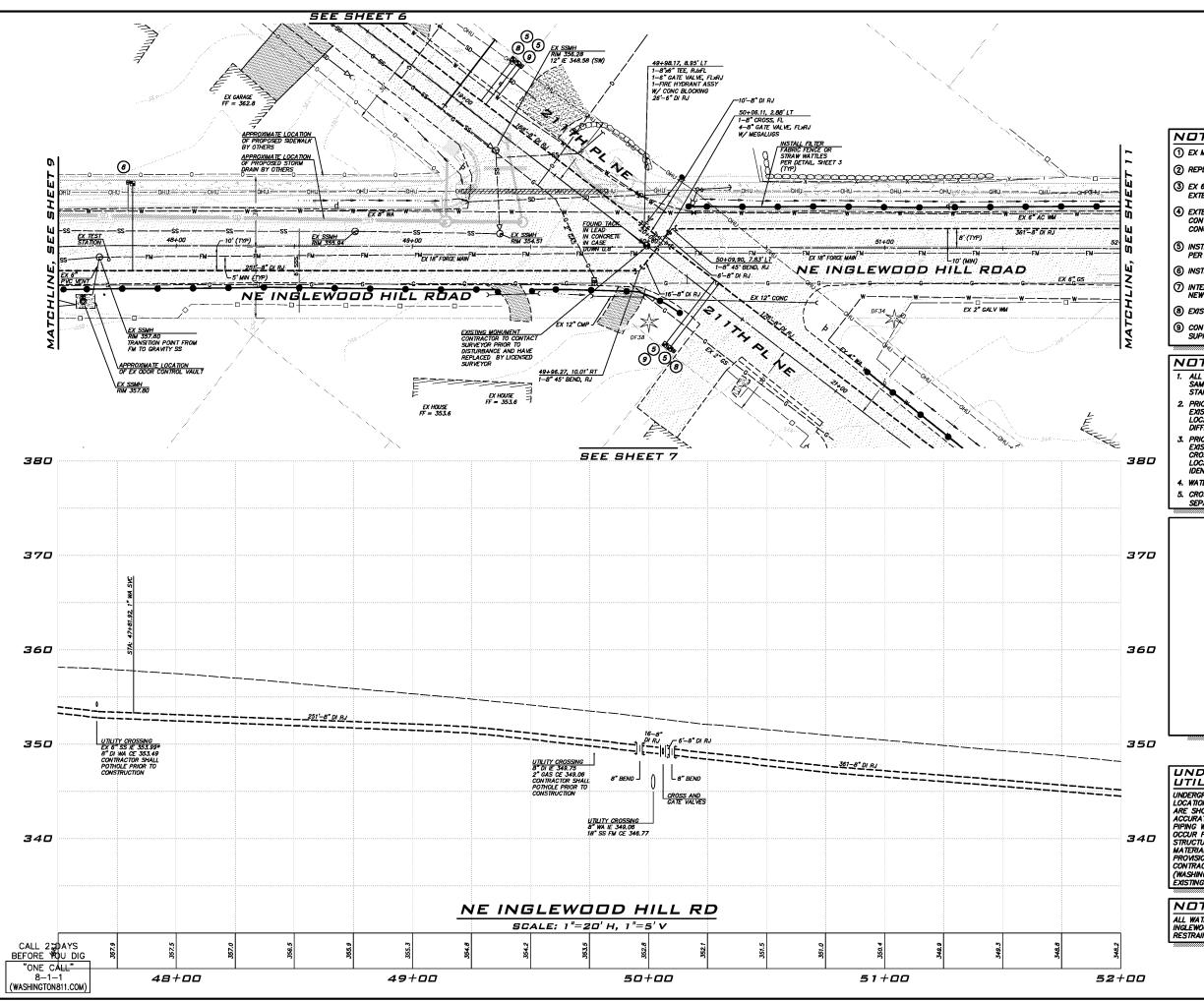
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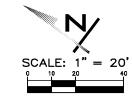


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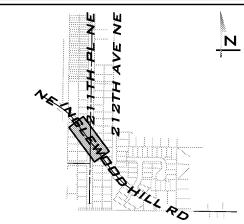




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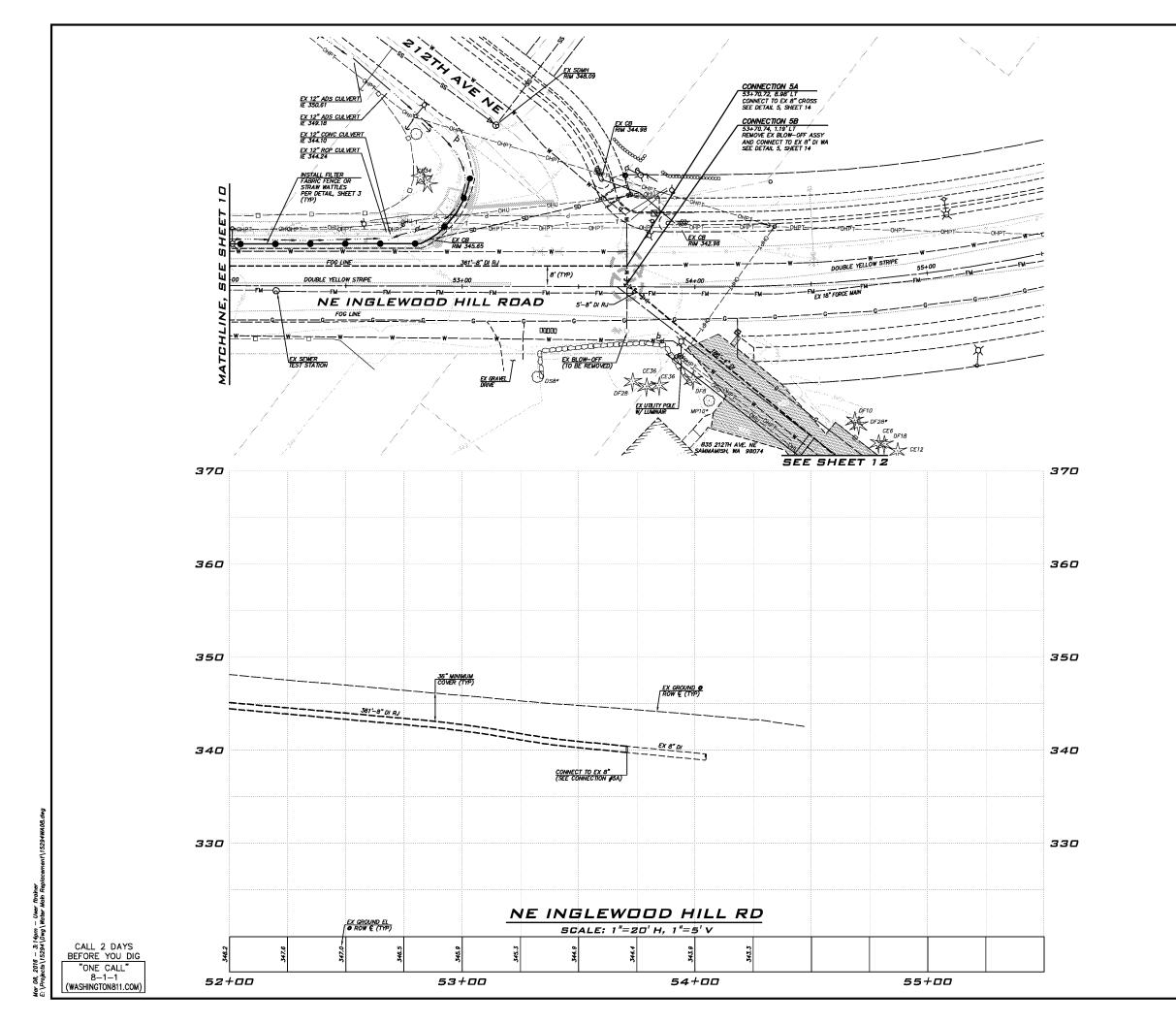
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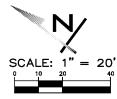
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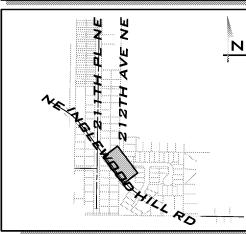




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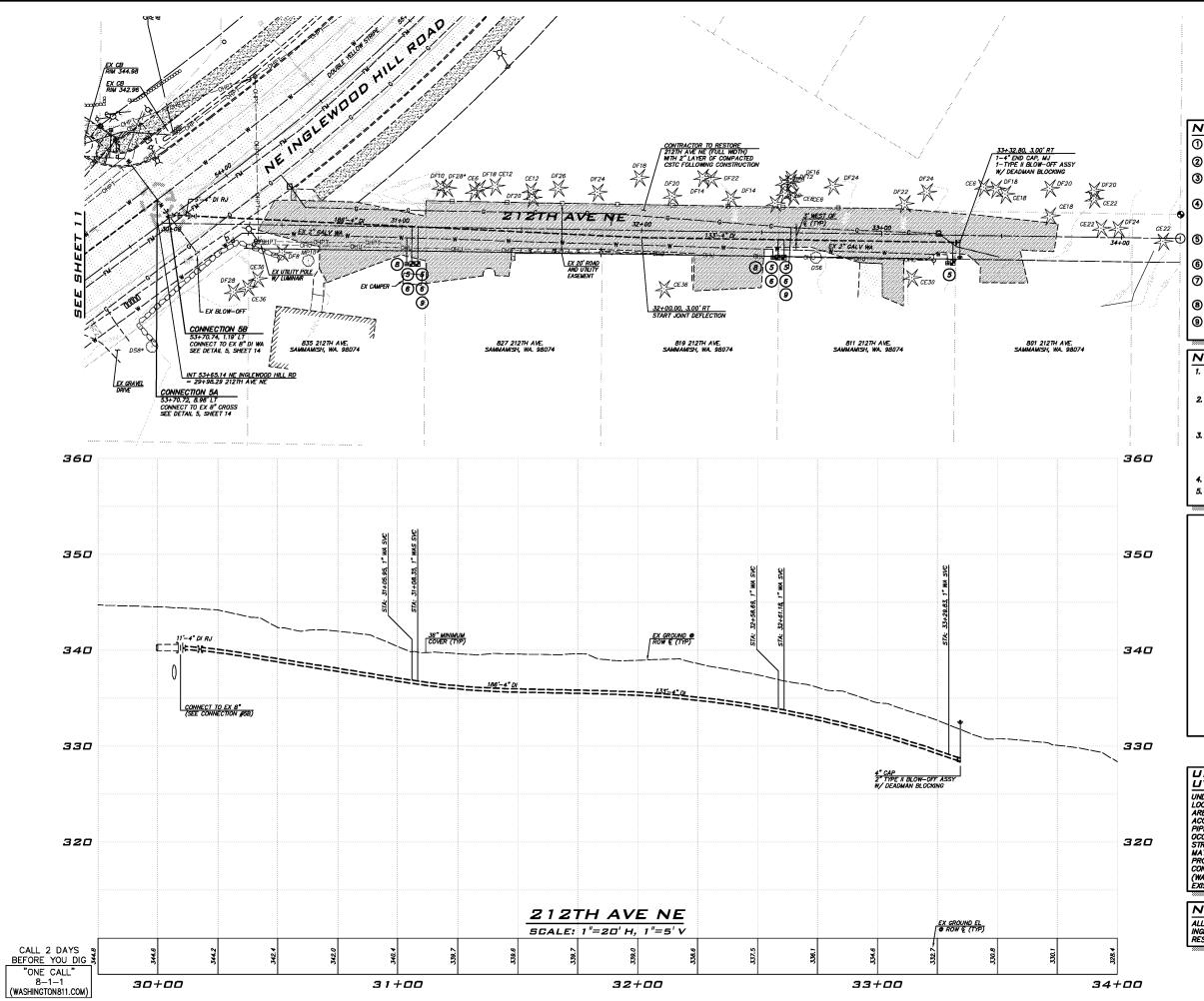
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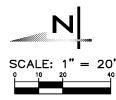
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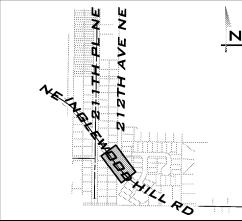




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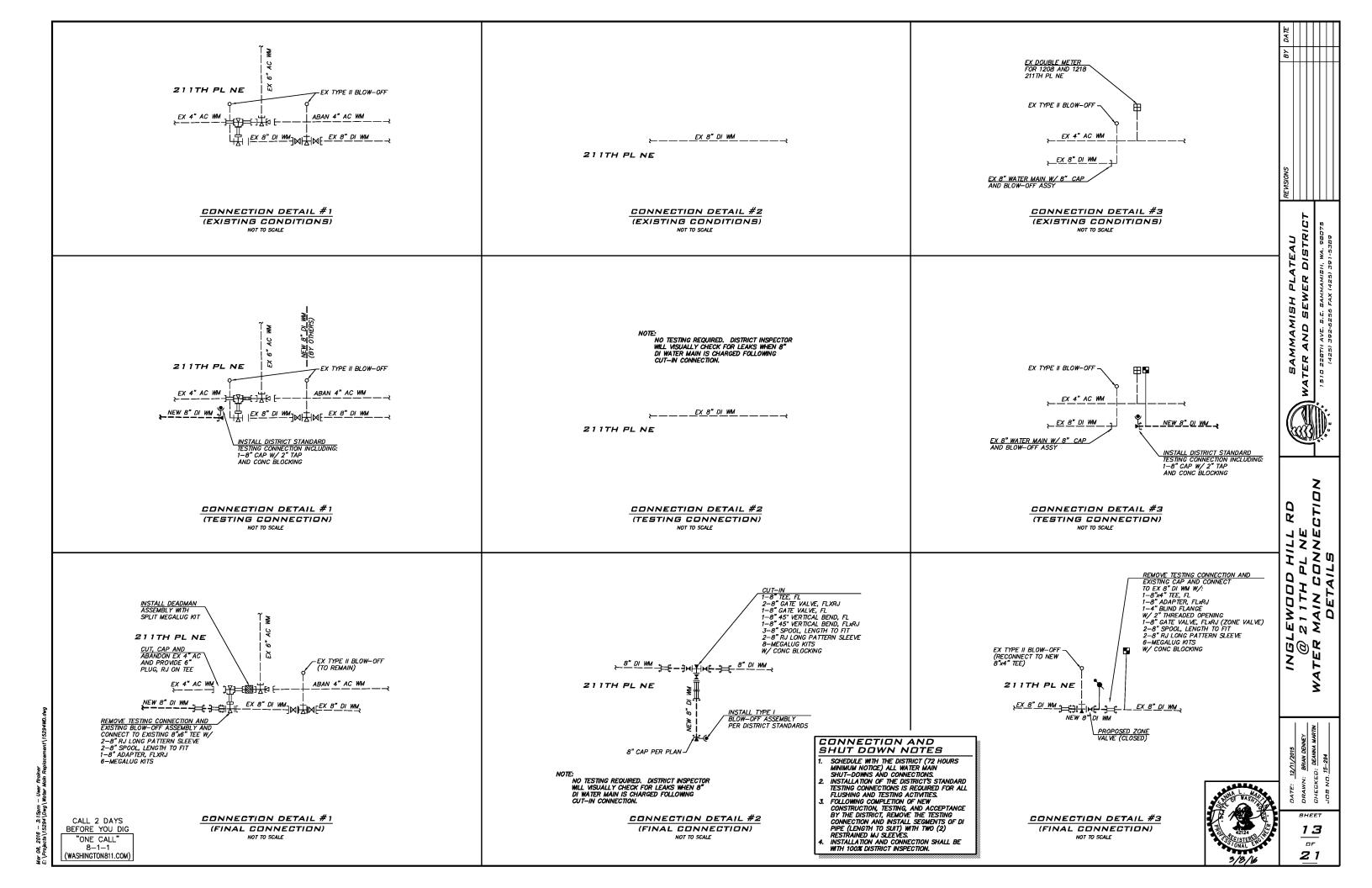
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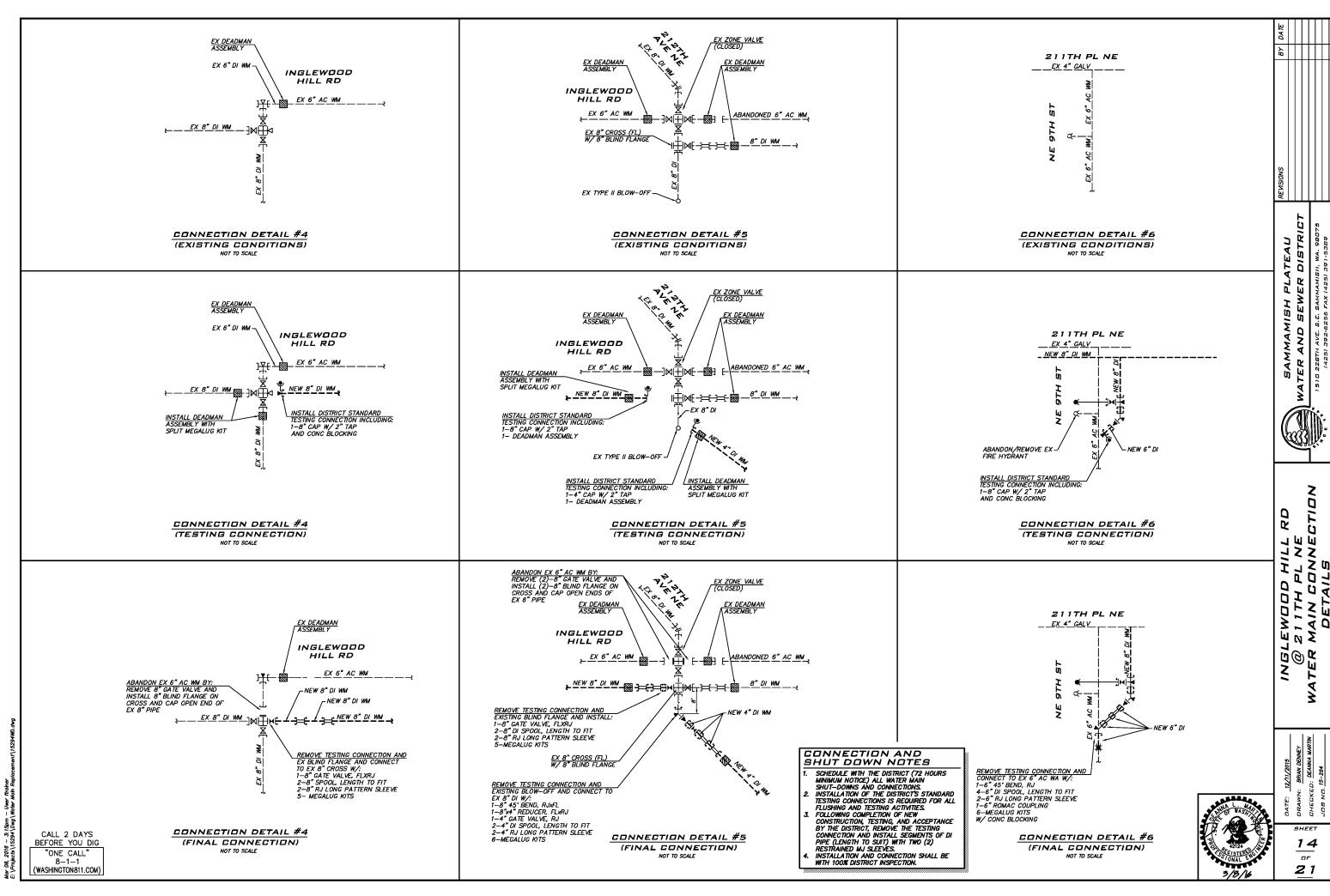
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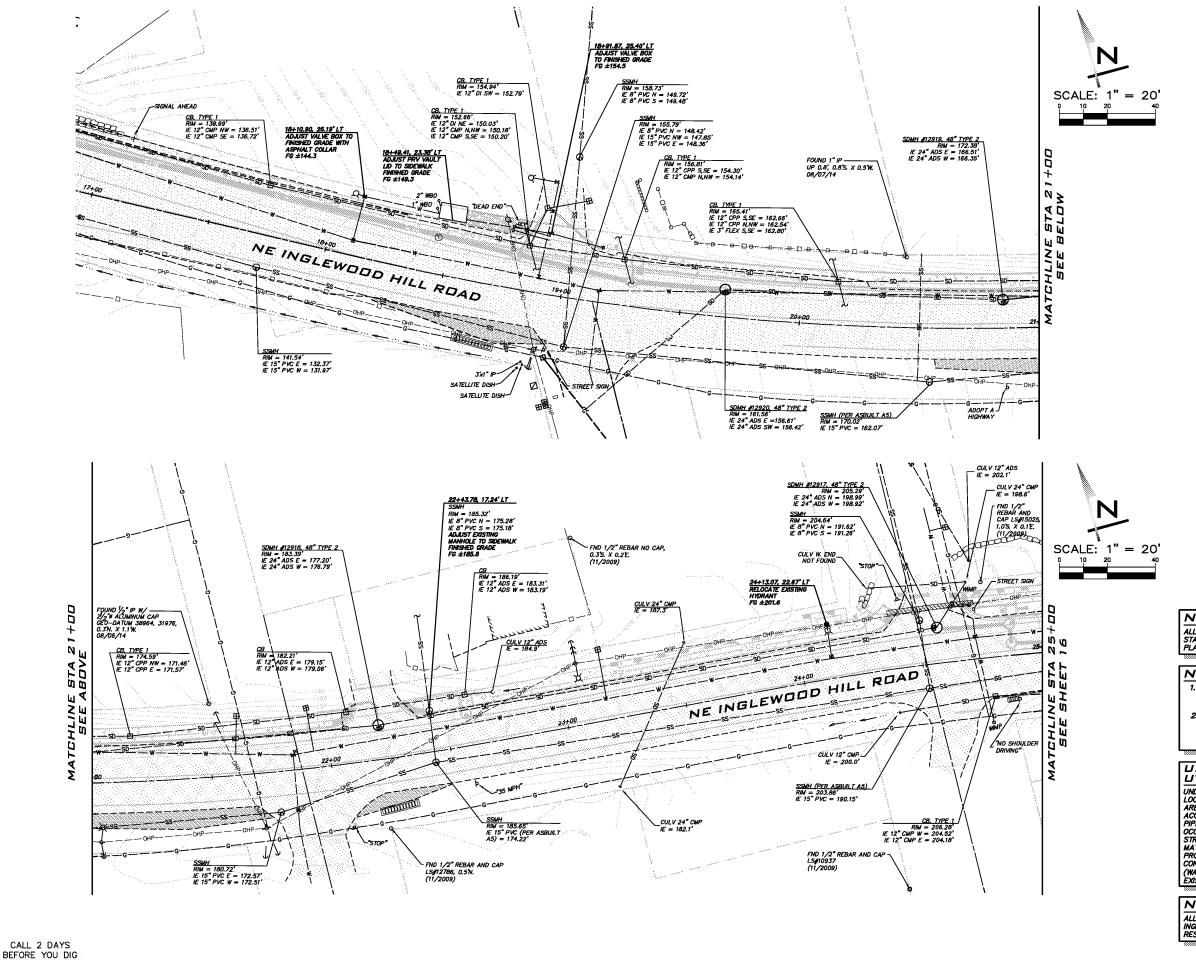
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SAN WATER







"ONE CALL"

8-1-1 (WASHINGTON811.COM) NOTE

ALL STATIONING ON SHEETS 15 AND 16 REFERENCES STATIONING SHOWN ON INGLEWOOD NEIGHBORHOOD DRAINAGE PLANS BY OSBORN CONSULTING.

# NOTES

- 1. ALL WORK AND MATERIALS TO BE IN CONFORMANCE WITH SAMMAMISH PLATEAU WATER AND SEWER DISTRICT STANDARDS AND SPECIFICATIONS.
- PRIOR TO CONSTRUCTION, CONTRACTOR TO POTHOLE EXISTING WATER MAINS TO DETERMINE HORIZONTAL LOCATIONS AND NOTIFY ENGINEER IF LOCATIONS ARE DIFFERENT THAN SHOWN ON THE PLANS.

# UNDERGROUND UTILITY NOTE

UNIDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (MASHINGTON811.COM) AND ARRANCE FOR FIELD LOCATION OF EMSTING FACILITIES BEFORE CONSTRUCTION.

# NOTE

ALL WATER MAIN PIPE INSTALLED ON INGLEWOOD HILL ROAD SHALL BE RESTRAINED JOINT PIPE



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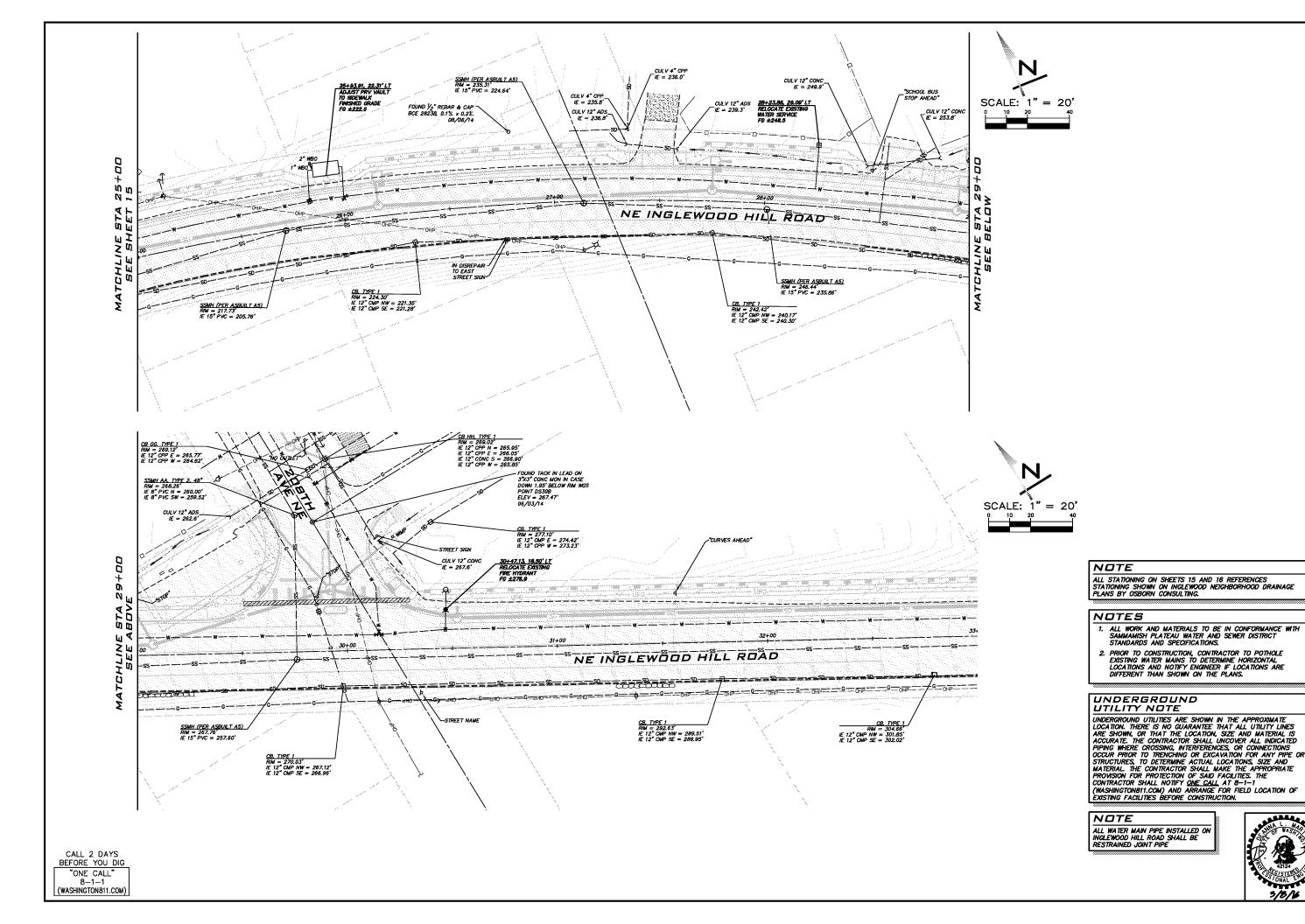
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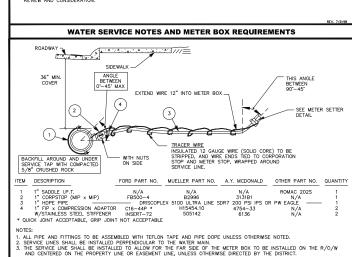


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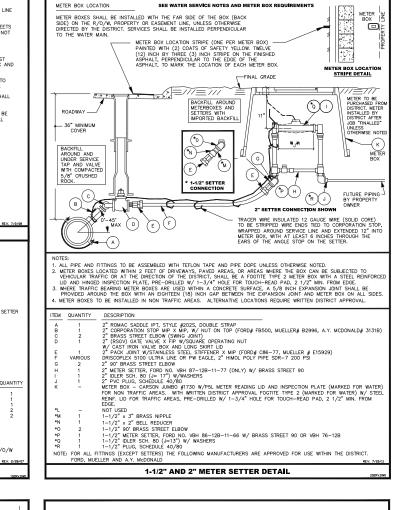
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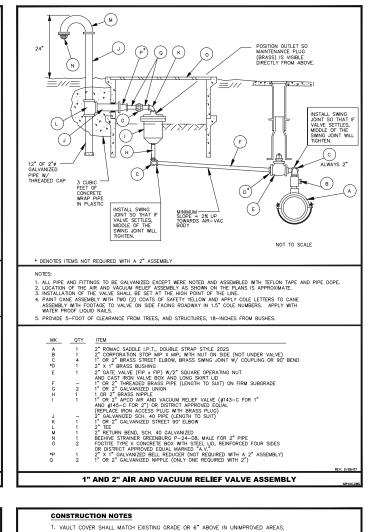
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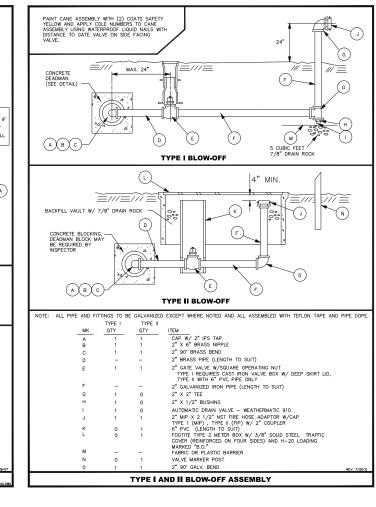
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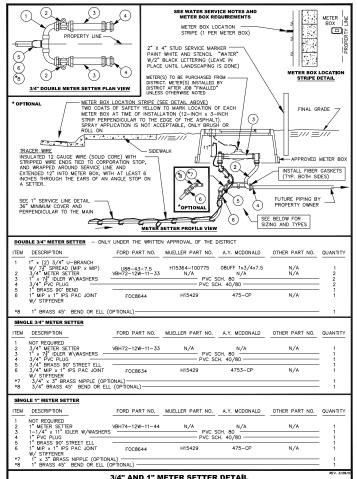


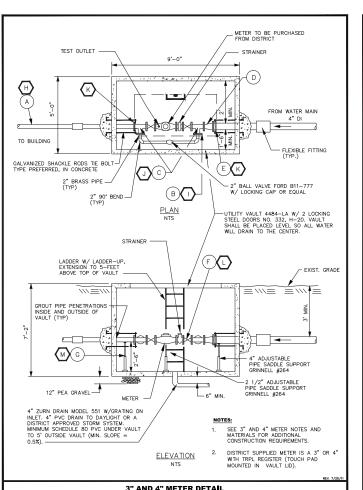
1" SERVICE LINE DETAIL

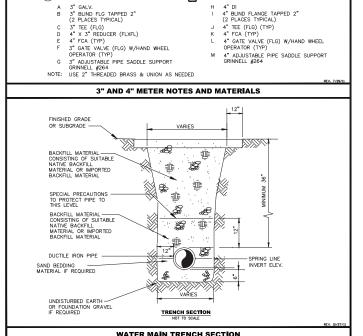












EXTERIOR OF VAULT BELOW GRADE TWO COATS OF BLACK BITUMASTIC SOLUTION (VAULT SHOULD BE DRIED WITH NO MOISTURE PRESENT PRIOR TO APPLICATION OF COATINGS)

3. IF POSITIVE DRAINAGE FROM VAULT CANNOT BE ACHIEVED A SUMP PUMP SYSTEM WILL BE REQUIRED WITH DISTRICT APPROVAL. POWER SHALL BE SUPPLIED AND MAINTAINED BY THE DEVELOPMENT.

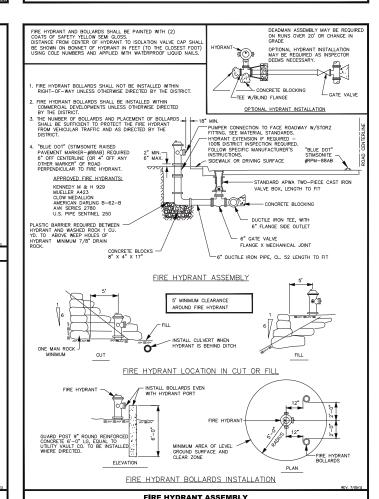
4" METER (ONLY)

PAINT INTERIOR PIPING (NON BRASS)
ONE (1) COAT RUST RESISTOR PRIMER TWO (2) COATS SAFETY BLUE SEMI GLOSS PAINT

FLEXIBLE FITTING WHEN ENTERING AND EXITING VAULT WITHIN 5 FEET OF VAULT. IF (MJ) BELL CONNECTION IS WITHIN 5 FEET OF THE VAULT, FITTING MAY BE OMITTED (2 PLACES TYPICAL).

CORE DRILL 1-3/4" HOLE IN ONE OF THE HATCHES NEAR CENTER FOR INSTALLATION OF TOUCH PAD FOR A TOUCH READ METER.

3" METER (ONLY)





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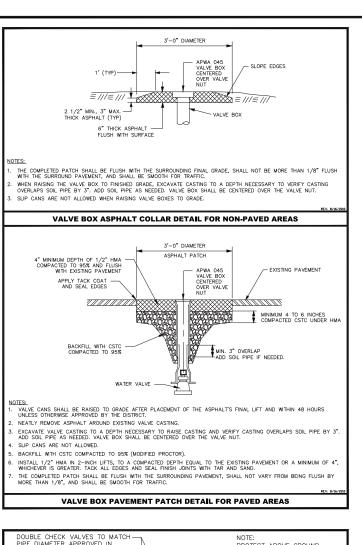
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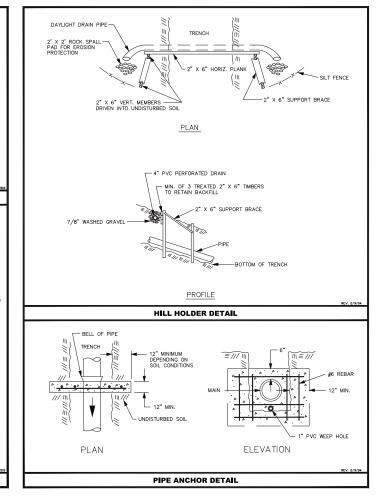
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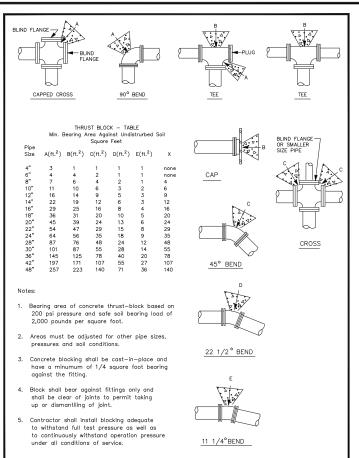
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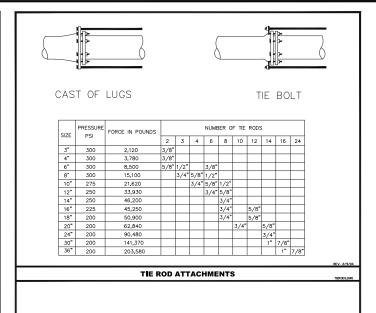


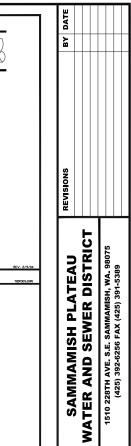
WATER ASBUILT DETAIL



VALVE MARKER POST DETAIL





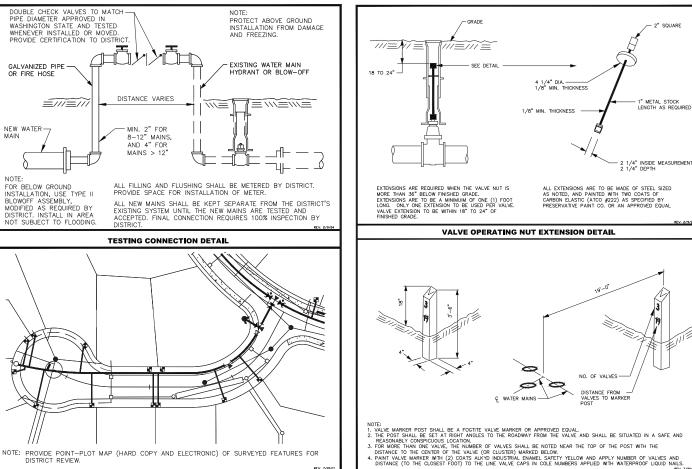


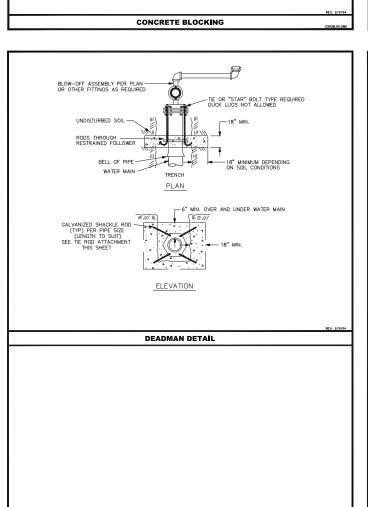


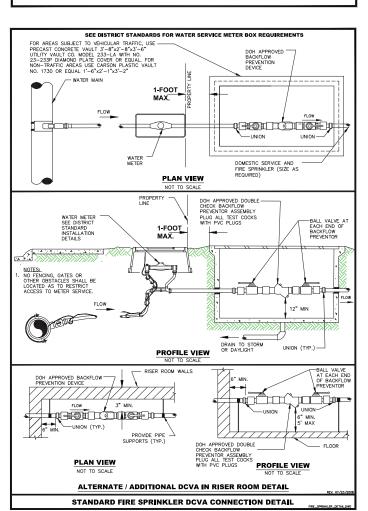
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# PART TWO - MATERIAL STANDARDS

# 2.1 GENERAL

All materials and equipment shall be new and undamaged. Where possible, the same manufacturer of each item shall be used throughout the job. In accordance with paragraph WS-20 "Material and Equipment List" of this Agreement, the Developer or Contractor shalf file a material and equipment list with the District including the quantity, manufacturer, model number and technical specifications, if applicable, of material and equipment to be installed as part of the work. If requested by the District, five (5) copies of all information concerning the specifications, installation, operation and maintenance of material and equipment installed as part of the work shall be furnished to the District in five separate labeled binders.

Foundation gravel used for backfill of over-excavated trenches shall conform to the requirements of WSDOT/APWA 9-03.17, "Foundation Material, Class B."

Controlled Density Fill (CDF) shall be a mixture of Portland cement (Type I or II), fly ash (ASTM C618, Class F), fine aggregates (coarse sand with 100% passing 3/8-inch sieve, 60-100% passing No. 4 sieve, and 0-5% passing No. 200 sieve), and water, with a maximum 28-day compressive strength of 100 psi, conforming to following proportions:

Batch Weight/Cubic Yard 50 lb/cu yd Mixing Water Portland Cement 30 lb/cu vd Flv Ash 200 lb/cu vd 3200 lb/cu yd Fine Aggregate

# Submit CDF mix design for District review prior to use.

# C. Pea Gravel

Bedding material for PVC or HDPE pipe shall be well graded, clean granular gravel material commonly known as pea gravel Material slightly smaller than pea gravel may be used

Bedding material shall meet the following requirements:

U.S. STANDARD SIEVE SIZE PERCENT PASSING 3/8" Square Opening 100% No. 8 Sieve 0 - 5%

# D. Sand Bedding Material

Bedding material for ductile iron pipe shall conform to the requirements of WSDOT/APWA 9-03.13. Backfill for Sand Drain".

# F Concrete Encasement

Concrete material for encasing water mains crossing over sewer pipes shall have a 30-day compressive strength of not less than 1,500 psi. The mix shall have a slump of between one (1) and five (5) inches.

Native materials will be considered suitable for use in backfilling if the material is not sensitive to moisture (compactable if moisture content is greater than optimum). Native materials shall be a sand and gravel combination with no deleterious materials. All materials shall pass a 3-inch sieve.

# G. Imported Backfill Material

Durable crushed gravel or rock; or naturally occurring sands and gravels free from wood, bark, roots or other extraneous material, meeting the requirements of WSDOT/AWPA 9-03.19 for "Bank Run Gravel for Trench Backfill", with percent sing the No. 200 sieve limited to 5 percent max.

Hot Mix Asphalt (HMA) shall be CL ½" as specified in WSDOT/APWA Section 9-03.9(6) Aggregates for Hot Mix Asphalt HMM Approximations of Materials, and Performance Graded PG 58-22. Aggregate for applications of Materials, and Performance Graded PG 58-22. Aggregate for appliant concrete shall conform to the requirements of WSDOT/APWA Sections 9-03.8(1) through 9-03.8(6) for Aggregates for Hot Mix Asphalt, inclusive.

# . Crushed Surfacing

- 1. Top Course and Keystone Material (5/8" Minus): For use in the restoration of excavated areas. Top Course and Keystone material shall conform to the requirements of WSDOT/APWA 9-03.9(3), "Crushed Surfacing" for Top Course and Keystone
- 2. Base Course Material (1 1/4" Minus): Base Course Material shall conform to the requirements of WSDOT/APWA 9-03.9(3), "Crushed Surfacing" for Base Course,

# J. Not Used

# K. 7/8-inch Drain Rock

Material for drains around facilities such as hydrants, blowoffs, and hill holders shall conform to the requirements of WSDOT/APWA 9-03.12(5), "Gravel Backfill for Drywells", except that the material shall be washed to remove fine

# I. Not Used

# M. Grou

Grout shall consist of one part Portland Cement, three parts fine sand, and sufficient water to allow proper workability

. - Low permeable fill material, a non-dispersible clay material having a minimum plasticity index of 10

- 1. Unsuitable materials include the materials listed below:
- (a) Soils which, when classified under ASTM D 2487 Standard Classification of Soils for Engineering Purposes (Julifed Soil Classification System), fall in the classifications of Pt (Peat), OH (organic clays of medium to high plasticity, organic silts), CH (inorganic clays of high plasticity, organic silts), CH (inorganic clays of high plasticity, fat clays), MH (inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts), or OL (organic silts and organic silty clays of low plasticity). OH, CH, MH with liquid limits of greater than 50 and OL liquid limit less than 50.
- (b) Soils which cannot be compacted sufficiently to achieve the density specified for the intended use or as determined by the District. Soil additives for drying or stabilization will not be allowed, including but not limited to fly ash, Portland cement, or kiln dust.
- (c) Materials that contain organic material, hazardous or designated waste materials including petroleum hydroleum pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.
- (d) Soils that contain greater concentrations of chloride or sulfate ions, or have a soil resistively or pH less than the existing on-site soils

# P. Ductile Iron Pipe

Ductile Iron pipe shall be cement mortar-lined as specified herein unless otherwise indicated on the plans. Any pipe found to have dimensional tolerances in excess of those prescribed by the manufacturer or having defects which prevent adequate joint seal or any other damage shall be rejected. If requested by the District, not less than three nor more than five pipe lengths of pipe for each size, selected from stock by the District, shall be tested as specified for maximum dimensional

Ductile Iron pipe shall conform to AWWA Standard C151, Thickness Class 52 or as indicated on the Drawings. Pipe with cement mortar lining shall conform to AWWA C104. Ductile Iron pipe and fittings for sewer shall be lined with PROTECTO 401 ceramic epoxy coating (Manufacturer - Induron, Birmingham, Alabama (888) 773-2401). Joints shall be mechanical joint or push on joint and shall conform to AWWA C111.

- Ductile Iron and Cast Iron fittings shall conform to AWWA Standard C110. Mechanical or push-on joints shall conform to AWWA Standard C111. Flanged joints shall conform to ASA Standard B-16.1, Class 125 with ductile iron followers. All fittings shall be cement mortar lined in conformance with AWWA Standard C104.
- 2. Where required on the Drawings, restrained push-on joint pipe and fittings shall be provided. Restrained joint pipe shall conform to AWWA Standard C151. Thickness Class 52 or as indicated on the Drawings. Pipe shall have cement combining Annual Standard C131, minkings uses 32 or as minicated or the brawning. Installar are demining mortar lining conforming to AWWA C104. Restrained joints shall conform to AWWA C111. Restrained joints shall be designed for a water working pressure of 350 psi for sizes 4-inch through 24-inch, 250 psi for sizes 30-inch through 48-inch, and 150 psi for sizes 54-inch through 64-inch. Submit type of restrained joint pipe to the District for
- 3. Ductile Iron pipe shall be polywrapped.
- 4. Ductile Iron pipe shall be furnished with factory-installed plugs in each end of each stick of pipe. Such plugs shall remain installed until the pipe is ready to be installed in the trench
- Q. Polywrap for Ductile Iron Pipe

Polywrap shall conform to ANSI/AWWA A21.5/C105 (See AWWA C600) for linear low-density polyethylene film.

# R PVC Pine for Watermain:

PVC pipe 4 inches or larger in diameter shall conform to AWWA C900. Class 150. PVC pipe for water service shall only be used where crossing the gas pipeline easement. The pipe shall conform to WSDO

PVC pipe for depths up to twenty (20) feet, and less than 14 inches in diameter shall conform to ASTM D3034 and shall be defined as flexible conduit. Joints shall conform to ASTM D3212 using a restrained rubber gasket conforming to ASTM F477. Fittings shall be injection molded tees. Saddles fastened to pipe with external bands are not acceptable on any nev

PVC pipe used for depths twenty (20) feet and greater and less than 14 inches in diameter shall conform to AWWA specification C900, Class 150 (DR 18). Joints shall conform to ASTM D3139 with rubber gaskets meeting ASTM F477. Fittings shall be Class 150 injection molded tees, meeting the requirements of AWWA C-907 and ASTM D1784.

# T. HDPE Pipe for Water Mains and Pressure Sewers

HDPE pipe for water mains and pressure sewers may be used in specific situations where Ductile Iron pipe is no appropriate or feasible. The use of HDPE requires written District approval. The specifications and class of the HDPE will be rmined on a project-specific basis including such factors as working pressure

# U. C-905 PVC Pipe for Non-Pressure (Gravity) Sewers

C-905 PVC pipe may be considered for lines that are fourteen (14) inches and greater in diameter. Pipe shall conform to the

All pipe joints shall be rubber gasketed. Rubber gaskets shall conform to ASTM F477.

# V Gate Valves

- 1. Gate valves shall conform to AWWA C-515, be epoxy coated, resilient seated, have a non-rising stem, a minimum of 200 PSI working pressure unless otherwise specified, shall have a standard 2-inch operating nut, and the standard opening rotation shall be counter-clockwise
- 2. Gate valves shall be used for all water mains less than 12 inches in diameter. Gate valves are allowed for wet taps.
- 3. Butterfly valves shall be installed on all water mains 12 inches and larger. Butterfly valves may require plugging for
- 4. Where called for on the plans, gate valves shall be used for sewers four (4) inches and large
- 5 Special valves and fittings shall be as specified on the plans.
- 6. Gate Valves shall be one of the following types, with stainless steel bolts:
- a) Mueller
- b) Kennedy M & H c) Clow
- d) US Pine
- e) American Flow Control Series 25002-17
- f) AVK

Valve boxes shall be Cast Iron, 2 piece, suitable for installation required, equal to Olympic Foundry Company/APWA Valve Box VB045. Valve box lids shall fit snugly in the casting. Valve Box Lid shall be marked "WATER" for water facilities. Valve boxes shall be Olympic Foundry 940 and marked "SEWER" for sewer facilities.

Valve marker posts shall be reinforced concrete posts, 4"x4" on one end and 4"x6" on the other end, and 42" long. Posts shall be equipped with 1.5" raised Cole brand numbers refere nall be equipped with 1.5" raised Cole brand numbers referencing distance to the valve to the nearest foot. Col umbers shall be installed using waterproof Liquid Nails brand glue suitable for metal surfaces.

# Y. Concrete Blocking

Concrete blocking shall be a 1:3:6 mix with a six-inch (6") maximum slump.

All bolts shall be new and shall be of the same type and quality of the pipe or fittings as supplied by the manufacturer. Bolts

# AA. Flange Gaskets

lange gaskets shall be Ring-type cloth insert rubber gaskets 1/16-inch thick equal to Rainbow or Durable Garlock. Gaskets shall cover the full face of flanged fitting ends.

Flexible couplings shall be cement-lined, Mechanical Joint, Ductile Iron long-pattern sleeves unless otherwise approved by

CC. Galvanized Steel, Pipe And Fittings For Blowoffs And Air Vacuum Relief Valves

Galvanized steel pipe shall conform to ASTM A120-65, Schedule 40. Galvanized steel fittings shall be malleable galvanized.

# All water mains shall be cement-lined Ductile Iron as specified herein unless otherwise indicated on the Plans

Butterfly valves shall conform to AWWA C-504. Unless otherwise specified the valves shall be class 150, ductile iron, epoxy coated, stainless steel bolts, shaft seals shall be "O" ring type, the standard opening rotation shall be counter-clockwise and shall have a standard 2" operating out

- Butterfly Valves shall be one of the following types:
- a) Mueller/ Pratt
- b) Kennedy M & F

# B. Fire Hydrants

- Fire hydrants shall be a dry-barrel, compression-type traffic model with a 5-1/4 inch main valve opening (MVO) with brass on brass or brass on stainless steel seating as specified for 36-inch trench, unless otherwise designated, flanged at ground line, 6 inch MJ connection with lugs suitable for rods; two 2-1/2 inch hose connections, National Standard Thread; pumper connection shall be a 4\_inch Seattle Standard Thread 4.875 x 6 equipped with a five (5) inch, 125-5 Storz quick connect fitting, unless otherwise noted on the drawings or as required by the local fire departmen jurisdiction. Operating nut shall be 1-1/4 inch pentagon and shall open counter-clockwise. Hydrant shall be so constructed that the direction facing of pumper connection may be rotated to face the roadway. Hydrants shall comply with AWWA C502. Unless otherwise specified, hydrant shall be of dry barrel traffic type with break flange construction
- 2. Hydrants shall be one of the following types:
- a) Dresser M&H 929
- b) Mueller A423 (Super Centurion 250)
- c) Clow Medallion
- d) American Darling B-62-E e) AVK Series 2780
- f) U.S. Pipe Sentinel 250

# C. Tapping Sleeve And Valve Assembly

Where required by the District, tapping sleeves shall be Romac FTS 420 or JCM 412, with fusion\_bonded epoxy coating and Type 304 stainless steel fasteners. The gate valve shall conform to the requirements herei

See Standard Details - Service Connections.

# E. Service Saddle

See Standard Details - Service Connections.

# F. Water Service Pipe

Water service pipe shall be DRISCOPLEX 5100 ULTRA-LINE or PW EAGLE manufactured from a high density, extra high molecular weight pipe resin by Divertive defined by ASTM D3350 having a cell classification of 34554C as polyethylene type III, grade PE34, (PE3408). Pipe shall be Iron Pipe Size - ID ASTM D2239 - SIDR 7 and have a working pressure of 20 PSI at 73.4 degrees F. The polyethylene extrusion compound from which the PE pipe and tubing are extruded shall be made of virgin quality material. The polyethylene pipe or tubing shall be marked in accordance with ASTM D-2239 for IPS pipe sizes and ASTM D-2737 for CTS tubing sizes and carry the National Sanitation Foundation (NFS) seal of approval. See Standard Details for installation procedure

# G. Air and Vacuum Relief Valve Assemblies

Air and Vacuum Relief Valve assemblies shall be APCO No. 143-C, Crispin UL10 or District approved equal for one (1) inch assemblies and APCO No. 145-C, Crispin UL20 or District approved equal for two (2) inch assemblies, or approved equal equipped with a brass plug on top service port, and shall conform to WSDOT/APWA 9-30.3(7).

# H. Hydrant Guard Posts

Hydrant guard posts shall be reinforced concrete posts, 8"x8"x6' long, 8" diameter x 6' long, or 9" diameter x 6' long. The same size and type of guard posts shall be used around each hydrant.

# 2.3 SEWER SYSTEMS

# A Sewer Pine and Appurtenances, Non-Pressure

Gravity sewer pipe shall be either PVC Pipe for Non-Pressure (Gravity) Sewer Service or PROTECTO 401 ceramic epoxy lined Ductile Iron pipe as specified herein. Pipes with slopes greater than or equal to twenty (20) percent shall be PROTECTO 401 ceramic epoxy lined Ductile Iron pipe or C-900 PVC. C-905 PVC pipe may be considered for lines which are fourteen (14) inches in diameter or greate

# B. Sewer Pipe and Appurtenances, Pressure

High pressure sewer pipe and appurtenances shall be Ductile Iron pipe as specified herein.

- 1. Gravity side sewer pipe shall conform to the requirements of the Sammamish Plateau Water and Sewer District "Side Sewer Regulations", latest edition
- 2. New side sewer connections on an existing sewer main for a single connection (not in conjunction with a new development) shall conform to the requirements listed below.
  - Cut-in PVC side sewer tee

a. For existing D3034 PVC Sewer Main (less than 20 feet in depth), the side sewer connection shall be one of th

Insert-a-Tee, installed per Inserta Fittings Co.'s requirements

- Romac "SST" Stainless Steel Tapping Sleeve (w/ stainless steel flange), with FLxMJ adapter with PROTECTO 401 ceramic epoxy lining and gasket sized for D3034 PVC side sewer. Romac side sew saddle, Model CB, is NOT allowed
- b. For existing C900 PVC Sewer Main (20 feet or greater in depth), the side sewer connection shall be a cut-in to of one of the following materials:
- C900 PVC side sewer tee with a C900 side sewer up to the transition point to D3034 PVC
  - . Epoxy-lined ductile iron tee with a C900 side sewer up to the transition point to 4-inch D3034 PVC
- c. For existing ductile iron Sewer Main (20 feet or greater in depth), the side sewer connection shall be a cut-in t of epoxy-lined ductile iron, with a C900 side sewer up to the transition to 4-inch D3034 PVCor Romac "SST Stainless Steel Tapping Sleeve (w/ stainless steel flange), with FLxMJ adapter with PROTECTO 401 ceramic enough lining.

# D. Side Sewer Pipe, Pressure

der pump side sewer pipe shall conform to the requirements of the Sammamish Plateau Water and Sewer District "Sid

Low pressure mainline sewer pipe shall be either two (2) inch or three (3) inch diameter high-density polyethylene plastic pipe (HDPE SDR 11), confor pe (HDPE SDR 11), conforming to the materials requirements in the Sammamish Plateau Water and Sewer Distrewer Regulations", latest edition.

Galvanized steel shall not be used in manholes. See Standard Details for material requirements for standard manholes and

# I. Cast Iron Frames and Covers

Cast Iron frames and covers shall conform to the Olympic Foundry Company No. MH 30 Traffic Type or equivalent was in the last overest since contained to the control of the cont have a maximum of one hole, and a rubber plug per the Standard District Detail shall be installed in the hole.

Manholes located outside of public rights-of-way shall be equipped with a 3-bolt, lockdown cover. All movable par shall be made of noncorrosive metals otherwise arranged to avoid possible binding. The locking frame and cover shal be Olympic Foundry Company No. MH 30 D/T Traffic Type or equivalent marked "SEWER" in two (2) inch raised

# Manhole covers in pedestrian or bike lane areas shall have low embossment lids.

All manholes rings and covers shall be machine finished or ground on seating surfaces so as to assure nonrocking in any position, and interchangeability. At the request of the District, there shall be made available at the found standard rings and standard covers for use by inspectors in testing fit and seating.

At the request of the District, there shall be made available at the foundry a testing device suitable for proving the capacity of the assembly to resist an uplift pressure on the lid equal to a 20-foot head.

All manhole frames and covers shall be identified by the name or symbol of the manufacturer. This identification shall An inalimote raintee and overes are determined by the raintee of symbol of the inalimatical raintee. This identification is to be in a plainty visible location when the frame and cover is installed. In addition to the manufacturer's identification the material shall be identified by the following "NOD" or "DUC" for nodular or ductile iron respectively. The manufacturer's identification and the material identification shall be adjacent to each other and shall be minimum 1/2. inch letters recessed to be flush with the adjacent surfaces.

Precast manhole components shall conform to ASTM C478 except as modified herein. Base section openings receive pipe shall be circular and held to the minimum size practical to accommodate the pipe to be inserted effectively seal the joint. Kor n-Seal boots shall be used for all pipe penetrations. Connections shall conform WSDOT/APWA 7-05.3. All manholes shall be channeled in the field. Pre\_channeled manholes are not permitted.

Where the direction of future extensions from the manhole are known, a 2-foot stub and cap shall be installed in Kor-n-Seal boot at that location and the manhole shall be channeled to receive the future flow. The 2-foot stub sha be removed and replaced when the future extension is installed. Precast manhole elements shall be provided with steps and/or ladders such that the completed manhole will contain

continuous vertical ladder with rungs equally spaced at twelve (12) inches plus or minus 3/4 inch. The lowest run, shall be not more than sixteen (16) inches above the shelf, and the uppermost rung shall be not more than eightee (18) inches below the street surface. Ladder rungs or handholds in the manhole neck area must be recessed 2 inche for improved clearance. Joints between precast manhole elements shall be rubber gasketed with O-rings or approved equal conforming to Solids between process relationate remembers stant or though generated with Chings or approve edge controlled the ASHTO M198 and shall be submitted to the Distri for approval, prior to manufacture or purchase. Completed joints shall show no visible leakage and shall conform the dimensional requirements of ASTM C478.

Drop manholes, wherever shown on the plans, shall conform in all respects to the requirements for standard manhole as specified above. Pipe and fitting materials shall be ductile iron and shall conform to the specifications for ducti ron pressure sewer main

Standard precast cones shall provide an eccentric reduction from forty-eight (48) inches to twenty-four (24) inches a shall not be less than seventeen (17) inches in height. Precast cones shall conform to WSDOT/APWA 9-12.4.

Polypropylene plastic steps shall be a polypropylene plastic step injection molded around a 1/2 inch diameter AST A-615, Grade 60, steel reinforcing bar. Step dimensions and pattern shall conform to the WSDOT/APWA 7-03.5.

Precast manhole base sections shall be provided with a ladder as shown in the Standard Details. Ladders shall made of the same material as the steps installed in the manhole sections. All ladders shall be subject to approval t

Ladders shall be installed so they are centered on the largest shelf of the manhole or as otherwise directed by the

The manhole into which a force main or low pressure mainline discharges shall be lined 5-9 mils of Tnemec Series 466 Permashield MCU, or Wasser Aeroshield. In addition, the two manholes downstream of that manhole shall be lined with Tnemec Series 466 Permashield MCU or Wasser Aeroshield if installed as part of the same proj

Existing manholes downstream of the force main discharge shall be lined with a material resistant to hydrogen sulfide corrosion, such as Wasser Aeroshield or Tnemec Series 446 Permashield MCU. Submit product info District review

# G. Air And Vacuum Relief Valve Assemblies

Air and Vacuum Relief Valve assemblies shall be stainless steel ARI D-020 with flanged connection.

Cleanout assemblies for private side sewers shall not be allowed in the right-of-way or in private access tracts. Cleanout assemblies shall be brought up to finished grade with a locking cleanout cover (Olympic Foundry No. M-1025, n "SEWER"). See District Standard Detail.

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# 2.4 GENERAL

Except as otherwise noted herein, all work shall be done in accordance with the Plans and Specifications approved by the District and as recommended in the applicable American Water Works Association (AWWA) specifications and/of the lates detition of the Washington State Department of Transportation/American Public Works Association, Washington State Chapter (WSDOTIAPWA) Standard Specifications for Road, Bridge, and Municipal Construction, and/or the 10 States Standards, and according to the recommendations of the material or equipment manufacturer. In the event of a conflic between the specifications herein, the District shall determine which specification controls. Work shall be done only by contractors licensed and bonded with the State of Washington and experienced in the installation of public water and/o sewer mains.

The District will strictly enforce the erosion and sedimentation control requirements of other agencies. These requirements include, but are not limited to, slit fencing, check dams, catch basin filtration, and removal of debris from sawcuts by appropriate methods such as vacuuming.

Temporary lot numbers, addresses, or building numbers shall be clearly marked on the curb. These numbers are used by the District for side sewer inspections and water meter installations.

No work shall be done until all necessary permits have been received from the agencies having authority.

A preconstruction conference and a minimum of 48-hours notice will be required prior to starting construction.

Inspection shall be by a representative of the Sammamish Plateau Water and Sewer District. All work shall be inspecte prior to backfill. All pressure testing shall be done in the presence of the District. The Contractor shall supply all equipmer and materials necessary for testing.

ANY APPROVED CHANGES TO THE PLANS AS APPROVED SHALL BE NOTED ON THE CONTRACTOR'S CONSTRUCTION DRAWINGS. THE CONTRACTOR'S MARKUPS SHALL BE PROVIDED TO THE DISTRICT AT THE COMPLETION OF CONSTRUCTION.

All locations of existing utilities shown are approximate and it shall be the Contractor's responsibility to verify the true and correct location so as to avoid damage or disturbance. Separations from potable water mains shall conform to Washington State Department of Ecology's "Criteria for Sewage Works Design"

# Separation Between Other Utilities:

Water - in accordance with criteria set forth in DOE guidelines

Storm Sewer - Three (3) foot horizontal clearance

Underground Power, Gas, Telephone and Cable - Three (3) foot horizontal dearance is preferred when utilities are aligned parallel to the water main. In any case where less than three (3) foot separation occurs, exact measurements to the utility lines shall be provided on the As-Built drawings.

Horizontal distances on construction drawings are measured between centerlines (e.g., centerlines of water fittings, centerlines of sewer manholes, etc.). Actual distances shall be computed at the time of staking.

Pipes Entering Structures - A flexible fitting shall be placed on all lines entering/exiting vaults or other structures, shall be located outside of the structure. And shall be located within five (5) feet of the structure. The flexible fitting shall provide protection from earthquake shaking by providing a point where the difference in vibration rates of the joe and the structure can be absorbed. For watermains, for example, the fitting shall be a mechanical joint ductile iron sleeve, unless a mechanical joint bell connection occurs within 5 feet of the structure, outside of the structure, in which case the flexible fitting may be omitted.

Repaving shall be in accordance with the requirements of the agency having jurisdiction over the area to be paved. Monuments shall be restored by a Washington State licensed surveyor following completion of the overlay. Monument cases shall conform to King County standards; monument cases of other agencies (such as Snohomish County monument cases) will not be allowed.

# A. Alignmen

Unless otherwise specified, the location of the water mains, sewer mains, fittings, manholes and other appurtenances shall be staked out by a Washington State licensed surveyor supplied by the Developer/Contractor.

Contractor shall provide survey and layout required to perform the work. In all questions arising as to proper location of line and grades, the District decision will be final. Cuts to invert of watermain and sewer main shall be shown on staking along with finish grade elevations. Deviations from the alignment shown on the plans must be specifically authorized by the District.

The Contractor's Washington State licensed surveyor shall place offset wood hubs (in soil) and/or steel pins (in asphalt or concrete) showing finished grade and cut depth to invert periodically (at least every 100 feet) along the pipeline alignment, and before and at all changes in alignment vertically or horizontally. Hubs/pins shall be placed far enough in advance of such alignment changes so that the manufacturers and specified deflections can be met. Hubs/pins shall be placed and marked for fittings and provide the District with a cut sheet containing the location, description, and elevation information for all hubs and pins. The Washington State licensed surveyor shall survey the installed invert elevations at the bell end of each piece of pipe and shall provide the District with a cut sheet of the invert elevations.

# B. Trench Excavation

Trench excavation shall be in compliance with OSHA and WISHA regulations and requirements and shall meet the following requirements unless otherwise directed by the District or otherwise shown on the District approved Plans

Trenches shall be excavated to the line, depth and grade as approved by the District. Unless otherwise directed by Contract Documents or the District, trench excavation shall provide a minimum cover over the pipe of thirty-six (36) inches for water mains, forty-eight (48) inches for sewer mains, or as required to meet the depth requirements of sanitary sewer manholes or other necessary structures. Trench sides shall be excavated vertically. Trench widths shall be adequate for proper working space and the placement of any required bedding material under and around the pipe. The maximum trench width at the crown of the pipe shall be the outside diameter of the pipe barrel plus twenty-four (24) inches. For eighteen (18) inch diameter or larger pipe, the trench width at the crown of the pipe shall not exceed 1.5 times the inside diameter. If these widths are exceeded, a stronger grade of pipe and/or a higher dassification and amount of bedding material shall be furnished, as directed by the District. Excavation for manholes or other structures shall be sufficient to provide a minimum of twelve (12) inches between their outer surfaces and the sides of the exeavation.

The trench shall be kept free from water until jointing is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Gravel required in the bottom of the trench due to action of weather or workers shall be turnished by the Contractor. Boulders, rocks, logs, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth six (6) inches below pipe. Where material is removed from below grade, the trench shall be backfilled to grade with material which meets the District's standards for trench foundation gravel, and thoroughly compacted. Trenching operations shall not proceed more than 100 feet in advance of pipe laying.

If the native trench bottoms will provide a firm base for the subsequent placement of bedding, pipe and backfil, such native trench bottom may be used if the bottom is leveled and smoothed so that the entire length of pipe will rest on a well compacted base.

Trench bottoms shall be over-excavated as necessary to remove all unstable soil and eliminate "boiling" or "quick" conditions to such a depth as to provide a firm base. Over-excavated materials shall be replaced with trench foundation gravel shall be deplaced in no more than one foot lifs. When trenching operations cut through concrete or asphalt pavement, the pavement shall be removed to a width of eighteen (18) inches greater than the top width of the trench. The concrete shall be out on a straight line. Asphalt paving shall be cut ahead of the trenching equipment to prevent excessive tearing up on the surfacing and to eliminate ragged edges.

# C. Timbering and Sheeting

The Developer and/or Contractor shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties. All timbering and sheeting above the pipe shall be removed prior to backfilling. All sheeting below the top of the pipe shall be cut off and left in place. Removal of timbering shall be accomplished in such a manner that there will be no damage to the work or to other properties. All timbering and sheeting shall be to the Developer's design and shall meet all requirements as specified by OSHA and WISHA!

# D.Pipe Laying

Each gravity sewer pipe shall be laid with bells upgrade and the invert of the pipe to the alignment and grade shown on the plans. Concentric joints shall be closed and a smooth invert provided.

Open ends of pipe or fittings shall be temporarily capped or plugged at all times

A laser alignment tool shall utilized for alignment and be capable of self-leveling adjustable line and grade with locking features. The tool shall be inserted into the pipe with a Class IIIA < 5.0mW Laser Diode. For gravity sewers, adjustment to the line and grade shall be done by scraping away or filling in and tamping bedding material under the body of the pipe. No wedging or blocking of the pipe for adjustment to line and grade may be done.

Tees, wyes, elbows, valves, cleanouts, and other appurtenances shall be installed as shown in the standard details herein and at such locations as are shown on the plans or as otherwise directed by the District, and shall not be covered until the District has completed inspection and exact location has been recorded on the proise field belan drawings by the Contractor.

For gravity sewers, variance from established line and grade shall not be greater than 1/32nd of an inch per inch of pipe diameter, but shall not exceed ½ inch or result in a level or reverse sloping invert. Variation in the invert elevation between adjoining ends of pipe due to non-concentricity of joining surface and pipe interior surfaces shall not exceed 1/64th of an incoer inch of pipe diameter or ½ inch in any event.

For sewers, the furthest downstream manhole shall be plugged in the downstream side and remain plugged throughout the beried of construction, until final acceptance of the project by the District, to prevent debris and/or infiltration from entering he District system.

# 1. Ductile Iron Pipe

Pipe laying shall in general conform to AWWA Standard C600 and the manufacturer's recommendations unless specifically contradicted by these Specifications. Special care shall be taken in handling pipe to avoid damaging ends, caatings and linings. Pipe shall be carried in slings and shall not be rolled or dragaged. The pipe shall be examined for defects and damage while suspended before lowering into trench. Any damage shall be repaired before pipe is lowered into trench. All pipe shall be polywrapped in accordance with AWWA C600. Special care shall be taken to avoid damaging the polywrap during installation and backfilling.

# 2. PVC Pipe

PVC pipe shall be bedded by hand with material containing no organic matter and no rocks larger than 3/4". When in the opinion of the District the native material will not meet this requirement, the District may require that bedding material, Section 9-03.16. Pipe shall not be dropped or handled roughly and shall be checked for cracks and defects prior to installation. Any cracked or defective pipe shall not be installed.

# 3. HDPE (Low Pressure Mainline) Sewer Pipe

HDPE pipe shall meet the installation requirements for PVC pipe. Joints shall be flanged or thermal fusion butt-welded and shall meet the requirements in the District's "Side Sewer Regulations", latest edition. Tracer wire shall be installed with the low pressure mainline to its termination point. A minimum of three (3) feet and a maximum of six (6) feet of cover shall be provided.

# 4. Contamination Prevention

All pipe, fittings, and valves shall be carefully cleaned of all dirt and foreign materials as they are placed. The open ends of pipe and fittings shall be plugged with a temporary watertight plug at all times. Groundwater shall be prevented from entering the pipe at all times.

# E. Pipe Joints

No joints shall be covered until examined and approved by the District. Joint material shall be installed according to the nanufacturer's recommendations.

The pipe shall be properly aligned before the joint is forced home. During insertion of the tongue or spigot the pipe shall be partially supported by hand, sling or crane as required to minimize lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Pipe deflection and straightening shall be avoided once the joint is home, to prevent creep of the joint,

Pressure shall be applied in making the joint to assure that the joint is home, as defined in the pipe manufacturer's standard nstructions for installation. Restraint shall be applied to the line to assure the joints, once home, are held so by tamping fill under and alongside the pipe or by other appropriate means. When pipe laying is not in progress, the last pipe laid shall be blugged and blocked in such a manner as may be required to prevent water and debris from entering the pipe and creep during downtine.

# F. Bedding Material Placement

The requirement for use of bedding material shall be at the sole discretion of the District. Where bedding material is equired, it shall be placed from a minimum of six (6) inches below the pipe barrel to six (6) inches over the top of the pipe as shown on the standard details herein. Bedding material shall be placed before the pipe is installed and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than six (6) inch thickness shall be placed to six (6) inches over the crown on the pipe and individually compacted to 90% of maximum density.

Removal of shoring or moveable trench shields or boxes shall be accomplished so that the bedding material placement is not disturbed.

In solid rock excavation, all ledge rock, boulders or stones shall be removed to provide a minimum clearance of eight (8)

nches under the pipe. All material thus removed shall be replaced with bedding material

# G. Backfilling

lo backfilling shall be performed until after the District has inspected the installation of the pipe and approved backfilling.

Native material that meets the requirements of Imported Backfill may be used for trench backfill upon approval by the Distric

Backfill material shall be moisture-conditioned as necessary to achieve the required compaction as described herein.

Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of sarth materials having a maximum dimension larger than 3 inches. Backfilling shall be performed carefully so that no damage is done to the pipe or to its alignment. The District may direct the contractor to use special backfill techniques whe t deems necessary.

Fill, backfill materials shall be selected or processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation and organic materials. In areas such as existing paving, or in areas to be paved, where the District determines that minor settlement would be detrimental and the native excavated material is not suitable for compaction as backfill, the trench shall be backfilled with Imported Backfill material.

Materials not defined as unsuitable in Part Two - Material Standards are defined as suitable materials and may be used in most ackfilling, and embankment construction subject to the indicated limitations. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required to meet the quantity requirements for the project, imported materials shall conform to the suitable material standards herein. Suitable materials are defined in Part Two - Material Standards.

All trenches shall be fully backfilled at the end of each day or, in fleu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each day at the District's discretion. Backfilling operations shall not follow more than 100 feet from pipe laying operations. The above requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and wanging lights meeting applicable safety requirements shall be provided and maintained. All street crossings shall be backfilled with 1 1/4" crushed rock or as otherwise required by the District, or local Adency (Citiv/King County).

The pine zone is defined as that portion of the vertical trench cross-section lying between a plane below the bottom surface of the pipe and a plane at a point above the top surface of the pipe as identified on the standard trench section detail. The bedding is defined as that portion of pipe zone backfill material between the trench subgrade and the bottom of the pipe.

Backfill material shall be placed and compacted around and under the pipelines by hand tools, unless otherwise approved the District, to a height of six (6) inches above the top of the pipe.

The pipe zone shall be backfilled with suitable backfill material as described herein. Care shall be exercised to prevent damage to the pipeline coating, cathodic bonds, and the pipe itself during the installation and backfill operations, if the operations, the proveable trench shield is used during backfill operations the shield shall be lifted to a location above each layer of backfill material prior to compaction of the layer. The pipe or backfill shall not be displaced while the shield is being moved.

Backfill material around another utility crossing the water or sewer trench, such as gas, power, and fiber optic, shall comply with the backfill material requirements of that utility.

After the pipe zone backfills have been placed, backfilling of the trench zone may proceed. The trench zone is defined as that portion of the vertical trench cross-section lying as indicated between a plane above the top surface of the pipe and a plane at a point 18 inches below the finished surface grade, or if the trench is under pavement, 18 inches below the roadw subrarde.

Final backfill is all backfill in the trench cross-sectional area within 18 inches of finished grade, or if the trench is under payement, all backfill within 18 inches of the roadway subgrade.

In addition, a∎ backfi∎ in right-of-way shall meet King County Road Standards, latest edition or appropriate governi authoritv's requirements.

The remaining backfill material shall be placed and compacted in layers not more than twelve (12) inches thick (two feet loose thickness), except that under roadways all backfill material shall be placed in layers not more than six (6) inches thick and mechanically compacted to the density of the existing subgrade, unless state or county requirements are more stringer All backfill shall be compacted to 95 percent of maximum density (modified Proctor), unless otherwise directed by the District.

Where compaction densities are specified, measurements of density shall be by the modified AASHTO method. The District may require that an independent laboratory or King County Laboratory be employed to perform in-place density tests as proof of compaction which meets these Specifications. Compaction of native material as trench backfill shall be tested and certified by an independent laboratory. All costs shall be borne by the Developer. At its discretion, the District may request supply samples for testing of any material used in the work.

All test trenches and excavations including excavation, trench support, and groundwater removal for the field soils testing operations shall be provided as required by the District. The trenches and excavations shall be provided at the locations and to the depths required by the District. Lawn areas destroyed by test trenching and excavation shall be regraded and re-landscaped with sod or hydro seeding as directed by the District.

Compaction testing shall be performed at a frequency of every five feet of depth and every 50 feet or with any changes in sails conditions, equipment, or operator personnel, or as directed by the District

Regardless of the approval of the District as to manner of compaction, testing, acceptance by the District or otherwise, the Contractor/Developer shall repair any settlement of trenches and excavations that may occur within one year after completion and acceptance of the work by the District.

All pavement trench repair shall be provided in accordance with WSDOT/APWA 5-04.3(5)E and joints, surface smoothness and other related pavement construction shall be provided as specified in WSDOT/APWA 5.04, or as directed by the District.

# H.Grade Lines

The contractor shall maintain the correct grades of sewer pipes. All bench marks, reference points and stakes shall be preserved and, in case of destruction of any of them, the resulting expense of restoration shall be borne by the Developer. Laser beam equipment for grade and alignment control shall be required.

# Boring and Casing

In situations where the pipeline is to be bored, the pipeline shall be placed inside a casing. The casing pipe shall be smooth steel, bare pipe, 0.375 inch minimum wall thickness, and comply with ASTM A139, Grade C, with a minimum steel yield of 36,000 psi. To support the pipe inside the casing, pipe slides, casing spacers or 4" x 4" treated timbers with stainless steel straps shall be used to maintain vertical and horizontal alignment. After installation of the pipe in the casing is complete, the casing void shall be filled with sand or grout and the ends of the casing shall be grouted.

# J. Pipe in Fills

Special treatment may be required at the discretion of the District for pipe in fills. This treatment may consist of compacting the backfill in 6-inch layers, careful choice of backfill materials, use of ductile iron pipe in short lengths, or such other reasonable methods or combinations as may be necessary in the opinion of the District.

# K. Highway Crossings

This item applies only to rigid surface pavements. The Developer may use any method which provides satisfactory results and is acceptable to the governmental agency having control of the road and to the District, provided that the Developer restores the roadway to its original condition. Normally, highway crossings require the placing of a steel casing by jacking, tunneling or boring and laying the pipeline within this casing. In case of tunneling, subsequent low pressure grouting through the pavement may be required.

# L. Valve Installation

Before installation, valves shall be cleaned of all foreign material as hereinbefore specified for installation of pipe. Such blocking as the District may deem necessary shall be provided.

# M. Valve Box Installation

The valve box shall be set centered on the valve operating nut. Valve boxes shall be set flush in pavement. In gravel roads the valve box shall be set in a three (3) foot diameter circular pad of two (2) inch thick asphalt, flush with the gravel surface. Installation of pavers or slic cans to adjust valve boxes to finished grade is not allowed.

# N. Valve Marker Posts

Valve marker posts shall be set where required by the District for all valves except auxiliary valves for hydrants and Type I blowoffs. The marker shall be set on a line through the valve. The marker shall generally be set on the property line unles the District decides another location is safer or more conscious.

# O. Concrete Blocking

Concrete blocking with specified material shall be cast in place and have a minimum of 1/4 square foot bearing against the fitting and bearing area against undisturbed soil as shown on the District's Standard Details. Additional bearing area may be required by the District. Blocking shall be are against fittings only and shall be clear of joints so as to permit taking up or dismantling joints. All fire hydrants, bends, tees and valves shall be blocked. All sewer force main bends and valves shall be blocked. The Developer/Contractor shall install blocking which is adequate to withstand full test pressure as well as to continuously stand operating pressures under all conditions of service.

# P. Air and Vacuum Release Valve Installation

Location of the air release valves as shown on the Plans is approximate. The installation shall be set at the high point of the line.

# Q. Access Roads

Access roads shall be used only where the use of public or private roads to which the District has access is infeasible or unavailable. Use of access roads to water and sewer facilities must be approved by the District. The road surfacing shall be appropriate to the neighborhood (such as gravel, grass-crete, paving, cobblestones, etc.). At a minimum, access roads shall be twelve (12) feet wide designed for H-20 loading, with a minimum of two-and-a-half (2-1/2) inches crushed surfacing base course and one-and-a-half (1-1/2) inches crushed surfacing top course, as defined in WSDOT/APWA Section 9-03.9(3), over a District-approved subgrade compacted to 95 percent relative compaction, unless otherwise approved by the District.

Turnarounds shall be provided at all dead ends, either a hammerhead type with forty\_five (45) foot long legs and forty (43) foot inside radii, or circular with a diameter of eighty-five (85) feet. The maximum road grade for gravel access roads shall be 7 percent (7%). If the road grade is greater than seven percent, the access road surfacing shall be paved with asphalt concrete pavement.

# R. Painting

1. Exposed parts above ground shall be painted as follows:

a) Fire hydrants shall be painted with two coats of semi-gloss quick set enamel. The color shall be Safety Yellow

b) Hydrant posts, type I blowoff assemblies, water air/vacuum assemblies for water mains and water valve markers shall be painted with two coats of semi-closs quick set enamel. The color shall be Safety Yellow.

c) Distance to valves shall be marked with raised Cole numbers on the valve marker, blowoff stem, air vacuum assembly stem or Hydrant. Apply numbers with waterproof Liquid Nail.

d) Sewer air/vacuum release valve vents shall be painted with two coats of semi-gloss quick set enamel. The color shall be Safety Green.

2. Piping and Appurtenances within Structures:

a) Water Facilities: One (1) rust resistor prime coat and two (2) coats of semi-gloss quick set enamel. The color shall be Safety Blue.

 b) Sewer Facilities: One (1) rust resistor prime coat and two (2) coats of semi-gloss quick set enamel. The color shall be Safety Green.

# Vaults:

The exterior of vaults below grade shall be painted with two (2) coats of black bitumastic solution.

# 4. Meter Box Location stripes:

Meter Box Location stripes (3 in, x 12 in,) shall be painted with two coats of semi-gloss, quick set enamel. The color shall be Safety Yellow.

5. Sewer Air/Vacuum Release Valve Vents:

Two coats of semi-gloss quick set enamel. The color shall be Safety Green.

# S. Raising Structures to Grade

The Developer/Contractor shall notify the District prior to raising any water or sewer system structures to grade. All water or sewer system structures (i.e. valves, manholes, dean-outs, monuments, etc) shall be raised within 48 hours of installation of ATB or Asphall Concrete overlay unless directed by the District to raise said structures sooner.

# 3.2 WATER SYSTEMS

All water mains shall have a minimum cover of 36 inches below finished grade. Where utility conflicts occur, water mai shall be lowered to clear, except that water mains may not be installed under sewer facilities.

Where more than one fitting occurs in close proximity to each other (i.e., a tee and a valve), the fittings shall be flanged together.

# A. Fire Hydrant Installation

Hydrant installation shall generally conform to AWWA Standard C600 unless specifically contradicted by the detail for Fire Hydrant Assembly included in the District's Standard Details. The concrete guard posts as shown on the Standard Detail shall be installed where required by the District. Pumper nozzle shall face the road after installation is completed, unless otherwise specified. Hydrants shall be covered with a bag until operational.

No fences, rockeries, trees, or guardrails shall be installed between the fire hydrant and the main. A minimum of five (5) fe clear zone shall be provided between the fire hydrant and any rockery or structure.

# B. Water Service Connections

Connections shall be installed with double strap type pipe saddle that uses stainless steel straps

Installation shall be as shown in the District Standard Details. Splices or couplings in service lines will not be acceptable

Draining the water system to install the meter setters will not be allowed. Water services shall be installed so the fillings/shavings are removed.

# C. Meter Box Installations

Meter boxes shall be installed only in unimproved or landscaped areas not subjected to driving or parking. In unimproved or landscaped areas, meter boxes shall be set two (2) inches above the finished grade, including landscaping or mulch. Meter boxes shall be centered over the meter setter(s).

The area surrounding meter boxes shall be backfilled with backfill material conforming to Part 2.1 F (Native Backfill Material) or 2.1 G (Import Backfill Material). Maximum size particle shall be 2 inches. Sand or pea gravel shall NOT be used.

If paved or concrete areas are installed around meter boxes after the meter box is installed, the water service shall be

istrict. Such meter boxes sha∎ be traffic-bearing boxes as specified on the Standard Details. Meter boxes sha∎ be set flus

abandoned at the main and a new water service shall be installed perpendicular to the main so that the new meter box is located in an unimproved area not subject to traffic.

Meter boxes may be located in or near driveways or paved areas only with written District approval, or as required by the

When the meter box is installed in concrete paving, a 5/8-inch expansion joint shall be provided around the box with a eighteen (18) inch gap between the expansion joint and meter box on all sides.

with concrete or asphalt surfaces (roadway, sidewalk, driveways, driving or parking surfaces, etc.).

Install a water meter marker post at the meter box location until landscaping is completed

A twelve (12) inch by three (3) inch stripe shall be painted on the ATB or finished asphalt, perpendicular to the edge of the asphalt, to mark the location of each meter box. The color of the stripe shall be as per section 3-1.R(4) "Painting".

No fences, rockeries, trees, or guardrails shall be installed between the meter box and the ma

# D. Backflow Prevention (Cross Connection Control)

Where the possibility of contamination of the water supply exists, the District will require that certain services be equipped with a backflow prevention assembly that is approved by DOH. The determination as to the need of a backflow prevention assembly shall be solely determined by the District.

Pursuant to Washington State Regulation WAC 246-290-490 and current District Resolution regulating the District's Cross Connection Program, the District shall receive a Backflow Prevention Assembly Test Report performed by a certified Washington State Tester, prior to acceptance of the system by the District.

Any transfer of water from a District water main to a vehicle or container must have District inspection and approval as to the method and equipment.

Any use of District water for construction purposes must be from a hydrant or other District-approved source with appropriate, District-approved cross connection control. District personnel will inspect the installation for conformance with District requirements.

# E. Connections To Existing Water Mains

District standard testing connections shall be installed on new water main construction. Direct connection to the District's existing system shall not be made until the new water main is tested and accepted by the District. Following receipt of satisfactory purity tests, schedule with District (1 week minimum notice) for water main shutdowns. Flowing completion o new water system construction, testing, and acceptance by the District, remove testing connection and instal segment of ductile iron pipe, length to suit, with two long-pattern sleeves or as directed on the District-approved drawings. Installation and connection to the existing water system shall be with 100% District inspection.

Connections to the end of an existing water main line shall be made with a main line valve, sized the same as the main line size, and new main construction connected to the new valve. Exceptions shall be considered where there is an existing valve in close proximity to the new connection.

Tapping of existing DI pipelines where required by the District, shall be made under pressure with tapping sleeve and valve assembly. Joints shall be tested using normal test pressure prior to start of tapping existing main. District shall determine where tapping under pressure is required. Romac FTS 420, or JCM 412 fusion-bonded, epoxy coated, steel tapping sleeve with Type 316 stainless steel fasteners or approved equal shall be required.

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Where cut-ins are to be made in existing pipes, the work shall be conducted at a time specified by District and in such a where users are to be induced in examing pipes, the work shall be conducted at a time specified by District and in sour a manner as to minimize the interruption of service. Necessary pipe, fittings and gate valves shall be assembled at the site ready for installation prior to the shutting off of water in the existing main. Once the water has been cut off, the work shall by prosecuted vigorously and shall not be halted until the line is restored to service.

Unless specifically provided for elsewhere in these Specifications, the Developer shall have the responsibility of giving at least 72 hours notice to the District of intention to disrupt service and shall give at least 72 hours notice to the affect users. Water service shutdowns shall not be scheduled on Mondays or Fridays.

Developer/Contractor shall not operate any valves, including fire hydrant valves, in any part of the District's water system, except in the presence of the District. Developer and/or Developer's Contractor shall be fined for tampering with the District's water system if valves are operated without the District being present. Developer shall notify the District 4-bases between the present of th

# 3.3 SEWER SYSTEMS

# A Manholes

Precast manhole base sections shall be placed on a well-compacted bedding course of bedding material. The depth of the bedding shall be four (4) inches thick or greater, extending a minimum of twelve (12) inches beyond the outside perimeter of the base section. The balance of any remaining excavated area shall be filled with imported backfill material and well-tamped to the level of the top of the bedding before the manhole is set in place. The bedding shall be well-tamped and made smooth and level to assure uniform contact and support of the precast elements

All lift holes (inside and outside) and the inside face of rubber gasket joints between precast sections shall be thoroughly ted and then filled with grout, smoothed and all joints poi

Precast sections shall be placed and aligned to provide vertical sides and vertical alignment of ladder rungs. Eccentric c shall be positioned to allow vertical access to the ladder. The completed manhole shall be rigid, true to dimension and

Manholes eight (8) feet and less in depth shall have cones a maximum of two (2) feet in height.

Manholes twenty (20) feet or greater in depth shall conform to the Deep Manhole detail on the Standard Details

Manholes set in paved streets or other paved areas shall be set flush with finished grade of the paving and when required the manhole frame shall be tilted to conform to the grade on the paved surface

Manholes set in gravel shoulders or other non-payed improyed areas shall be set flush with the finished grade and in an asphalt apron six (6) feet in outside diameter. The asphalt apron shall be tapered per the Standard District Detail manhole frame shall be tilted to conform to the grade of the finished surface.

Manholes not set in paved or improved areas shall be set at a finished grade six (6) inches to twelve (12) inches higher tha the surrounding terrain to prevent surface water infiltration into the system, unless plans specify otherwise. Manholes shall be surrounded by an asphalt apron as shown on the Standard Details.

Manholes installed in wet areas shall have additional measures added to ensure no water infiltration. Consult with District

Manhole channels shall be made to conform to the sewer grade and shall be brought together with well-rounded junctions Channel sides shall be carried up vertically to the top of the largest pipe's diameter and rounded to the shelf at the largest pipe's crown elevation. The concrete shelf shall be smoothly finished with slopes to drain.

The openings through which pipes come into the manhole shall be completely and thoroughly grouted. A watertight joint (Kor-n-Seal boot or approved equal) shall be provided where the pipe passes through the manhole wall.

# B. 6-Inch Side Sewer from Main to Property Line

The strength class of side sewer pipe shall be the same as the sewer pipe to which it connects and these specifications shall he applicable to side sewer work

The slope of side sewers shall not exceed one (1) foot vertical to one (1) foot horizontal when using SDR 35 D3034 PVC, nor be less than 2 percent. If ductle iron or C900 piping is used along with the corresponding change in mainline material, then slope is allowed a maximum of two (2) foot vertical to one (1) foot horizontal nor be less than two percent. When change in slope between connecting pipes exceeds two (2) inches per foot, standard 1/8 bends shall be used. All side sewers shall be plugged and plugs blocked.

The end of all side sewers at the property lines shall be marked with a vertical twelve (12) foot long, 2"x4" board. the botton of which shall be located at the invert of the elevations of the side sewer and top of which shall be painted white and extend above the ground. The board shall be wrapped from one end to the other with a 12 AWG insulated wire. The wire shall be securely wrapped around the end of the side sewer. The word "SEWER" shall be stenciled in two (2) inch high black letters on the upper end of the board. Depth to invert shall be clearly shown on the board. For inverts that are deeper than 12', the boards shall be extended to at least 4' above finish grade and the corresponding measurements to invert shall also be clearly shown.

# C. Connection to the Existing Sewer System

Extensions to the District's sewer system shall be isolated from the existing system with a plug installed at the existing manhole in the presence of District personnel and maintained by the Developer until the sewer extension is accepted by the District. Developer and/or Developer's Contractor shall be fined for tampering with the District's sewer system if the plug is removed or a connection is made without the District being present. Developer's Christic 48 hour in advance of need to install or remove plug or connect to the system. No connections shall be made to the existing sewer system without the presence of the District. Written application for connections shall be made to the District, and the connection shall be made at a time agreed upon with the District.

- Connections to existing manholes shall be made as follows
- a) If the manhole is "live", the manhole channel shall be tightly covered to prevent debris from entering the sewer lin prior to breaking into the manhole wall. Immediately after the connection is made, the new pipe shall be plugged an blocked in such a manner that no water shall enter into the existing manhole. The plug shall not be removed without permission of the District. Additional upstream plugs may be required by District.
- b) If the existing manhole is not "live", a plug shall be installed in the downstream or discharge pipe of the exist manhole in addition to the above. Where new connections to existing manholes require an outside drop, two plug for each drop shall be installed and blocked.
- c) The existing manhole shall be rechanneled
- 2. Connections to existing sewer main shall be made as follows
- a) The existing line shall be cut and removed from the manhole excavation. A new manhole shall be installed in place of a) The existing line snall be cut and removed from the mannole excavation. A new mannole snall be installed in place of the removed existing line. The manhole shall be precast, minimum 48-inch diameter. The manhole shall be placed with a full stick of pipe centered through the manhole and coupled to both ends of the existing sewer line. The new sewer line inside the manhole shall be cut out and the manhole channeled. Sewage must be bypassed during
- 3. Connections of side sewers to an existing sewer line shall be made as follows
- a) The connection to an existing sewer main shall be made with a cut in tee with slip couplings. If the connection is made to the existing sewer pipe while in operation, the existing sewer pipe shall be cut with a saw or approved equal to give a smooth beveled edge of the proper size and the lip shall be filed smooth. Each connection shall be bedded vith a minimum of six (6) inches of bedding material. Unsuitable foundation material shall be over-excav
- b) Alternatively, the connection shall be made with Romac "SST" Stainless Steel Tapping Sleeve (with stainless ste flange), with Protecto 401 FLxMJ adapter and gasket sized for appropriate side sewer pipe material; or a rt-a-Tee. Romac side sewer saddle, Model CB, is NOT allowed.

D. Side Sewers (Gravity or Pressure)

Gravity or pressure (grinder pump) side sewers shall be installed and tested in accordance with the Sammamish Platear Water and Sewer District "Side Sewer Regulations", latest edition.

. Use of Ductile Iron Pipe for Sewer

The contractor shall furnish repair kits and shall repair the PROTECTO 401 ceramic epoxy lining damaged during installation, welding and/or field cutting operations.

# F. Lift Station

Lift stations shall be installed per District-approved plans and specifications. Lift stations shall be tested with representatives of the District, Developer, Contractor and all sub-contractors involved with the lift station present. Developer/Contractor shall furnish the District with three (3) copies of the Operation and Maintenance Manuals for the Lift Station in labeled binders.

# 3.4 TESTING FOR WATER AND SEWER PIPELINES

# A. Hydrostatic Tests For Ductile Iron Water Mains

Ductile from water main installations shall be subjected to a hydrostatic pressure test of 250 PSI for a minimum of 15 minute because from water manifestations is stand as supersected or any probability and the standard standard standard before leakage measurement starts. Location of the test pump shall be approved by the District. It shall then be held at this pressure, without pumping, and any leaks or imperfections developing under said pressure shall be remedied by the Contractor before final acceptance of the work. Leakage shall be measured by approved means in the presence of the District. The Contractor shall provide all necessary equipment to allow the District's inspectors to use their gauges and Destrict. The Cultilation strain private an inecessary beginning to show the object of superculs of using agests and equipment and shall perform all work connected with the tests. Tests shall be made after corporation stops and service line are installed, and the trench is backfilled and compacted. All valvies within the section being tested shall be open, if possible butterfly valvies shall be tested at 150 psi above the static water pressure, with a maximum pressure of 250 psi unless

Allowable leakage in gallons per fifteen minutes per 1,000 feet of pipe

2" - 0.06 gallons	8" - 0.24 ga <b>ll</b> ons	14" - 0.42 ga <b>ll</b> ons	20" - 0.59 gallons
4" - 0.12 gallons	10" - 0.30 gallons	16" - 0.48 ga <b>ll</b> ons	24" - 0.71 gallons
6" - 0.18 ga <b>ll</b> ons	12" - 0,36 gallons	18" - 0.54 gallons	

# 3. Hydrostatic Tests For HDPE Water Mains

HDPE water main installations shall be subjected to a hydrostatic pressure test of 1.5 times the rated operating pressure of the pipe. Location of the test pump shall be approved by the District. To establish equilibrium, the pipe shall be raised to the test pressure and allowed to stand without makeup pressure for 2 to 3 hours to allow for expansion of the pipe, unless otherwise approved or directed by the District. After equilibrium is established, the test section shall be pressurized to 1.5 onlewise approved of infected by the Usand. After equinificant is searchised, and the final test pressures that be held for 1,3 or 3 hours as determined by the District at the time of testing. The amount of "make up" water shall be measured in the presence of the the District Inspector, utilizing a District-approved method. The allowable amounts of make up water for expansion during the leak test are as listed below (US Gallons / 100-feet of pipe):

Nominal Pipe Size (inches)	1 - Hour Test	2 - Hour Test	3 - Hour Test
3	0.10	0.15	0.25
4	0.13	0.25	0.40
6	0.30	0.60	0.90
8	0.50	1.00	1.50
10	0.80	1.30	2.10
11	1.00	2.00	3.00
12	1.10	2.30	3.40
14	1.40	2.80	4.20
16	1.70	3.30	5.00
18	2.00	4.30	6.50
20	2.80	5.50	8.00
22	3.50	7.00	10.50
24	4.50	8.90	13.30
28	5.50	11.10	16.80
32	7.00	14.30	21.50
36	9.00	18.00	27.00
42	12.00	23.10	35.30
48	15.00	27.00	43.00

Under no circumstances shall the total time under the test exceed eight (8) hours at 1.5 times the pressure rating. If the test is not completed due to leakage, equipment failure, etc., the test section shall be allowed to "relax" for eight (8) hours prior t

Any leaks or imperfections developing under said pressure shall be remedied by the Contractor before final acceptance of Any teas of imperieutors developing under say pressure small be retrieuted by the Contractor before final acceptance of the work. The Contractor shall provide all necessary equipment to allow the District's inspectors to use their gauges and equipment and shall perform all work connected with the tests. Tests shall be made after corporation stops and service lines are installed. Insofar as is practical, tests shall be made with pipe joints, fittings, and valves exposed for inspections, if possible. All valves within the section being tested shall be open, if possible.

C.Sterilization and Flushing Of Water Mains

Flushing of the water mains is to clean and sterilize the mains. Cleaning includes the flushing at a velocity and volume that

Sterilization of water mains shall be accomplished by the Contractor in accordance with the requirements of the State Department of Health (DOH) and in a manner satisfactory to the District. During pipe installation the Contractor shall install chlorine granules per manufacturer's specifications to achieve a chlorine concentration of not less than 50 PPM. When a chlorine concentration of not less than 50 PPM has been established throughout the line, the valves shall be closed and the line left undisturbed for 24 hours. The line shall then be thoroughly flushed and water samples taken for approval by the local health agency.

If the main fails to pass purity tests the following procedure shall be followed. The section to be sterilized shall be thorough flushed at maximum flow prior to chlorination. Flushing shall be done in the presence of the District. Sections will ordinarily be sterilized between adjacent gate valves unless, in the opinion of the District, a longer section may be satisfactorily handled. Chlorine shall be applied by solution feed at one end of the section with a valve or hydrant at the opposite end opened sufficiently to permit a flow through during chlorine application. The chlorine solution shall be fed into the pipeline lready mixed by an automatically proportioning applicator so as to provide a steady application rate of not less than 60 pp chloring. Hydrants along the chlorinated section shall be opened during application until the presence of chloring has chlorine. Trygrants and gried valoriteds section and be opened our daining application that the possence of calculated definitely been detected. When a chlorine concentration of not less than 50 ppm has been established throughout the line, the valves shall be closed and the line left undisturbed for 24 hours. The line shall then be thoroughly flushed and water samples taken for approval by the local health agency. Chlorination shall be repeated until water samples test satisfactory. The Contractor shall exercise special care in flushing to avoid damage to surrounding property

The Contractor shall be responsible for disposal of treated water flushed from mains and shall neutralize the wastewater fo protection of aquatic life in the receiving water before disposal into any natural drainage channel

D. Cleaning And Jetting Of Sewer Mains

Prior to sewer pipe testing, all pipes shall be cleaned by jetting and vactoring. All debris from the jetting shall be removed a the first manhole where presence of the debris is noted. In event that cemented or wedged debris or damaged pipe can be dislodged by jetting, the obstruction shall be removed and/or repaired. No debris or jetting water shall be permitted to

# E. Testing Of Non-Pressure Sewer Pipe

All non-pressure sewer pipe shall be air tested at 4 psi. The procedures set forth in this section shall be employed in conducting the testing. All facilities and personnel for conducting the testing under the observation of the District shall be furnished by the Developer/Contractor. All equipment and personnel to conduct the test shall be subject to the approval of the District. Although air testing may be performed for the convenience of the contractor prior to backfilling, no pipe shall be accepted until air tests have been performed after backfilling and compacting... The installed pipe shall be tested with low pressure air as set forth in WSDOT/APWA 7-17.3(2)F. Also, testing may not occur built all other nearby utilities have been

All wyes, tees and ends of side sewer stubs shall be plugged with gasketed caps or plugs or an alternate acceptable to the District and securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable

All sanitary sewers constructed of flexible pipe shall be deflection-tested not less than 30 days after the trench backfil and compaction has been completed. The test shall be conducted by pulling a solid-pointed mandrell with a diameter equal to 95% of the pipe diameter through the completed pipeline. Testing shall be conducted on a manhole, to manhole basis afti all the manholes have been channeled and shall be done after the lines have been completely cleaned using a jet/vacuum truck. The contractor will be required, at its expense, to locate and repair any sections falling to pass the test and to retest

The District may require an infiltration test if it appears that there is excessive infiltration after air tests are completed. Th District shall also be the sole judge of whether or not this test is required. The maximum allowable limit for infiltration shall be as per WSDOT/APWA 7-17.3(2)C. Failure to pass the infiltration test shall be cause for rejection.

The District shall require the sewer to be inspected by the use of a television camera not less than 30 days after the trench backfill and compaction has been completed and prior to final acceptance. The television camera used for this inspection shall be a movable head that is capable of rotating a full 360 degrees, to inspect joints and to look into laterals entering the main at all possible angles. The costs of making the inspection(s) shall be borne by the Developer/Contractor. The District 1-1/2" target, or the contractor's District-approved target, shall be used.

The television-inspection format shall be provided on DVD in a MPEG file type that is able to be viewed using Windows Media Player, with separate MPEG files individually designated between each sewer run between manholes and listed on an index or menu. The file names shall reflect the manhole numbers on the plan for each sewer run between manholes. The associated television-inspection reports and the original DVDs shall be provided to the District immediately upon completion of the television-inspection. If contractor wants a copy, the contractor shall obtain one at same time as the riginal is completed. Provide the District with two copies of the written report for each sewer run betw

If a section of the sewer system is found to have deficiencies, the repaired/corrected section of the sewer system shall be subject to, at the District's sole discretion, any and all of the tests described above, at the Developer/Contractor's expense

# F. Hydrostatic Tests For Pressure Sewer Pipe

After the trench is backfilled and compacted, all pressure sewer pipe shall be subjected to a hydrostatic pressure test in accordance with the test for the applicable pipe material, as specified previously in this section. All facilities and personnel for conducting the testing under the observation of the District shall be furnished by the Developer/Contractor and shall be subject to the approval of the District.

G. Testing For Low Pressure Mainline Sewers And Grinder Pump Systems

Testing shall conform to the requirements in the District's "Side Sewer Regulations", latest edition.

# 3.5 ARANDONMENT OF WATER AND SEWER FACILITIES

# A. Abandonment of Water Mains

Water mains and valves to be abandoned shall be abandoned in accordance with the procedures listed below, so as to minimize the risk of leaking from abandoned valves and to minimize obstructions within the right-of-way. If an active wate main that has an abandoned valve attached to it will be abandoned in the foreseeable future, as determined solely by the District, the abandoned valve can remain and its valve can and valve box shall be raised to finished grade, in accordance with A.1 below. However, if the valve is a double disc valve or if it is leaking, it must be removed in accordance with A.2 below. If an active water main that has an abandoned valve attached to it will NOT be abandoned in the foreseeable future nined solely by the District, the abandoned valve must be removed and the tee plugged or blind-flanged, in

- 1. For Abandoned Water Valve to Remain
- a. Turn valve to the closed position.
- b. Remove valve box and valve can c. Inspect valve for longevity of leaking from packing, etc.
- d. If valve is not leaking, cut out section of main from old valve
- e. Install MJ plug or blind flange on valve.
- f. Plug old pipe with concrete. If pressure build-up from ground water entering the abandoned pipe is likely to occur (especially on hillsides) install a blocked M.I can
- g. Re-install the valve box and valve can, and install 6" grout in valve can to indicate a plugged valve
- h. Backfill and compact.
- 2. For Abandoned Water Valve to Be Removed
- Schedule a water main shutdown.
- b. Turn valve to the closed position. c. Remove valve box and valve can.
- d. Cut out section of main from old valve.
- e. Remove valve, and install blind flange or MJ plug on tee.
- f. Plug old pipe with concrete. If pressure build-up from ground water entering the abandoned pipe is likely to occur especially on hillsides), install a blocked MJ cap
- g. Backfill and compact.

# Abandonment of Fire Hydrants

Fire hydrants to be abandoned shall be abandoned in accordance with the procedures listed below, so as to minimize the risk of leaking from abandoned valves and to minimize obstructions within the right-of-way. If an active water main that has an abandoned hydrant foot valve attached to it will be abandoned in the foreseeable future, as determined solely by the District, the abandoned foot valve can remain and its valve can and valve box shall be raised to finished grade, in ordance with B.1 below. However, if the valve is a double disc valve or if it is leaking, it must be removed in accorda with B.2 below. If an active water main that has an abandoned foot valve attached to it will NOT be abandoned in the seeable future, as determined solely by the District, the abandoned foot valve must be removed and the tee plugged o

1. For Abandoned Foot Valve to Remain

- a. Turn 6-inch valve to the closed position.
- b. Remove valve box, valve can, and fire hydrant,
- c. If valve is not leaking, remove entire 6-inch pipe to hydrant, or cut out at least a 1-foot section of main from old valve
- d. Install MJ plug or blind flange on valve.
- e. If hydrant run is not removed, plug both ends of hydrant run pipe with concrete
- f. Re-install the valve box and valve can, and install 6" grout in valve can to indicate a plugged valve
- g. Backfill and compact.
- h. If the existing hydrant is to be relocated due to some conflict, a new hydrant will be installed. The existing hydrant shall be delivered to the District's offices
- 2 For Ahandoned Foot Valve to Be Removed
- a. Schedule a water main shutdown.
- h. Turn valve to the closed position
- c. Remove valve box, valve can, and fire hydrani
- d. Remove entire 6-inch pipe to hydrant, or cut out at least a 1-foot section of main from old valve.
- e. Remove valve, and install blind flange or MJ plug on tee.
- f. If hydrant run is not removed, plug both ends of hydrant run pipe with concrete.
- g. Backfill and compact.
- h. If the existing hydrant is to be relocated due to some conflict, a new hydrant will be installed. The existing hydrant shall be delivered to the District's offices.

# Abandonment of Water Services

Water services must be abandoned at the water main in accordance with the following procedure:

- 1. Excavate to corporation stop and saddle.
- 2. If saddle is a single strap or is not stainless steel or the stainless steel strap/saddle/corporation stop is in poor condition schedule a water main shutdown, then replace the saddle with a stainless steel repair band.
- 3. If the saddle is a stainless steel double strap in good condition, it can remain in place. Shut off the corporation stop ar plug the abandoned service line. Polybag all exposed components of the abandoned saddle. 4. Install a brass plug on the corporation stop.
- 5. On the setter side, cut the service line away from the setter, plug the line, remove the setter and dispose of properly (return to District and place in recycle bin).
- 6. Arrange with the District's Customer Service Department for disposition of the water meter and documentation of the
- 7. Backfill and compact

finished grade.

# D. Abandonment of Manholes or Vaults

Manholes, vaults, and similar underground structures must be abandoned in accordance with the following procedure

- 1. Remove frame and cover or vault lid and hatch(es). 2. Remove manhole cone and sections or vault sections as necessary so that remaining structure is at least 4 feet belov
- 3. Plug all pipe penetrations with grout
- 4. Fill remaining structure with pea gravel to within 3.5 feet of the top of the remaining structure.
- 5. Fill the next 3.5 feet (to the top of the remaining structure) with CDF.
- 6. Backfill and compact the top 4 feet with suitable native material or import backfill to finished grade.

E. Abandonment of Pressure Sewers (Force Mains, Low Pressure Force Mains, and Grinder Pump Lines) All pressure sewer lines, including force mains, low pressure force mains, and grinder pump lines, must be abandoned in

1. Force mains, low pressure force mains, and grinder pump lines that are to be abandoned should be flushed in a

- sanitary way to eliminate a septic condition, if possible 2. Mains shall be physically disconnected from District's system and plug all forcemains larger than 2 inches in diamete with grout. Plug or cap all pipe ends 2 inches or smaller.
- 3. If pressure build-up from groundwater entering the abandoned force main or low pressure force main is likely to occur (especially on hillsides), install a blocked cap or plug on pipe 4 inches or larger, and install a watertight connection (e.g. pack joint) for pipe smaller than 4 inches.
- 4. Possible pressure grouting of abandoned main may be required on a case-by-case basis

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