FRONTAGE WATER PLAN AND PROFILE - TOLT AVE
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

SCALE: 1"=20'

UTILITY CROSSINGS

1. STA 107+78.65, 17.33' RT
IE 12" SD = 73.19
T/P 12" W= 72.19
2. STA 106+46.87, 21.00' RT
IE 24" SD = 70.71
T/P 12" W = 69.71
3. STA 104+26.37, 20.66' RT
IE EX 60" SD = 70.15
T/P 12" W = 68.78

WATER MAIN FITTING TABLE

1. STA 108+53.27 15.22' RT
1–12" 45° BEND (MJ)
CONC. THRUST BLOCKING
CONTRACTOR SHALL FIELD LOCATE EX 12" WATER MAIN. REMOVE EX 12" BEND AND CONNECT.
1–12" GATE VALVE (FLXMJ)
1–12" COUPLING (MJ)
CONC. THRUST BLOCKING
2. STA 107+11.16, 19.23' RT
1–8" TEE (FL)
3–8" GATE VALVE (FLXMJ)
CONC. THRUST BLOCKING
3A. STA 106+61.52, 20.68' RT
IE=73.10
1–12" 45° VERTICAL BEND (RJ)
4 LF 12" DI SPOOL
CONC. THRUST BLOCKING
3B. STA 106+57.21, 20.79' RT
IE=68.69
1–12" 45° VERTICAL BEND (RJ)
CONC. THRUST BLOCKING
3C. STA 106+32.25, 21.19' RT
IE=68.69
1–12" 45° VERTICAL BEND (RJ)
CONC. THRUST BLOCKING
3D. STA 106+27.88, 21.22' RT
IE=73.01
1–12" 45° VERTICAL BEND (RJ)
4 LF 12" DI SPOOL
CONC. THRUST BLOCKING
4A. STA 104+52.45, 20.25' RT
IE=73.58
1–12" 45° VERTICAL BEND (RJ)
6 LF 12" DI SPOOL
CONC. THRUST BLOCKING
4B. STA 104+46.66, 20.39' RT
IE=67.78
1–12" 45° VERTICAL BEND (RJ)
CONC. THRUST BLOCKING
4C. STA 104+08.11, 20.68' RT
IE=67.78
1–12" 45° VERTICAL BEND (RJ)
CONC. THRUST BLOCKING
4D. STA 104+02.14, 20.63' RT
IE=73.75
1–12" 45° VERTICAL BEND (RJ)
6 LF 12" DI SPOOL
CONC. THRUST BLOCKING
5. STA 103+22.93, 21.67' RT
1–12" 45° BEND (MJ)
CONC. THRUST BLOCKING
6. STA 103+17.67, 26.76' RT
CONTRACTOR SHALL FIELD LOCATE EX 8" WATER MAIN.
1–12" GATE VALVE (FLXMJ)
1–12"X8" REDUCER (FLXMJ)
CONC. THRUST BLOCKING

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: FRONTAGE WATER PLAN AND PROFILE - TOLT AVE FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON — STATE OF WASHINGTON — 41423 — REGISTERED PROFESSIONAL ENGINEER — 2/19/22

Scale: Horizontal 1" = 20' Vertical 1" = 5'
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 53 of 83

CALL BEFORE YOU DIG: 1-800-424-5555

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SEWER PLAN - WEST SIDE
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

0 25' 50' 100'
SCALE: 1"=50'

SEWER NOTES:

1. EACH LOTS SEWER SERVICE SHALL BE FITTED WITH A 4" OR 6" AIR TERMINAL SHALL BE PROVIDED FOR EACH VALVE PIT, PER CITY STANDARDS. SEE DETAIL ON SHEETS 65 AND 66.
2. MINIMUM OF 10 FT SEPARATION BETWEEN SEWER MAIN AND WATER MAIN. MINIMUM OF 5 FT BETWEEN SEWER MAIN AND OTHER UTILITIES.

(1) BRANCH TO MAIN LINE CONNECTIONS TO BE INSTALLED PER DETAIL S-3 ON SHEET 65.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

SEWER STUB TABLE

LOT #	INVERT ELEVATION
1–2	IE = 79.68 (6")
3–4	IE = 80.62 (6")
5–6	IE = 81.42 (6")
7–8	IE = 82.02 (6")
9–10	IE = 81.69 (6")
11–12	IE = 81.89 (6")
40–41	IE = 87.90 (6")
42–43	IE = 89.17 (6")
44–45	IE = 85.43 (6")
46–47	IE = 82.13 (6")
48–49	IE = 81.24 (6")
50–51	IE = 80.96 (6")
65	IE = 81.36 (6")
66–67	IE = 83.42 (6")
68–69	IE = 87.06 (6")
70–71	IE = 88.00 (6")
72–73	IE = 85.57 (6")
74–75	IE = 82.65 (6")
76	IE = 80.96 (6")
77	IE = 78.95 (6")
78–79	IE = 79.28 (6")
80–81	IE = 80.48 (6")
82–83	IE = 81.92 (6")
84	IE = 81.74 (6")
85–89	IE = 79.95 (6")
90–91	IE = 81.25 (6")
92–93	IE = 81.62 (6")
94–95	IE = 81.81 (6")
96–97	IE = 81.06 (6")
98–99	IE = 80.38 (6")
100–101	IE = 79.34 (6")
102	IE = 78.90 (6")
103–104	IE = 79.03 (6")
105–106	IE = 79.29 (6")
107–108	IE = 79.38 (6")
109–110	IE = 79.62 (6")
111–112	IE = 79.14 (6")
113–114	IE = 78.72 (6")
115–116	IE = 79.25 (6")
117–118	IE = 79.29 (6")
119	IE = 79.40 (6")
120	IE = 78.31 (6")
121	IE = 78.28 (6")
122–123	IE = 78.63 (6")
124–125	IE = 79.21 (6")
126	IE = 79.01 (6")
127–128	IE = 79.39 (6")
129–130	IE = 79.14 (6")
131–132	IE = 78.66 (6")
133–134	IE = 78.32 (6")
135–136	IE = 78.40 (6")
137–138	IE = 78.96 (6")
139–140	IE = 78.06 (6")

SEE SHEET 55 FOR CONTINUATION

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SEWER PLAN - WEST SIDE
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON
STATE OF WASHINGTON
21423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 50' Vertical N/A
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 54 of 83

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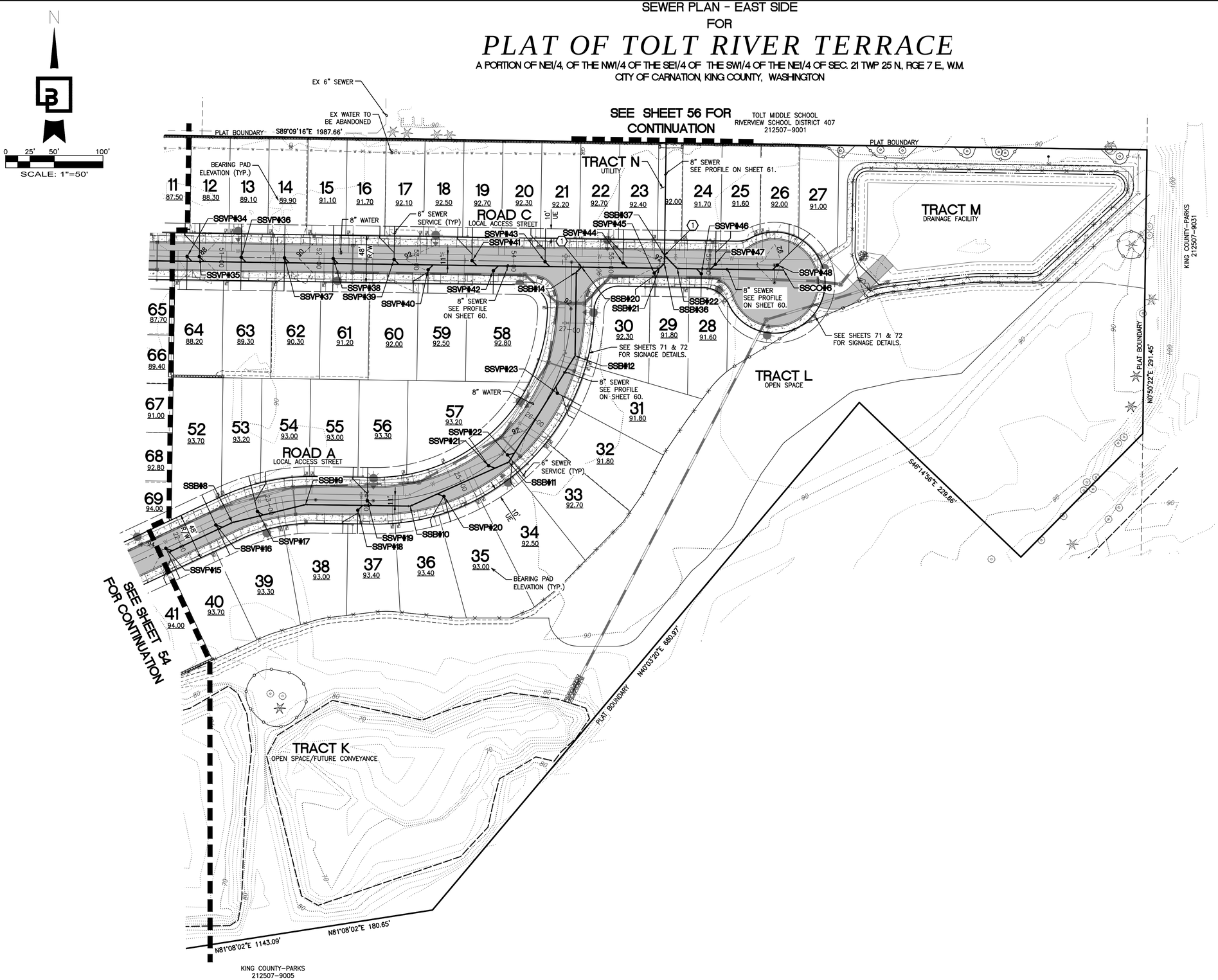
SEWER PLAN - EAST SIDE

FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



SEWER NOTES:

1. EACH LOTS SEWER SERVICE SHALL BE FITTED WITH A 4" OR 6" AIR TERMINAL SHALL BE PROVIDED FOR EACH VALVE PIT, PER CITY STANDARDS. SEE DETAIL ON SHEETS 65 AND 66.
2. MINIMUM OF 10 FT SEPARATION BETWEEN SEWER MAIN AND WATER MAIN. MINIMUM OF 5 FT BETWEEN SEWER MAIN AND OTHER UTILITIES.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

(1) BRANCH TO MAIN LINE CONNECTIONS TO BE INSTALLED PER DETAIL S-3 ON SHEET 65.

SEWER STUB TABLE

LOT #	INVERT ELEVATION
11-12	IE = 81.89 (6")
13	IE = 82.75 (6")
14	IE = 83.64 (6")
15	IE = 84.64 (6")
16-17	IE = 85.79 (6")
18-19	IE = 86.61 (6")
20-21	IE = 86.99 (6")
22-23	IE = 86.35 (6")
24-25	IE = 85.40 (6")
26-27	IE = 84.55 (6")
28	IE = 85.14 (6")
29-30	IE = 85.61 (6")
31-32	IE = 85.20 (6")
33-34	IE = 86.11 (6")
35-36	IE = 86.73 (6")
37-38	IE = 86.71 (6")
39	IE = 87.32 (6")
40-41	IE = 87.90 (6")
52	IE = 87.32 (6")
53-54	IE = 86.88 (6")
55-56	IE = 87.17 (6")
57	IE = 86.47 (6")
58	IE = 86.43 (6")
59-60	IE = 85.77 (6")
61	IE = 84.64 (6")
62	IE = 83.64 (6")
63	IE = 82.75 (6")
64	IE = 81.64 (6")

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SEWER PLAN - EAST SIDE FOR TOLT RIVER TERRACE

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON — STATE OF WASHINGTON — 41423 — REGISTERED PROFESSIONAL ENGINEER — 2/14/22

Scale: Horizontal 1" = 50' Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 55 of 83

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NORTHERN PROPERTY SEWER PLAN AND PROFILE

FOR

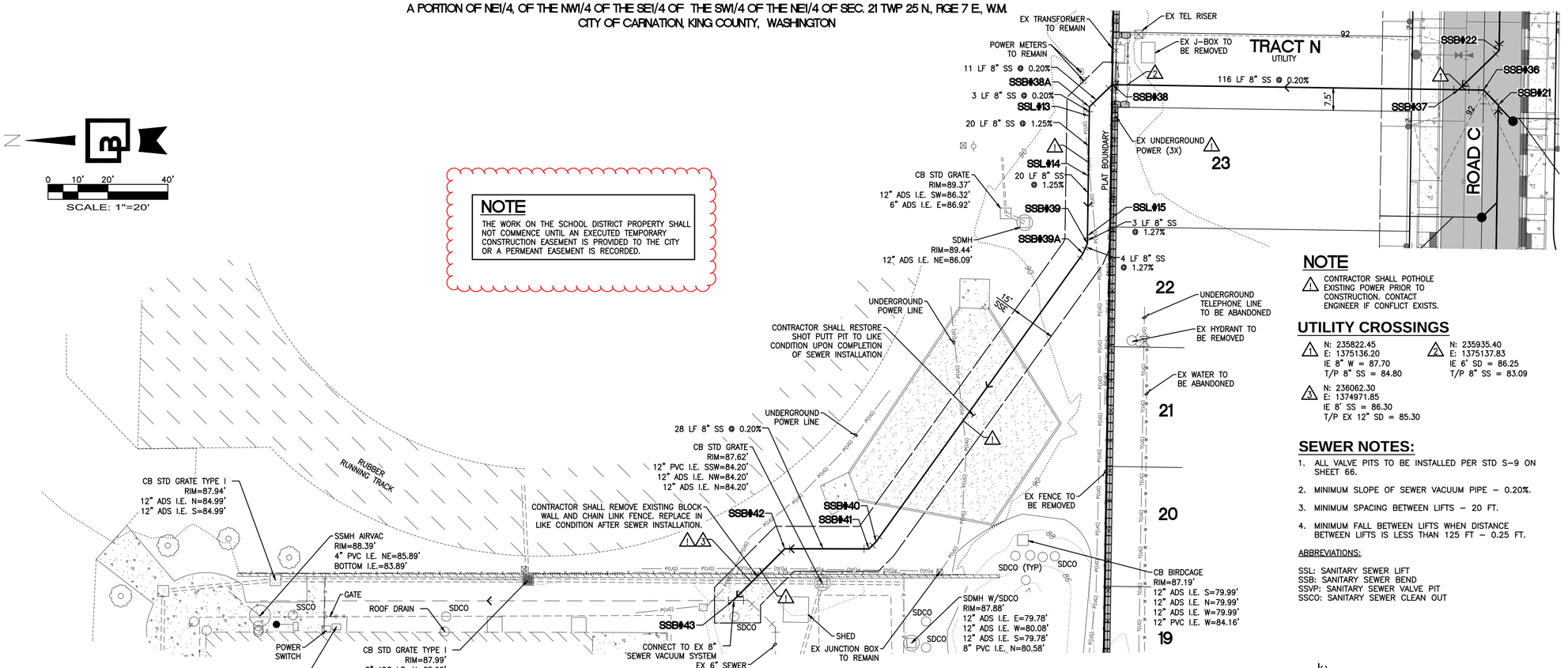
PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

0 10' 20' 40'
SCALE: 1"=20'

NOTE
THE WORK ON THE SCHOOL DISTRICT PROPERTY SHALL NOT COMMENCE UNTIL AN EXECUTED TEMPORARY CONSTRUCTION EASEMENT IS PROVIDED TO THE CITY OR A PERMEANT EASEMENT IS RECORDED.



NOTE

1. CONTRACTOR SHALL POTHOLE EXISTING POWER PRIOR TO CONSTRUCTION. CONTACT ENGINEER IF CONFLICT EXISTS.

UTILITY CROSSINGS

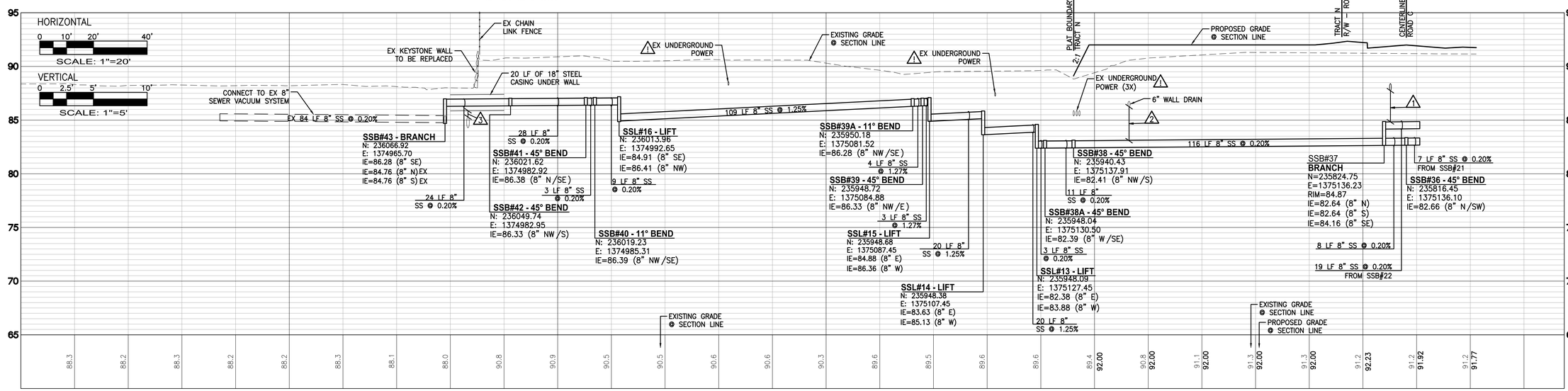
1. N: 235822.45 E: 1375136.20 IE 8" W = 87.70 T/P 8" SS = 84.80
2. N: 235935.40 E: 1375137.83 IE 6' SD = 86.25 T/P 8" SS = 83.09
3. N: 236062.30 E: 1374971.85 IE 8' SS = 86.30 T/P EX 12" SD = 85.30

SEWER NOTES:

1. ALL VALVE PITS TO BE INSTALLED PER STD S-9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT



NORTHERN PROPERTY SEWER

1"=20' HORIZ.
1"=5' VERT.

CALL BEFORE YOU DIG:
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No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: NORTHERN PROPERTY SEWER PLAN AND PROFILE FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON — STATE OF WASHINGTON — 21423 — REGISTERED PROFESSIONAL ENGINEER — 2/19/22

Scale: Horizontal 1" = 20' Vertical 1" = 5'

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 18057

Sheet 56 of 83

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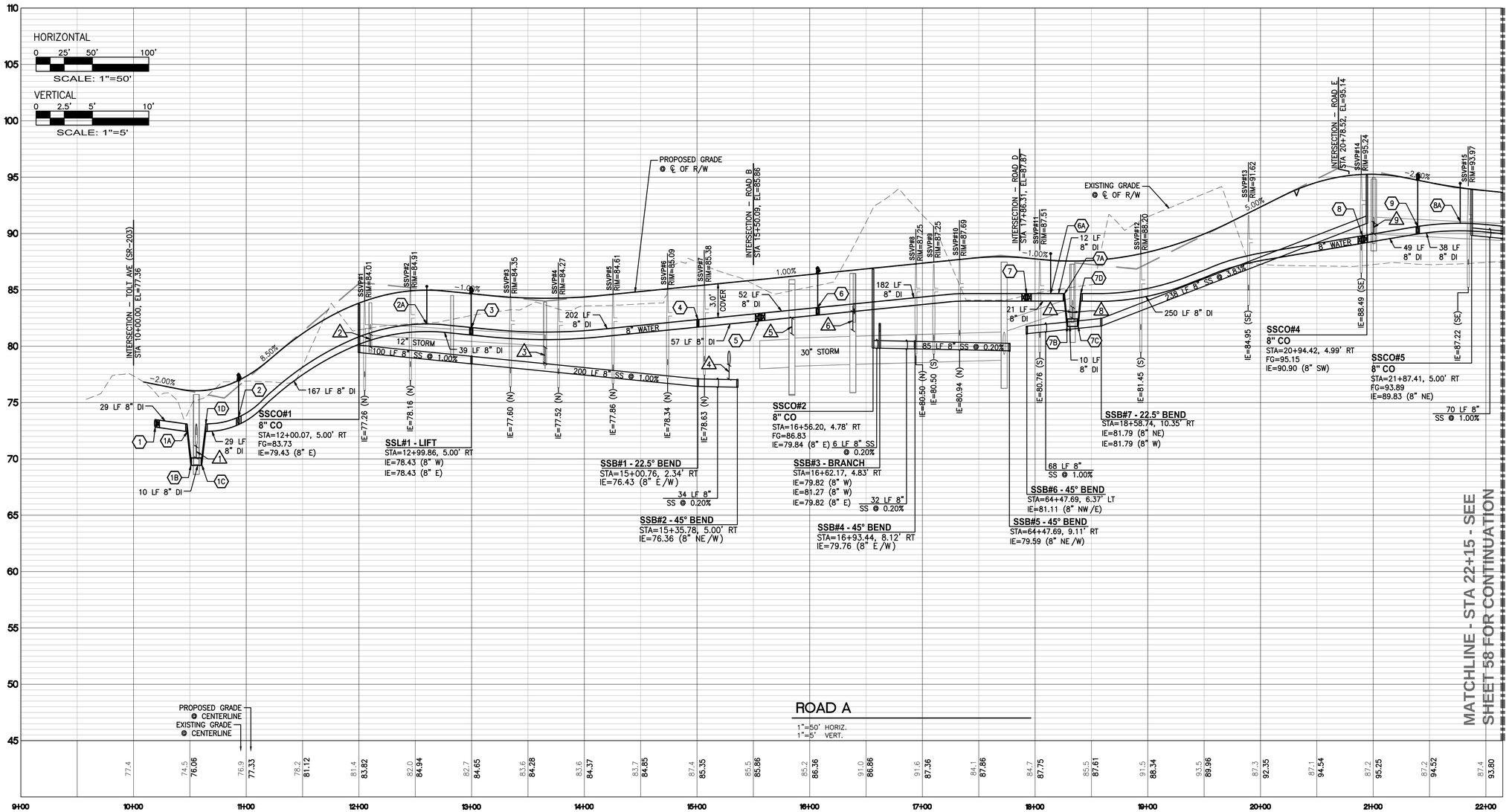
WATER AND SEWER PROFILE

FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



UTILITY CROSSINGS

1. STA 10+55.69, 6.00'LT
   IE 24" SD = 71.09
   T/P 8" W= 70.09
2. STA 12+10.16, 5.00'RT
   IE 12" SD = 81.06
   T/P 8" SS = 79.93
3. STA 13+65.15, 6.00'LT
   IE 18" SD = 79.83
   T/P 8" SS = 78.49
4. STA 15+28.46, 4.95'RT
   IE 18" SD = 78.32
   T/P 8" SS = 77.08
5. STA 15+84.25, 6.00'LT
   IE 8" W = 82.38
   T/P 30" SD = 80.78
6. STA 16+38.30, 6.00'LT
   IE 8" W = 82.92
   T/P 12" SD = 81.40
7. STA 18+33.26, 6.00'RT
   IE 12" SD = 83.47
   T/P 8" SS = 82.23
8. STA 18+33.26, 6.00'LT
   IE 12" SD = 83.47
   T/P 8" W = 82.23
9. STA 21+00.51, 6.00'LT
   IE 12" SD = 90.97
   T/P 8" W = 89.97
10. STA 23+25.98, 6.00'LT
    IE 12" SD = 89.34
    T/P 8" W = 88.34
11. STA 23+25.98, 6.73'RT
    IE 12" SD = 89.40
    T/P 8" SS = 88.25
12. STA 25+62.80, 4.58'LT
    IE 12" SD = 88.65
    T/P 8" W = 87.65
13. STA 25+62.80, 6.77'RT
    IE 12" SD = 88.76
    T/P 8" SS = 87.51
14. STA 26+60.77, 5.00'LT
    IE 12" SD = 89.49
    T/P 8" W = 88.49
15. STA 26+60.77, 6.31'RT
    IE 12" SD = 88.55
    T/P 8" SS = 87.31
16. STA 27+26.88, 6.00'LT
    IE 30" SD = 86.64
    T/P 8" W = 85.64
17. STA 27+26.88, 5.00'RT
    IE 30" SD = 86.52
    T/P 8" SS = 85.15

WATER MAIN FITTING TABLE

1. STA:10+24.24, 6.00' LT
   1–8" CUT–IN TEE (FL)
   3–8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
- 1A. STA 10+47.28, 6.00'LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 1B. STA 10+50.88, 6.00'LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 1C. STA 10+60.50, 6.00'LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 1D. STA 10+64.06, 6.00'LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
2. STA:10+93.26, 6.00' LT
   1–8"X6" TEE (MJXFL)
   1–6" GATE VALVE (FLXMJ)
   1–FIRE HYDRANT ASSEMBLY
   CONC. THRUST BLOCKING
- 2A. STA 12+60.23, 6.00' LT
  1–2" AIR/VACUUM VALVE
3. STA:12+99.55, 6.00' LT
   1–8"X6" TEE (MJXFL)
   1–6" GATE VALVE (FLXMJ)
   1–FIRE HYDRANT ASSEMBLY
   CONC. THRUST BLOCKING
4. STA:15+00.75, 7.67' LT
   1–8" 22 1/2' BEND (MJ)
   CONC. THRUST BLOCKING
5. STA:15+55.92, 6.00' LT
   1–8" TEE (FL)
   3–8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
6. STA:16+07.11, 6.00' LT
   1–8"X6" TEE (MJXFL)
   1–6" GATE VALVE (FLXMJ)
   1–FIRE HYDRANT ASSEMBLY
   CONC. THRUST BLOCKING
7. STA:17+92.31, 6.00' LT
   1–8" TEE (FL)
   3–8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
- 6A. STA 18+13.81, 6.00' LT
  1–2" AIR/VACUUM VALVE
- 7A. STA:18+26.03, 6.00' LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 7B. STA:18+28.26, 6.00' LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 7C. STA:18+38.26, 6.00' LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
- 7D. STA:18+40.49, 6.00' LT
  1–8" 45° VERTICAL BEND (MJ)
  CONC. THRUST BLOCKING
8. STA:20+90.74, 6.00' LT
   1–8" TEE (FL)
   3–8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
- 8A. STA 21+77.23, 6.00' LT
  1–2" AIR/VACUUM VALVE
9. STA:21+39.54, 6.00' LT
   1–8"X6" TEE (MJXFL)
   1–6" GATE VALVE (FLXMJ)
   1–FIRE HYDRANT ASSEMBLY
   CONC. THRUST BLOCKING

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#1	12+05.08	0.00'
SSVP#2	12+45.66	0.00'
SSVP#3	13+34.46	0.00'
SSVP#4	13+77.05	0.00'
SSVP#5	14+25.48	0.00'
SSVP#6	14+73.92	0.00'
SSVP#7	15+06.58	1.84' LT
SSVP#8	16+94.36	2.88' RT

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#9	17+10.14	10.85' RT
SSVP#10	17+33.00	0.00'
SSVP#11	18+04.19	10.00' RT
SSVP#12	18+93.82	0.26' RT
SSVP#13	19+89.42	10.00' RT
SSVP#14	20+89.42	0.00'
SSVP#15	21+84.42	0.00'

SEWER NOTES:

1. ALL VALVE PITS TO BE INSTALLED PER STD S–9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER AND SEWER PROFILE
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON
STATE OF WASHINGTON
#1423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 50' Vertical 1" = 5'

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 57 of 83

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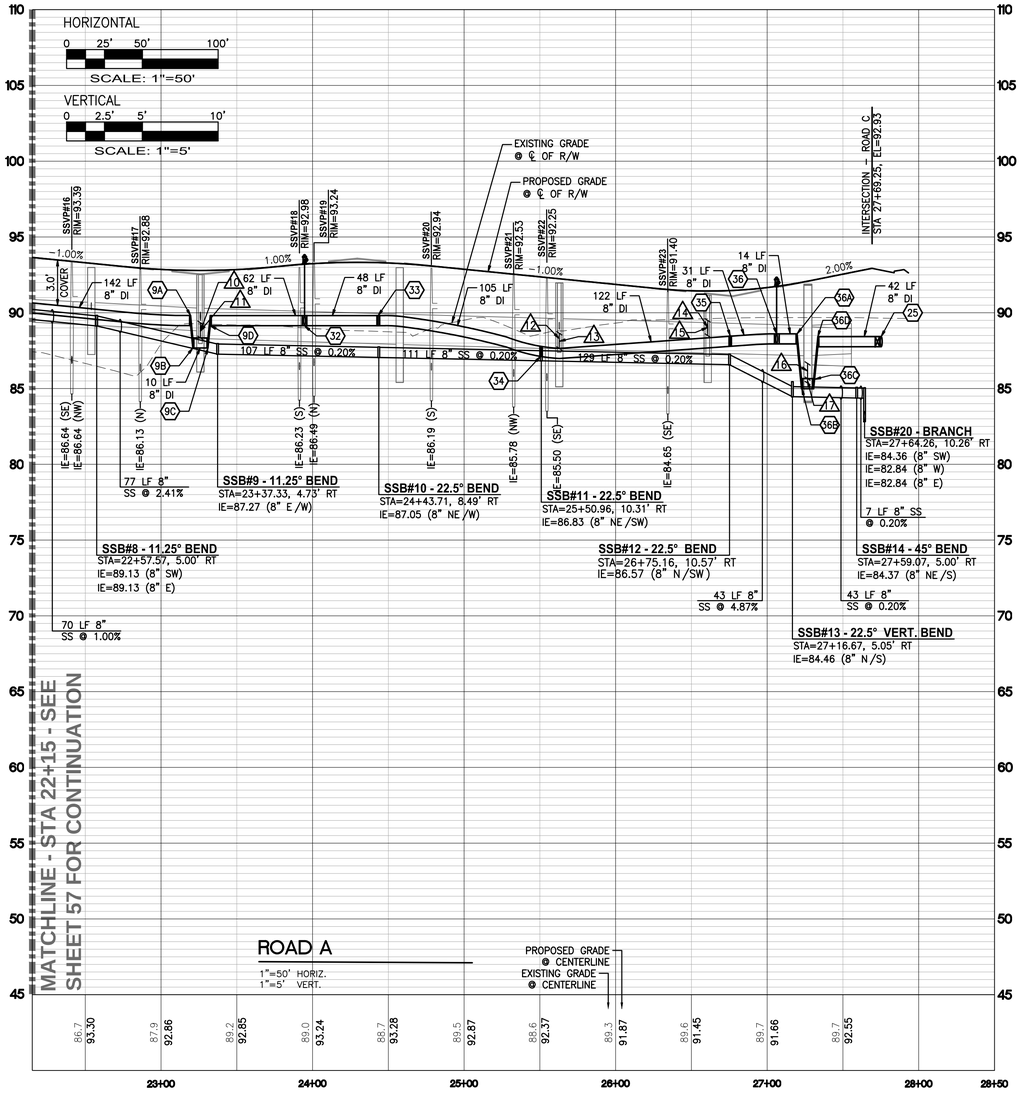
WATER AND SEWER PROFILE

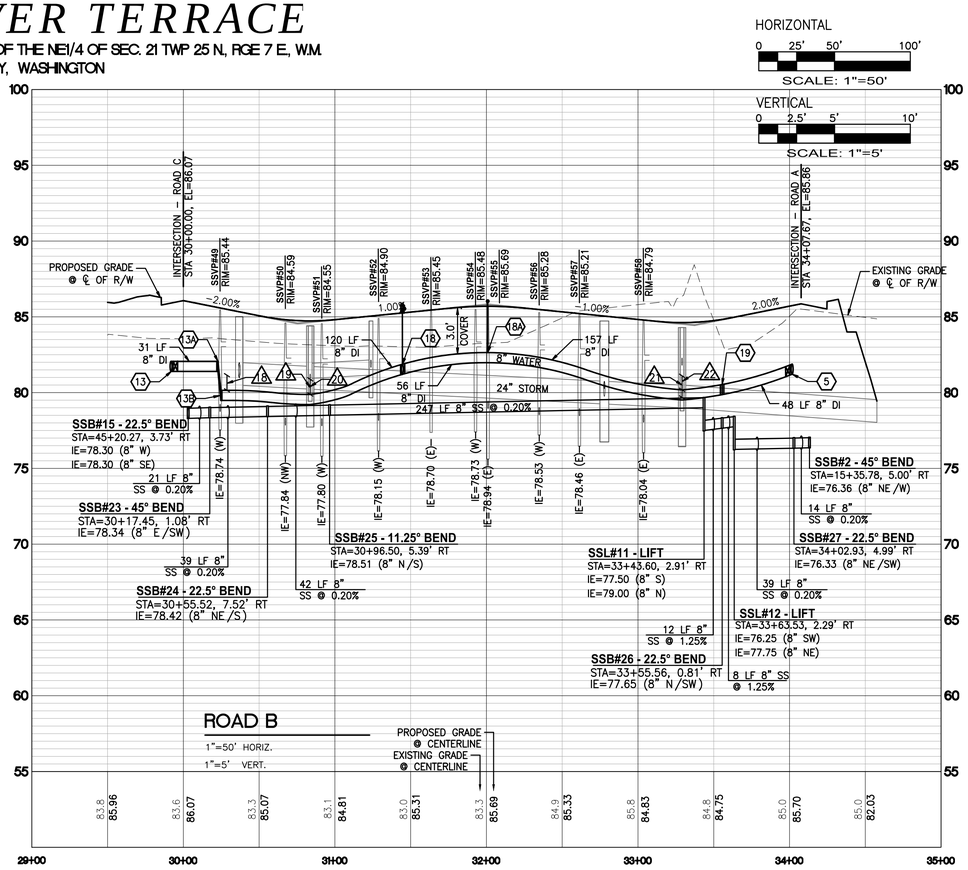
FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.

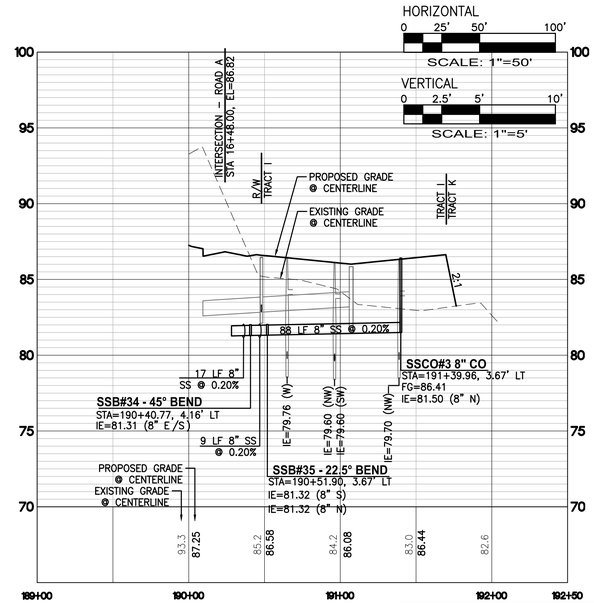
CITY OF CARNATION, KING COUNTY, WASHINGTON





VALVE PIT LOCATIONS		
VALVE PIT #	STATION	OFFSET
SSVP#16	22+41.14	0.00'
SSVP#17	22+86.33	3.46' RT
SSVP#18	23+91.34	10.00' RT
SSVP#19	24+00.97	0.00'
SSVP#20	24+78.44	7.51' RT
SSVP#21	25+32.72	0.60' RT
SSVP#22	25+54.63	3.91' RT
SSVP#23	26+34.45	6.60' RT

VALVE PIT LOCATIONS		
VALVE PIT #	STATION	OFFSET
SSVP#49	30+24.25	6.67' RT
SSVP#50	30+67.34	11.03' RT
SSVP#51	30+91.39	10.19' RT
SSVP#52	31+28.81	10.00' RT
SSVP#53	31+63.49	0.00'
SSVP#54	31+92.80	10.00' RT
SSVP#55	32+01.06	0.00'
SSVP#56	32+34.80	10.00' RT
SSVP#57	32+61.37	0.00'
SSVP#58	33+03.70	0.00'



ALLEY - TRACT L

1"=50' HORIZ.
1"=5' VERT.

WATER MAIN FITTING TABLE

9A STA 20+19.50, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

9B STA 23+20.98, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

9C STA 23+30.98, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

9D STA 23+32.46, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

32 STA 24+07.00, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

33 STA 24+43.31, 2.77' LT
1–8" 22 1/2' BEND (MJ)
CONC.THRUST BLOCKING

34 STA 25+50.82, 1.19' LT
1–8" 22 1/2' BEND (MJ)
CONC. THRUST BLOCKING

35 STA 26+75.63, 0.84' LT
1–8" 22 1/2' BEND (MJ)
CONC. THRUST BLOCKING

36 STA 27+06.23, 5.45' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

25 STA 54+53.34, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

13 STA 45+17.45, 7.74' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

36A STA 30+22.84, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

36B STA 23+24.76, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

18 STA 31+44.60, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

18A STA 32+00.84, 6.00' LT
1–2" AIR/VACUUM VALVE

19 STA 33+55.56, 10.43' LT
1–8" 22 1/2' BEND (MJ)
CONC. THRUST BLOCKING

5 STA 15+55.92, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

UTILITY CROSSINGS

10 STA 23+25.98, 6.00'LT
IE 12" SD = 89.34
T/P 8" W = 88.34

11 STA 23+25.98, 6.73'RT
IE 12" SD = 89.40
T/P 8" SS = 88.25

12 STA 25+62.80, 4.58'LT
IE 12" SD = 88.65
T/P 8" W = 87.65

13 STA 25+62.80, 6.77'RT
IE 12" SD = 88.76
T/P 8" SS = 87.51

14 STA 26+60.77, 5.00'LT
IE 12" SD = 89.49
T/P 8" W = 88.49

15 STA 26+60.77, 6.31'RT
IE 12" SD = 88.55
T/P 8" SS = 87.31

16 STA 27+26.88, 6.00'LT
IE 30" SD = 86.64
T/P 8" W = 85.64

17 STA 27+26.88, 5.00'RT
IE 30" SD = 86.52
T/P 8" SS = 85.15

18 STA 30+28.75, 9.54'LT
IE 12" SD = 81.15
T/P 8" W = 80.15

19 STA 30+83.69, 7.27' LT
IE 12" SD = 80.88
T/P 8" W = 79.85

20 STA 30+83.69, 5.13'RT
IE 12" SD = 80.75
T/P 8" SS = 79.19

21 STA 33+29.08, 6.55'LT
IE 12" SD = 81.18
T/P 8" W = 80.18

22 STA 33+29.08, 4.48'RT
IE 12" SD = 81.11
T/P 8" SS = 79.68

SEWER NOTES:

1. ALL VALVE PITS TO BE INSTALLED PER STD S–9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Revision
3	12/01/21	RK	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER AND SEWER PROFILE

FOR

TOLT RIVER TERRACE

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON
STATE OF WASHINGTON
41423
REGISTERED
PROFESSIONAL ENGINEER
2/19/22

Designed	RK	Scale:	Horizontal	1" = 50'
Drawn	RK		Vertical	1" = 5'
Checked	BJT			
Approved	BJT			
Date	2/19/22			

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 18057

Sheet 58 of 83

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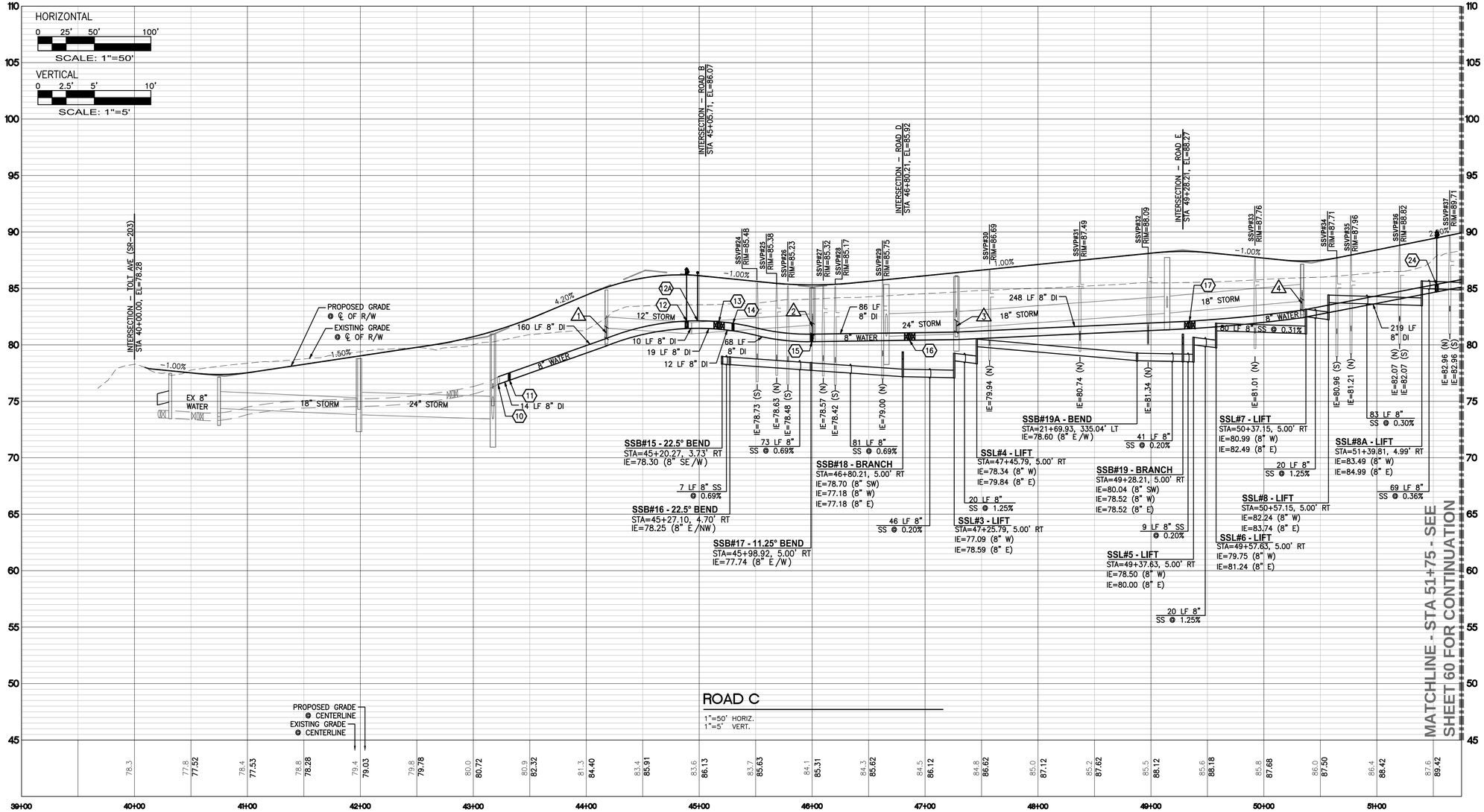
WATER AND SEWER PROFILE
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



WATER MAIN FITTING TABLE

(11) STA 43+31.90, 6.00' LT
1–8" 45° BEND (MJ)
CONC. THRUST BLOCKING

(12) STA 44+88.88, 8.87' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

(12A) STA 44+98.61, 8.92' LT
1–2" AIR/VACUUM VALVE

(13) STA 45+17.45, 7.74' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

(14) STA 45+29.91, 6.00' LT
1–8" 22 1/2° BEND (MJ)
CONC. THRUST BLOCKING

(15) STA 45+99.89, 6.00' LT
1–8" 22 1/2° BEND (MJ)
CONC. THRUST BLOCKING

(16) STA 46+86.21, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

(17) STA 49+34.21, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

(24) STA 51+52.96, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

UTILITY CROSSINGS

(1) STA 44+17.89, 6.00'LT
IE 12" SD = 81.57
T/P 8" W = 80.57

(2) STA 46+00.31, 6.00'LT
IE 12" SD = 81.95
T/P 8" W = 80.95

(3) STA 47+27.71, 6.00'LT
IE 12" SD = 82.13
T/P 8" W = 81.13

(4) STA 50+33.82, 6.00'LT
IE 12" SD = 87.85
T/P 8" W = 86.85

SEWER NOTES:

1. ALL VALVE PITS TO BE INSTALLED PER STD S–9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#24	45+51.36	6.86' RT
SSVP#25	45+68.57	3.35' LT
SSVP#26	45+78.50	7.24' RT
SSVP#27	46+09.80	0.00'
SSVP#28	46+20.42	10.00' RT
SSVP#29	46+62.44	0.00'
SSVP#30	47+57.09	0.00'

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#31	48+37.09	0.00'
SSVP#32	48+97.44	0.00'
SSVP#33	49+92.09	0.00'
SSVP#34	50+64.57	0.00'
SSVP#35	50+77.09	0.00'
SSVP#36	51+20.14	0.00'
SSVP#37	51+64.55	0.00'

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER AND SEWER PROFILE
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON
STATE OF WASHINGTON
41423
REGISTERED
PROFESSIONAL ENGINEER
2/19/22

Scale: Horizontal 1" = 50' Vertical 1" = 5'

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 59 of 83

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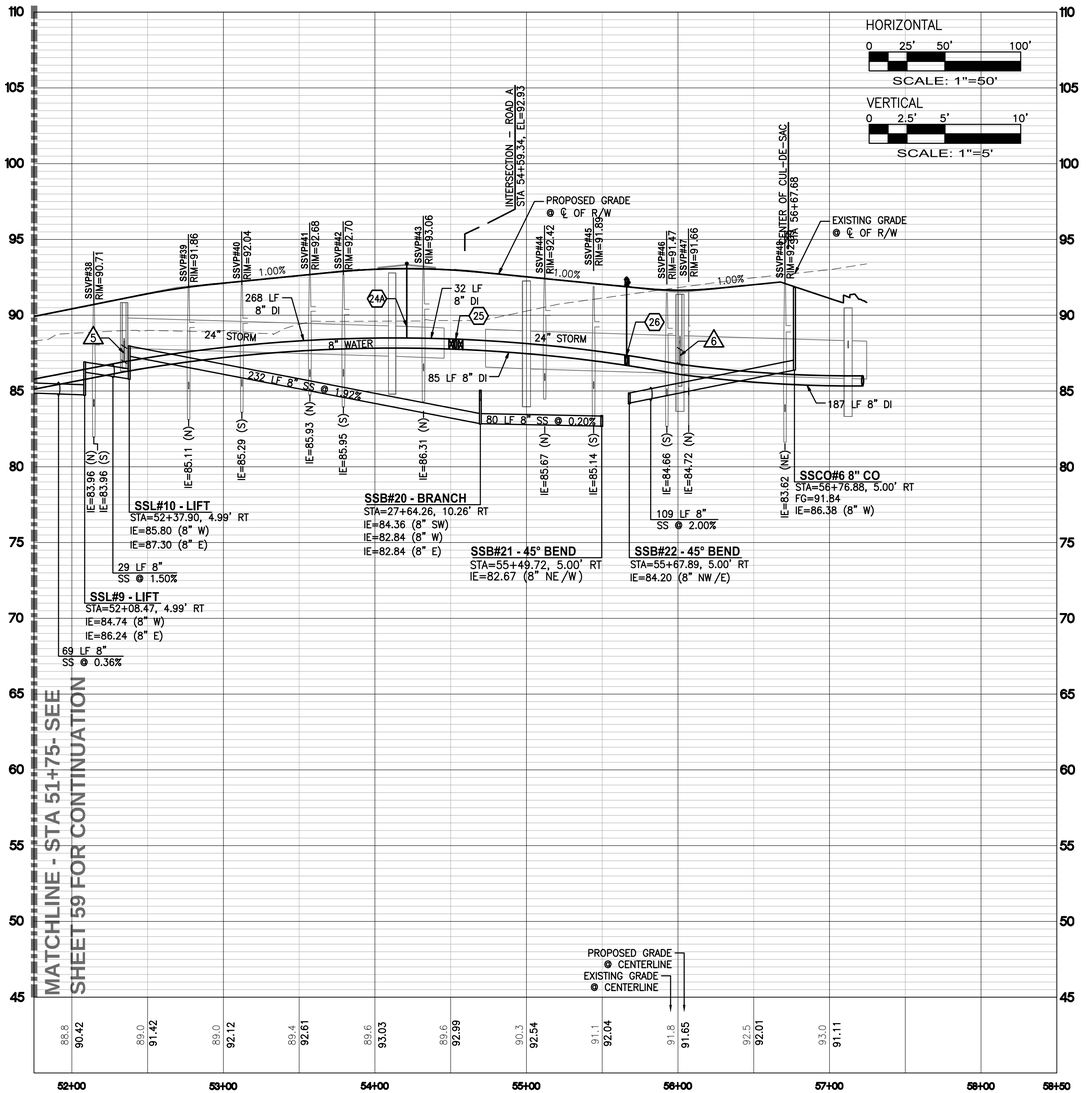
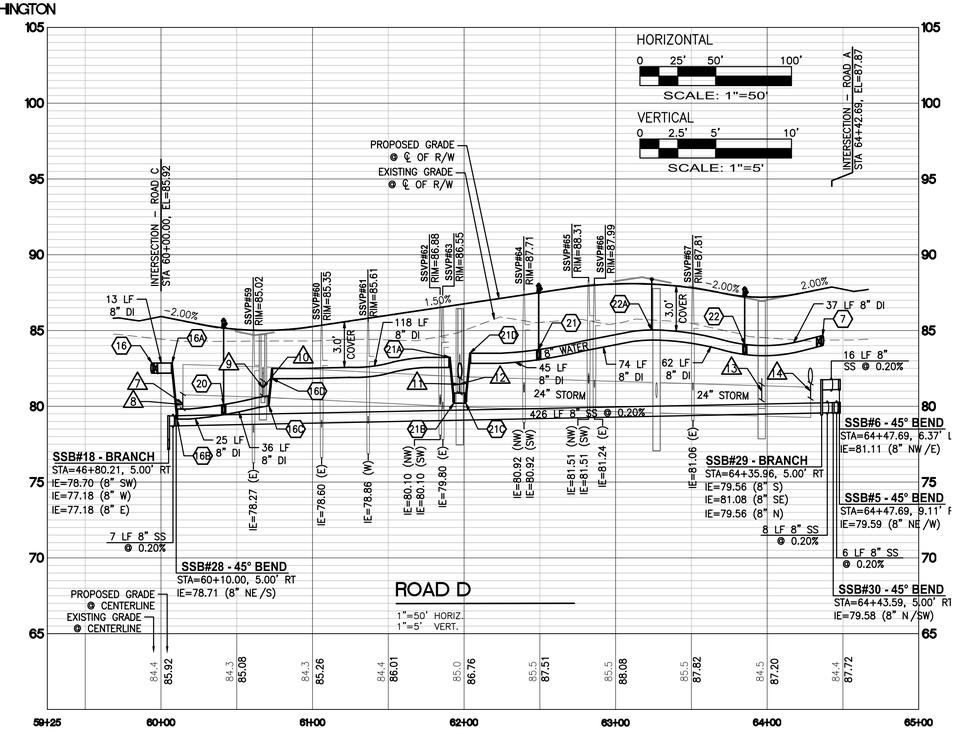
WATER AND SEWER PROFILE
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON





UTILITY CROSSINGS

5 STA 52+34.54, 6.00'LT
IE 12" SD = 87.93
T/P 8" W = 86.93

6 STA 56+01.33, 6.00'LT
IE 12" SD = 87.85
T/P 8" W = 86.85

WATER MAIN FITTING TABLE

24A STA 54+21.07, 6.00' LT
1–2" AIR/VACUUM VALVE

25 STA 54+53.34, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

26 STA 55+66.13, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

ROAD C

1"=50' HORIZ.
1"=5' VERT.

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#38	52+14.55	0.00'
SSVP#39	52+77.09	0.00'
SSVP#40	53+12.21	10.00' RT
SSVP#41	53+57.09	0.00'
SSVP#42	53+79.21	10.00' RT
SSVP#43	54+32.09	0.00'
SSVP#44	55+12.09	0.00'
SSVP#45	55+45.34	10.00' RT
SSVP#46	55+92.69	10.00' RT
SSVP#47	56+07.09	0.00'
SSVP#48	56+70.65	0.00'

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#59	60+61.00	0.00'
SSVP#60	61+06.00	0.00'
SSVP#61	61+36.69	10.00' RT
SSVP#62	61+84.26	22.50' RT
SSVP#63	61+86.00	0.00'
SSVP#64	62+39.57	22.50' RT
SSVP#65	62+82.16	22.50' RT
SSVP#66	62+86.01	0.00'
SSVP#67	63+51.00	0.00'

SEWER NOTES:

1. ALL VALVE PITS TO BE INSTALLED PER STD S–9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

UTILITY CROSSINGS

1A STA 60+14.39, 6.00'LT
IE 24" SD = 80.82
T/P 8" W = 79.82

8A STA 60+14.39, 5.00'RT
IE 24" SD = 80.71
T/P 8" SS = 79.43

9A STA 60+67.26, 6.00'LT
IE 12" SD = 81.70
T/P 8" W = 80.70

10A STA 60+67.26, 5.00'RT
IE 12" SD = 81.60
T/P 8" SS = 79.54

1B STA 61+97.14, 6.00'LT
IE 12 SD = 81.87
T/P 8" W = 80.87

2B STA 61+97.14, 6.00'LT
IE 12" SD = 81.03
T/P 8" W = 79.80

3B STA 63+96.45, 5.00'RT
IE 12" SD = 81.45
T/P 8" SS = 80.19

4B STA 64+28.67, 5.00'RT
IE 12" SD = 81.52
T/P 8" SS = 80.26

WATER MAIN FITTING TABLE

16 STA 46+86.21, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

16A STA 60+07.35 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

16B STA 60+10.39, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

16C STA 60+71.26, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

16D STA 60+73.06, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

20 STA 60+41.35, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

21A STA 61+90.78, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

21B STA 61+93.14, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

21C STA 62+01.14, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

21D STA 62+03.77, 6.00'LT
1–8" 45° VERTICAL BEND (MJ)
CONC. THRUST BLOCKING

21 STA 62+49.21, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

22A STA 63+23.87, 6.00' LT
1–2" AIR/VACUUM VALVE

22 STA 63+85.24, 6.00' LT
1–8"X6" TEE (MJXFL)
1–6" GATE VALVE (FLXMJ)
1–FIRE HYDRANT ASSEMBLY
CONC. THRUST BLOCKING

7 STA:17+92.31, 6.00' LT
1–8" TEE (FL)
3–8" GATE VALVES (FLxMJ)
CONC. THRUST BLOCKING

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER AND SEWER PROFILE
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON
STATE OF WASHINGTON
41423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 50' Vertical 1" = 5'
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 60 of 83

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WATER AND SEWER PROFILE

FOR

PLAT OF TOLT RIVER TERRACE

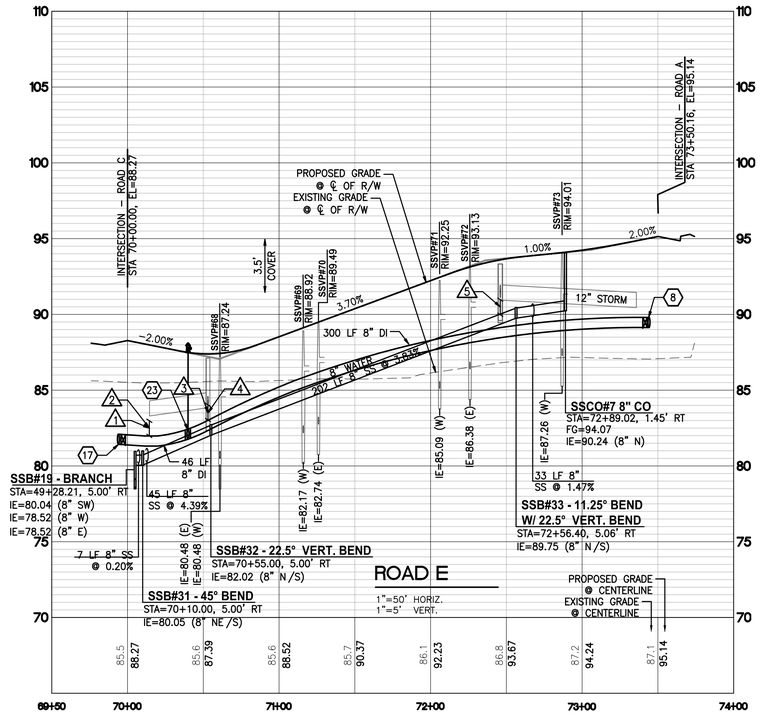
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

UTILITY CROSSINGS

1. STA 70+14.40, 6.00'LT
   IE 18" SD = 82.98
   T/P 8" W = 81.98
2. STA 70+14.40, 5.00'RT
   IE 18" SD = 82.82
   T/P 8" SS = 81.19
3. STA 70+53.08, 6.00'LT
   IE 12" SD = 84.03
   T/P 8" W = 83.03
4. STA 70+53.08, 5.00'RT
   IE 12" SD = 83.87
   T/P 8" SS = 82.67
5. STA 72+46.00, 5.00'RT
   IE 12" SD = 91.06
   T/P 8" SS = 90.06
6. N:235802.47
   E:1375323.15
   IE 30" SD = 85.44
   T/P 8" W = 84.44
7. N:235788.05
   E:1375337.13
   IE 12" SD = 85.24
   T/P 8" W = 84.24

WATER MAIN FITTING TABLE

8. STA 20+90.74, 6.00' LT
   1-8" TEE (FL)
   3-8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
17. STA 49+34.21, 6.00' LT
   1-8" TEE (FL)
   3-8" GATE VALVES (FLxMJ)
   CONC. THRUST BLOCKING
23. STA 70+40.10, 6.00' LT
   1-8"X6" TEE (MJXFL)
   1-6" GATE VALVE (FLXMJ)
   1-FIRE HYDRANT ASSEMBLY
   CONC. THRUST BLOCKING
27. N:235819.94
   E:1375306.22
   1-8" 45° BEND (MJ)
   CONC. THRUST BLOCKING
28. N:235779.75
   E:1375345.18
   1-8" 45° BEND (MJ)
   CONC. THRUST BLOCKING
29. N:235795.60
   E:1375522.72
   1-8" 45° BEND (MJ)
   CONC. THRUST BLOCKING
30. N:235888.59
   E:1375622.45
   1-8" 45° BEND (MJ)
   CONC. THRUST BLOCKING
31. N:235925.78
   E:1375622.96
   1-8" CAP (FL)
   1-2" BLOW-OFF
   CONC. THRUST BLOCKING



HORIZONTAL
0 25' 50' 100'
SCALE: 1"=50'
VERTICAL
0 2.5' 5' 10'
SCALE: 1"=5'

SEWER NOTES:

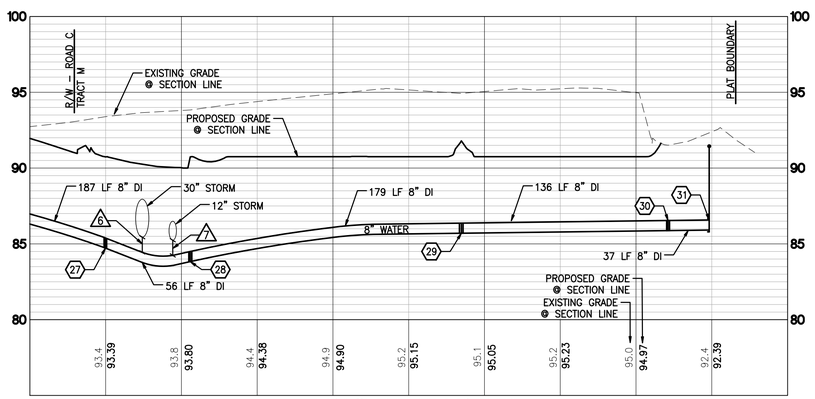
1. ALL VALVE PITS TO BE INSTALLED PER STD S-9 ON SHEET 66.
2. MINIMUM SLOPE OF SEWER VACUUM PIPE – 0.20%.
3. MINIMUM SPACING BETWEEN LIFTS – 20 FT.
4. MINIMUM FALL BETWEEN LIFTS WHEN DISTANCE BETWEEN LIFTS IS LESS THAN 125 FT – 0.25 FT.

ABBREVIATIONS:

SSL: SANITARY SEWER LIFT
SSB: SANITARY SEWER BEND
SSVP: SANITARY SEWER VALVE PIT
SSCO: SANITARY SEWER CLEAN OUT

VALVE PIT LOCATIONS

VALVE PIT #	STATION	OFFSET
SSVP#68	70+61.00	10.00' RT
SSVP#69	71+16.00	10.00' RT
SSVP#70	71+26.00	0.00'
SSVP#71	72+06.00	10.00' RT
SSVP#72	72+26.00	0.00'
SSVP#73	72+86.79	3.48' LT



TRACT M WATER MAIN
1"=50' HORIZ.
1"=5' VERT.

0 25' 50' 100'
SCALE: 1"=50'
VERTICAL
0 2.5' 5' 10'
SCALE: 1"=5'

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER AND SEWER PROFILE FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON
STATE OF WASHINGTON
#1423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 50' Vertical 1" = 5'

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 61 of 83

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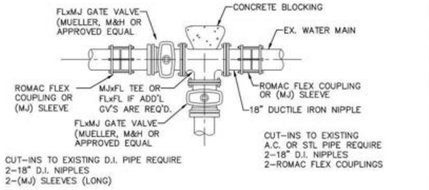
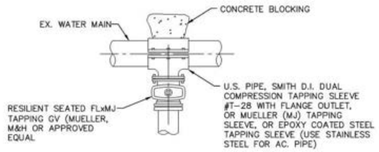
WATER DETAILS
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



CUT-IN TO EXISTING WATER MAINS (TYP)



WET TAP EXISTING WATER MAINS (TYP)

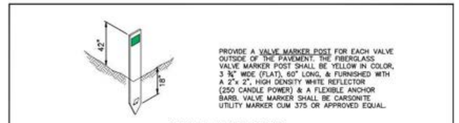
NOTE:
ALL CONNECTIONS TO EXISTING MAINS WILL BE MADE WITH CITY OF CARNATION PERSONNEL PRESENT.

ALL FITTINGS TO BE SWABBED W/CL2 SOLUTION (50 PPM)

STEEL PIPES SHALL BE RECOATED WHERE WRAPPING HAS BEEN DISTURBED.

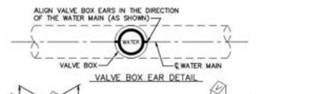
TAP SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN

LOCHNER (425)-454-3160 | CUT IN & LIVE TAPS | 08/2017 | DWG. NO. W-1

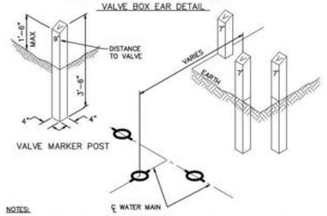


PROVIDE A VALVE MARKER POST FOR EACH VALVE OUTSIDE OF THE PAVEMENT. THE FIBERGLASS VALVE MARKER POST SHALL BE YELLOW IN COLOR, 3 ¾" WIDE (FLAT), 60" LONG, & FURNISHED WITH A 2"x 2", HIGH DENSITY WHITE REFLECTOR (250 CANDLE POWER) & A FLEXIBLE ANCHOR BARS. VALVE MARKER SHALL BE CARSONITE UTILITY MARKER CUM 375 OR APPROVED EQUAL.

OPTIONAL VALVE MARKER POST WHERE REQUIRED



VALVE BOX EAR DETAIL



NOTES:
1 VALVE MARKER POST PER VALVE UNLESS TWO VALVES CAN BE ALIGNED w/ ONE VALVE MARKER w/ BOTH DISTANCES STENCILLED ON THE FRONT OF THE VALVE MARKER.

VALVE MARKER POST SHALL BE A FOGTITE VALVE MARKER OR APPROVED EQUAL.

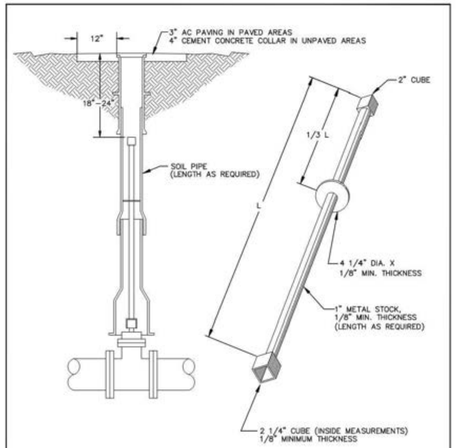
THE POST SHALL BE SET AT RIGHT ANGLES TO THE ROADWAY FROM THE VALVE AND SHALL BE SITUATED IN A SAFE AND REASONABLY CONSPICUOUS LOCATION.

PAINT VALVE MARKER WITH 2 COATS CATERPILLAR YELLOW. STENCIL DISTANCE (TO THE NEAREST FOOT) TO THE LINE VALVE IN 2" BLACK NUMERALS.

VALVE MARKER POST REQUIREMENT & LOCATION SHALL BE AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR.

VALVE MARKERS NOT REQUIRED FOR VALVES LOCATED IN PAVED AREAS.

LOCHNER (425)-454-3160 | VALVE MARKER POST DETAIL | 08/2017 | DWG. NO. W-2

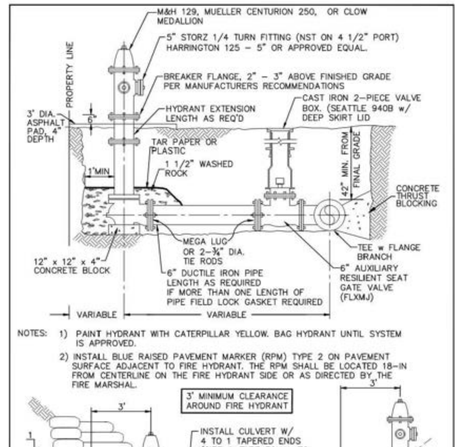


NOTES:

LENGTH AS REQUIRED TO PUT OPERATING NUT BETWEEN 18 AND 24 INCHES FROM SURFACE. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE 30 INCHES BELOW FINISHED GRADE. ONE EXTENSION IS TO BE USED PER VALVE.

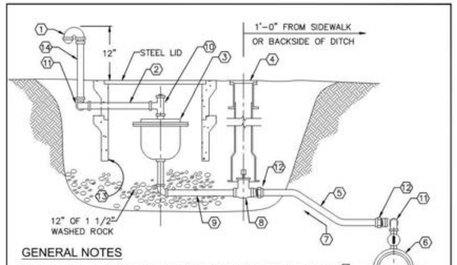
ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND HOT DIPPED GALVANIZED.

LOCHNER (425)-454-3160 | VALVE OPERATING NUT EXTENSTION DETAIL | 08/2017 | DWG. NO. W-3



NOTES:
1) PAINT HYDRANT WITH CATERPILLAR YELLOW. BAG HYDRANT UNTIL SYSTEM IS APPROVED.
2) INSTALL BLUE RAISED PAVEMENT MARKER (RPM) TYPE 2 ON PAVEMENT SURFACE ADJACENT TO FIRE HYDRANT. THE RPM SHALL BE LOCATED 18-IN FROM CENTERLINE ON THE FIRE HYDRANT SIDE OR AS DIRECTED BY THE FIRE MARSHAL.

LOCHNER (425)-454-3160 | FIRE HYDRANT ASSEMBLY INSTALLATION | 08/2017 | DWG. NO. W-4



GENERAL NOTES

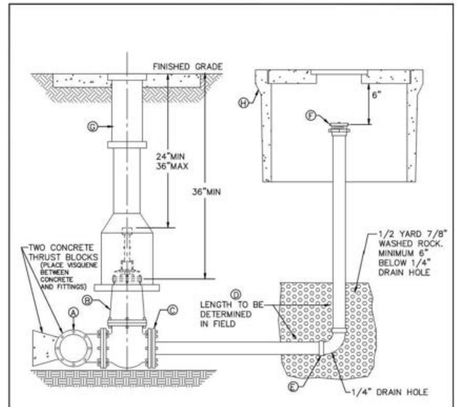
ALL PIPE AND FITTINGS FROM THE MAIN TO THE SCREWED GATE VALVE ⑧ SHALL BE 2" HI-MOL CL 200 PLASTIC PIPE.

AIR AND VACUUM VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT IN LINE. IF HIGH POINT FALLS IN LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH OF LINE TO CREATE HIGH POINT AT A LOCATION WHERE ASSEMBLY CAN BE INSTALLED.

INSTALL VALVE BOX PERPENDICULAR TO PAVING. INSULATE W/ FIBERGLASS INSULATION TO TOP OF AIR/VACUUM VALVE. LOCATE BOX OUTSIDE OF TRAFFIC AREAS.

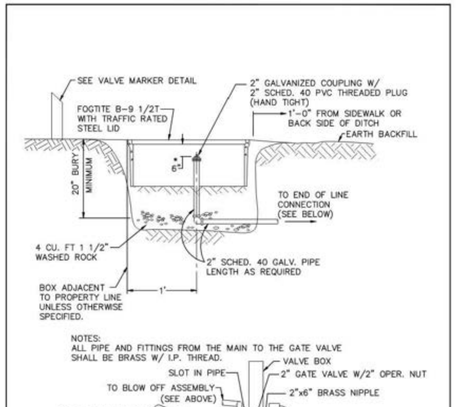
KEYED NOTES
① 2" BRONZE BEEHIVE STRAINER, 2" RETURN BEND, PAINTED CATERPILLAR YELLOW
② EXTEND 2" GALV. PIPE HORIZONTALLY THROUGH NOTCHED OPENING IN BACK OF BOX
③ 2" AIR RELEASE OR COMBINATION AIR/VACUUM VALVE, APCO 145C OR EQUAL.
④ CAST IRON 2 PIECE VALVE BOX w/ LID, SEATTLE STYLE 940A
⑤ 2" HI-MOL CL 200 PLASTIC PIPE
⑥ 2" DOUBLE STRAP SADDLE WITH IP BALL CORP STOP
⑦ MAINTAIN POSITIVE SLOPE FROM MAIN TO AIR RELEASE VALVE
⑧ 2" R/S GATE VALVE (IP), CAST IRON BODY, SCREWED, NON-RISING STEM, 2" SQUARE OPERATING NUT
⑨ 2" GALV. PIPE WITH 90° ELBOW AND SHORT NIPPLE
⑩ 2" TEE w/ 2" CLOSE NIPPLE & PLUG
⑪ 2" 90° BEND & 2" 90° STREET ELL
⑫ 2" ADAPTER (MIPxCOMP)
⑬ 2-#2 FOGTITE CONCRETE METER BOXES w/ ONE STEEL TRAFFIC BEARING LID
⑭ 2" GALV. PIPE

LOCHNER (425)-454-3160 | 2" AIR RELEASE OR COMBINATION AIR/VACUUM VALVE | 08/2017 | DWG. NO. W-5

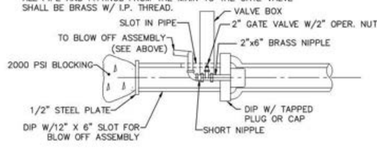


A. DUCTILE IRON TEE (MJxFL) WITH 4" BRANCH & MJ SOLID PLUG.
B. 4" GATE VALVE, (FLxMJ) TO BE LOCATED IN ASPHALT.
C. 4" PLUG (MJ) w/ 2" IP TAP.
D. 2" SCHED 40 GALVANIZED PIPE
E. 2" 90 DEG BEND, GALV.
F. 2" FIPx 2 ½" NST HOSE ADAPTER & CAP w/ CHAIN.
G. SEATTLE #940B (18"x 24") VALVE BOX ASS'Y. w/ DEEP SKIRT LID.
H. FOGTITE B-9 1/2T BOX WITH STEEL LID LOCATED BEHIND SIDEWALK.

LOCHNER (425)-454-3160 | 2" PERMANENT BLOW OFF ASSEMBLY: 6" & SMALLER MAINS | 08/2017 | DWG. NO. W-6

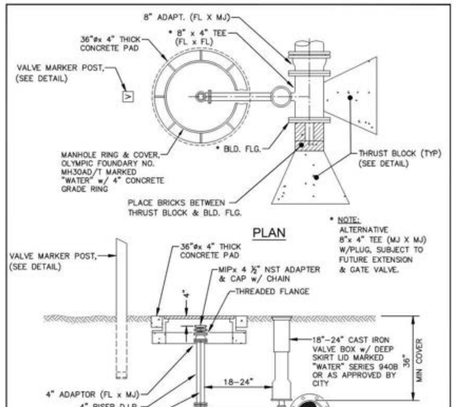


NOTES:
ALL PIPE AND FITTINGS FROM THE MAIN TO THE GATE VALVE SHALL BE BRASS W/ I.P. THREAD.



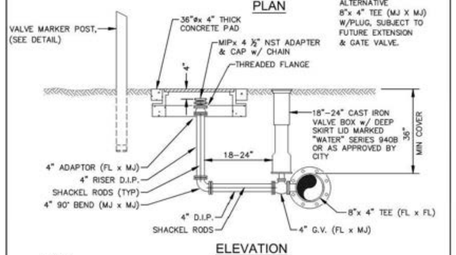
END OF LINE CONNECTION

LOCHNER (425)-454-3160 | 2" TEMPORARY BLOW OFF ASSEMBLY FOR TESTING | 08/2017 | DWG. NO. W-7



PLAN

* NOTE: ALTERNATIVE 8"x 4" TEE (MJ X MJ) W/PLUG, SUBJECT TO FUTURE EXTENSION & GATE VALVE.



ELEVATION

NOTES:
1. LOCATE BLOW-OFF AS CLOSE AS POSSIBLE TO MAIN, OR AS DIRECTED BY CITY.
2. THE GROUND WITHIN 3' RADIUS OF BLOWOFF SHALL BE GRADED UNIFORMLY.
3. SHACKEL RODS TWO EA. 3/4" GALV. STEEL TIE RODS WITH ONE HEAVY COAT OF COAL TAR PRESERVATIVE ON TIE RODS, NUTS AND BOLTS AFTER INSTALLATION.

LOCHNER (425)-454-3160 | OFF PAVING 4" BLOWOFF ASSY. FOR 8" & LARGER MAINS | 08/2017 | DWG. NO. W-8

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER DETAILS
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON, STATE OF WASHINGTON, #1423, REGISTERED PROFESSIONAL ENGINEER, 2/19/22

Scale: Horizontal N/A Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 18057
Sheet 62 of 83

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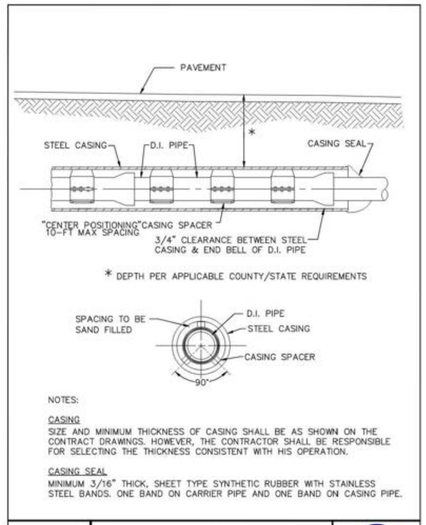
WATER DETAILS
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

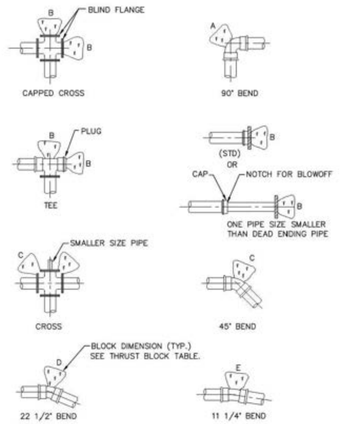


NOTES:

CASING
SIZE AND MINIMUM THICKNESS OF CASING SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING THE THICKNESS CONSISTENT WITH HIS OPERATION.

CASING SEAL
MINIMUM 3/16" THICK, SHEET TYPE SYNTHETIC RUBBER WITH STAINLESS STEEL BANDS. ONE BAND ON CARRIER PIPE AND ONE BAND ON CASING PIPE.

LOCHNER (425)-454-3160 | PIPE CASING | 08/2017 | DWG. NO. W-10



NOTES:
SEE THRUST BLOCK TABLE FOR ALL NOTES.
PROVIDE POLYETHYLENE SHEETING TO COVER BOLTS AND JOINTS FOR DISMANTLING.

LOCHNER (425)-454-3160 | CONCRETE BLOCKING DETAIL | 08/2017 | DWG. NO. W-12

THRUST BLOCK – TABLE
MIN. BEARING AREA AGAINST UNDISTURBED SOIL
SQUARE FEET

PIPE SIZE	A (FT.²)	B (FT.²)	C (FT.²)	D (FT.²)	E (FT.²)
3"	3	2	2	2	2
6"	4	4	2	2	2
8"	7	6	4	2	2
10"	11	10	6	3	2
12"	16	14	9	5	3
14"	22	19	12	6	3
16"	29	25	16	8	4
18"	36	31	20	10	5
20"	45	39	24	13	6
22"	54	47	29	15	8
24"	64	56	35	18	9
28"	87	76	48	24	12
30"	101	87	55	28	14
36"	145	125	78	40	20
42"	197	171	107	55	27
48"	257	223	140	71	36

NOTES:
1. BEARING AREA OF CONC. THRUST BLOCK BASED ON 200 PSI PRESSURE AND SAFE SOIL BEARING LOAD OF 2,000 POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM BEARING SURFACE OF 6" X 6" SQUARE AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING OF JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. ALL BOLTS AND NUTS SHALL BE POLYWRAPPED PRIOR TO POURING CONCRETE.

LOCHNER (425)-454-3160 | THRUST BLOCK TABLE | 08/2017 | DWG. NO. W-13

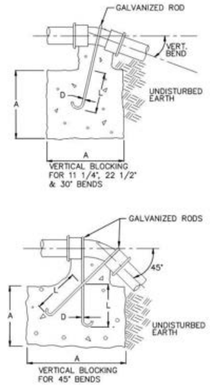
VERTICAL BLOCKING
FOR 11 1/4° & 22 1/2° BENDS

PIPE SIZE	V B	CU FT	A	D	L
4"	11 1/4° 22 1/2°	8 11	2.0' 2.2'	3/4"	1.5' 2.0'
6"	11 1/4° 22 1/2°	11 25	2.2' 2.9'	3/4"	2.0'
8"	11 1/4° 22 1/2°	16 47	2.5' 3.6'	3/4"	2.0'
12"	11 1/4° 22 1/2°	32 88	3.2' 4.5'	3/4" 7/8"	2.0' 3.0'
16"	11 1/4° 22 1/2°	70 184	4.1' 5.7'	7/8" 11/8"	3.0' 4.0'
20"	11 1/4° 22 1/2°	91 225	4.5' 6.1'	7/8" 11/4"	3.0' 4.0'
24"	11 1/4° 22 1/2°	128 320	5.0' 6.8'	1" 13/8"	3.5' 4.5'

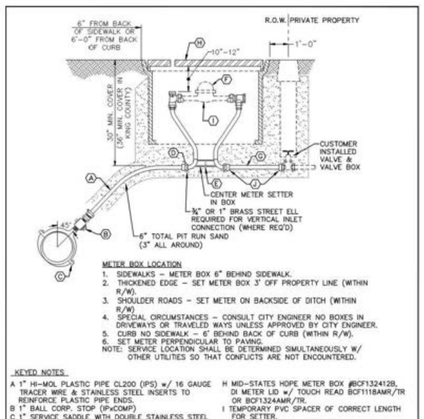
VERTICAL BLOCKING FOR 45° BENDS

4"	45°	30	3.1'	3/4"	2.0'
6"		68	4.1'		
8"		123	5.0'		
12"		232	6.1'	3/4"	2.5'
16"		478	7.8'	11/8"	4.0'
20"		560	8.2'	11/4"	
24"		820	9.4'	13/8"	4.5'

NOTE: CONCRETE BLOCKING BASED ON 200 PSI PRESSURE AND 2500 PSI CONCRETE



LOCHNER (425)-454-3160 | VERTICAL THRUST BLOCKING DETAIL | 08/2017 | DWG. NO. W-14



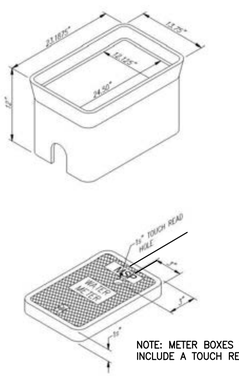
METER BOX LOCATION
1. SIDEWALKS – METER BOX 6" BEHIND SIDEWALK.
2. THICKENED EDGE – SET METER BOX 3' OFF PROPERTY LINE (WITHIN R/W).
3. SHOULDER ROADS – SET METER ON BACKSIDE OF DITCH (WITHIN R/W)
4. SPECIAL CIRCUMSTANCES – CONSULT CITY ENGINEER NO BOXES IN DRIVEWAYS OR TRAVELED WAYS UNLESS APPROVED BY CITY ENGINEER.
5. CURB NO SIDEWALK – 6' BEHIND BACK OF CURB (WITHIN R/W).
6. SET METER PERPENDICULAR TO PAVING.
NOTE: SERVICE LOCATION SHALL BE DETERMINED SIMULTANEOUSLY W/ OTHER UTILITIES SO THAT CONFLICTS ARE NOT ENCOUNTERED.

KEYED NOTES:
A 1" HI-MOL PLASTIC PIPE CL200 (IPS) w/ 16 GAUGE TRACER WIRE & STAINLESS STEEL INSERTS TO REINFORCE PLASTIC PIPE ENDS.
B 1" BALL CORP. STOP (IPxCOMP)
C 1" SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS EQUAL TO ROMAC.
D 1"x ¾" REDUCER (COMPxMIP) REQ'D. FOR ¾" METER SETTERS OR 1" (COMPxMIP) ADAPTOR FOR 1" METER SETTERS.
E ¾" OR 1"x 12" FORD METER SETTER EQUIPED w/ LOCK WING ANGLE STOP, ANGLE BALL CHECK & MULTI PURPOSE FITTINGS.
G ¾" OR 1" DIA. (LENGTH AS REQ'D) HI-MOL PLASTIC PIPE, CL 200 w/ TEMPORARY PLUG.
H MID-STATES HDPE METER BOX #BCF132412B, DI METER LID w/ TOUCH READ BCF1118AMR/TR OR BCF1324AMR/TR.
I TEMPORARY PVC SPACER OF CORRECT LENGTH FOR SETTER.
J ¾" OR 1" ADAPTOR (MIPxCOMP)

NOTE: CONTRACTOR TO INSTALL METER BOX AND SETTER.

NOTE: BRASS FITTINGS SHALL BE MUELLER, FORD OR APPROVED EQUAL.

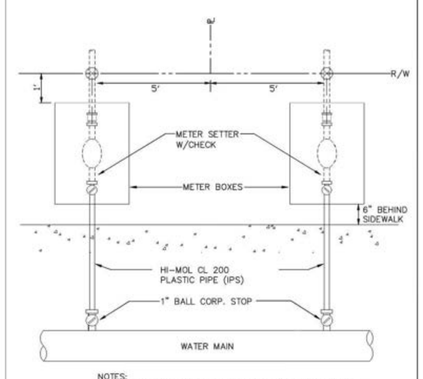
LOCHNER (425)-454-3160 | 5/8" OR 1" SINGLE METER SERVICE | 08/2017 | DWG. NO. W-15



NOTE: METER BOXES SHALL NOT INCLUDE A TOUCH READ HOLE.

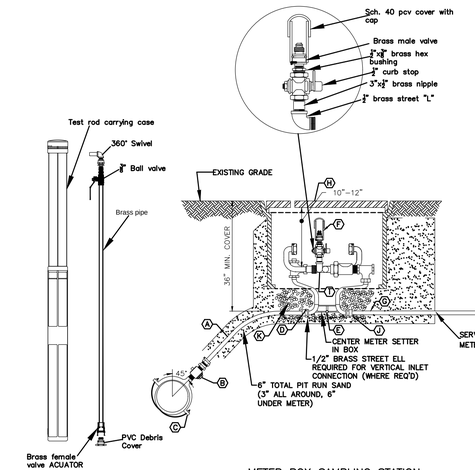
~~DI METER LID w/ TOUCH READ NO. BCF1324AMR/TR~~

LOCHNER (425)-454-3160 | HDPE METER BOX NO. BCF132412B FOR 5/8" & 1" METER | 08/2017 | DWG. NO. W-17



NOTES:
1. WATER SERVICES SHALL BE LOCATED AT LEAST 5' FROM POWER VAULTS, HAND HOLES AND/OR LIGHT STANDARDS.
2. CUSTOMER SIDE OF METER BOX APPROXIMATELY 2" INSIDE EACH BOX

LOCHNER (425)-454-3160 | PAIRED WATER SERVICE LOCATION DIAGRAM | 08/2017 | DWG. NO. W-18



PORTABLE TESTING ROD

METER BOX SAMPLING STATION

KEYED NOTES
A 1" HI-MOL PLASTIC PIPE CL200 (IPS) w/ 16 GAUGE TRACER WIRE & STAINLESS STEEL INSERTS TO REINFORCE PLASTIC PIPE ENDS.
B 1" BALL CORP. STOP (IPxCOMP)
C 1" SERVICE SADDLE WITH DOUBLE STAINLESS STEEL STRAPS EQUAL TO ROMAC.
D 1"x 1/2" REDUCER (COMPxMIP)
E 1/2" OR 1"x 12" FORD METER SETTER EQUIPED w/ LOCK WING ANGLE STOP, ANGLE BALL CHECK & MULTI PURPOSE FITTINGS.
F SAMPLING FIXTURE
G 1" DIA. (LENGTH AS REQ'D) HI-MOL PLASTIC PIPE, CL 200 w/ TEMPORARY PLUG.
H MID-STATES HDPE METER BOX #BCF132412B, DI METER LID w/ TOUCH READ BCF1118AMR/TR OR BCF1324AMR/TR.
I TEMPORARY PVC SPACER OF CORRECT LENGTH FOR SETTER.
J 1/2" OR 1" ADAPTOR (MIPxCOMP)
K ¾" TO 1" WASHED DRAIN ROCK, 1-FT DEEP(MIN)

NOTES:
NTS
1. BRASS FITTINGS SHALL BE MUELLER, FORD OR APPROVED EQUAL.
2. SAMPLING FIXTURE SHALL BE KUPFERIE FOUNDARY CO. #9414M OR APPROVED EQUAL WATER MAIN AND METER SERVICE
3. PROVIDE ONE PORTABLE TESTING ROD PER PROJECT TO CITY OF CARNATION.

WATER SAMPLING STATION
W-34

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Appr.	Revision
3	12/01/21	RK	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: WATER DETAILS
FOR
TOLT RIVER TERRACE

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON — STATE OF WASHINGTON — 21423 — REGISTERED PROFESSIONAL ENGINEER — 2/19/22

Scale: Horizontal N/A | Vertical N/A

Designed RK | Drawn RK | Checked BJT | Approved BJT | Date 2/19/22

Barghausen Consulting Engineers, Inc.
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Job Number 18057 | Sheet 63 of 83

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WATER NOTES
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

GENERAL WATER CONSTRUCTION NOTES:

PRIOR TO ANY PAVEMENT CUTTING OR REMOVAL, OR EXCAVATION FOR PIPE LAYING, THE CONTRACTOR SHALL VERIFY, IN THE PRESENCE OF THE CITY'S INSPECTOR, THE LOCATION AND DEPTH OF THE EXISTING WATER MAINS AT THE POINTS WHERE CONNECTIONS ARE TO BE MADE. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS, TYPE, AND CONDITION OF THE EXISTING WATER MAIN. IF NECESSARY, THE GRADE SHALL BE ADJUSTED SO NEITHER A HIGH SPOT NOR A LOW SPOT IS CREATED ADJACENT TO THE CONNECTION TO THE EXISTING WATER MAINS.

WATER MAINS, PARALLEL TO A SEWER, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY. UNDER UNUSUAL CIRCUMSTANCES, THE HORIZONTAL SPACING MAY BE ADJUSTED, SUBJECT TO THE APPROVAL OF THE CITY. WATER MAINS CROSSING SEWERS SHOULD BE NOT LESS THAN 18 INCHES ABOVE THE SEWER. WHERE IT IS NECESSARY FOR A SEWER TO CROSS WITHIN 18 INCHES, OR OVER THE WATER MAIN, PROTECTIVE MEASURES PER THE DOE CRITERIA FOR SEWAGE WORKS DESIGN (ORANGE BOOK) SHALL BE TAKEN.

PIPING, VALVES, AND APPURTENANCES SHALL NOT BE BURIED UNTIL OBSERVED AND ACCEPTED BY CITY REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND SCHEDULING TIMELY SITE OBSERVATIONS BY CITY REPRESENTATIVE.

TRENCHES SHALL BE EXCAVATED TO THE LINE AND DEPTH DESIGNATED BY THE PLANS TO PROVIDE THE COVER ON THE WATER SYSTEM OR SANITARY SEWER SYSTEM AS SPECIFIED BY THE CITY. PERFORM TRENCHING IN ACCORDANCE WITH THE GENERAL UTILITY PIPE TRENCHING AND TRENCH PATCHING NOTES ON SHEET 47.

BEFORE INSTALLATION, MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR ACCEPTANCE FOR ALL MATERIALS TO BE INSTALLED. ALL MATERIALS SHALL BE NEW AND UNDAMAGED. THE SAME MANUFACTURER OF EACH ITEM SHALL BE USED THROUGHOUT THE WORK. ALL MATERIALS NOT SPECIFICALLY REFERENCED SHALL COMPLY WITH APPLICABLE SECTIONS OF ANSI, ASTM, AWWA, AND THE STANDARD SPECIFICATIONS.

APPROVED MANUFACTURERS AND MODEL NUMBERS OF VARIOUS MATERIALS ARE LISTED IN APPROVED MATERIALS LIST INCLUDED WITH THESE STANDARDS. WHEN SPECIFIC MANUFACTURERS OR MODELS ARE LISTED, NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE CITY.

DUCTILE IRON PIPE
DUCTILE IRON PIPE SHALL CONFORM TO ANSI SPECIFICATION A21.51, 1976, AWWA C151–76, OR THE LATEST REVISION THEREOF AND SHALL BE OF THE THICKNESS CLASS 52 FOR PIPE UNLESS OTHERWISE SPECIFIED BY THE CITY. THE PIPE SHALL BE FURNISHED WITH RUBBER GASKETED PUSH–ON TYPE JOINTS EXCEPT WHERE FLANGED OR MECHANICAL JOINTS ARE SPECIFICALLY REQUIRED BY THE CITY. JOINT DETAILS SHALL BE AS SPECIFIED IN ANSI A21.11. PIPE WITH PUSH–ON FITTING JOINTS SHALL BE SUITABLE FOR USE WITH MECHANICAL JOINT FITTINGS. THE PIPES SHALL BE COATED AS SPECIFIED IN ANSI A21.51 AND BE FURNISHED WITH CEMENT MORTAR LINING AS SPECIFIED IN ANSI A21.4. THE CONTRACTOR SHALL FURNISH CERTIFICATION FROM THE MANUFACTURER OF THE PIPE AND GASKET BEING SUPPLIED THAT THE INSPECTION OF ALL THE SPECIFIED TESTS HAVE BEEN MADE AND THE RESULTS THEREOF COMPLY WITH THE REQUIREMENTS OF THE ABOVE–REFERENCED STANDARDS.

FITTINGS
ALL FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON COMPACT (SHORT BODY) FITTINGS CONFORMING TO AWWA C153 OR CLASS 250 GRAY IRON CONFORMING TO AWWA C110 AND C111. ALL FITTINGS SHALL BE CEMENT MORTAR LINED CONFORMING TO AWWA C104. PLAIN END FITTINGS SHALL BE DUCTILE IRON IF MECHANICAL JOINT RETAINER GLANDS ARE INSTALLED ON THE PLAIN ENDS. ALL FITTINGS SHALL BE CONNECTED BY FLANGES OR MECHANICAL JOINTS. FLANGES SHALL BE CLASS 125, DRILLED IN ACCORDANCE WITH ANSI A21.10. GASKET FOR FLANGED FITTINGS SHALL BE NEOPRENE, BUNA N, CHLORINATED BUTYL, CLOTH–INSERTED RUBBER, OR APPROVED EQUAL. GASKETS FOR PUSH–ON TYPE AND MECHANICAL JOINTS SHALL CONFORM TO ANSI A21.11. RUBBER GASKETS FOR PUSH–ON JOINTS OR MECHANICAL JOINT (M.J.) SHALL BE IN ACCORDANCE WITH ANSI A21.11, AWWA C111. GASKET MATERIAL FOR FLANGES SHALL BE NEOPRENE, BUNA N, CHLORINATED BUTYL, OR CLOTH–INSERTED RUBBER.

JOINT RESTRAINT SYSTEMS
JOINT RESTRAINT METHODS SHALL BE AS PER THE APPROVED MATERIALS LIST AND/OR THE STANDARD DETAILS. ACCEPTABLE JOINT RESTRAINT SYSTEMS ARE LIMITED TO: EBAA IRON (MEGALUG 1100), GRIFFIN PIPE PRODUCTS COMPANY (SNAP–LOK), ROMAC (GRIP RING), PACIFIC STATES RESTRAINED JOINT, US PIPE (TR FLEX), MUELLER (AQUA GRIP), ONE BOLT, FIELD LOK GASKETS.

POLYETHYLENE ENCASEMENT
POLYETHYLENE ENCASEMENT SHALL BE EIGHT MIL. TUBE OR SHEET STOCK AND SHALL BE FURNISHED WHERE THE TRENCH IS BACKFILLED WITH CDF, WHERE SOILS TESTING INDICATES THIS IS OF VALUE OR AS DIRECTED BY THE CITY. MATERIALS SHALL COMPLY WITH AWWA C105.

COUPLINGS
FLEXIBLE COUPLINGS AND TRANSITION COUPLING CAST COMPONENTS SHALL BE DUCTILE IRON. CENTER RINGS AND END RINGS SHALL BE DUCTILE IRON IN ACCORDANCE WITH ASTM 536–80, GRADE 65–45–12. GASKET MATERIAL SHALL BE VIRGIN SBR IN ACCORDANCE WITH ASTM D2000 3 BA715. BOLTS SHALL BE HIGH STRENGTH, LOW ALLOY STEEL TRACKHEAD BOLTS WITH NATIONAL COURSE ROLLED THREAD AND HEAVY HEX NUTS. STEEL SHALL MEET AWWA/ANSI C11/A21.11 COMPOSITION SPECIFICATIONS. COUPLINGS SHALL BE MANUFACTURED BY ROMAC OR DRESSER.

ADAPTERS
ADAPTERS SHALL BE ROMAC FLANGE COUPLING ADAPTERS.

BOLTS IN PIPING
BOLTS SHALL BE MALLEABLE IRON COR–TEN, OR STAINLESS STEEL. T–BOLTS SHALL BE MALLEABLE IRON COR–TEN IN ACCORDANCE WITH AWWA/ANSI C111/A21.11. STAINLESS STEEL BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A–307, GRADE A. SHACKLE RODS, NUTS, AND WASHERS SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M232 AND/OR COATED THOROUGHLY WITH COAL–TAR/ASPHALTIC MATERIAL. STAINLESS STEEL NUTS, BOLTS, AND WASHERS SHALL BE TYPE 304.

HYDRANTS
HYDRANTS SHALL BE THE 'TRAFFIC MODEL' TYPE WITH APPROVED BREAKAWAY FEATURES. ALL HYDRANTS SHALL BE BRASS TO BRASS SUBSEAT, MINIMUM VALVE OPENING OF 5–1/4 INCHES 'O' RING STEM SEAL, 6 INCH MECHANICAL SHOE CONNECTION, 1–1/4 INCH PENTAGONAL OPERATING NUT. FIRE HYDRANTS SHALL HAVE TWO, 2–1/2 INCH OUTLETS AND ONE 4–1/2–INCH PUMPER PORT OUTLET. ALL OUTPORT THREADS SHALL BE NATIONAL STANDARD THREAD. THE VALVE OPENING SHALL BE 5–1/4 INCH DIAMETER. THE HYDRANT SHALL HAVE A POSITIVE AND AUTOMATIC BARREL DRAIN. HYDRANT SHALL BE M & H 929 OR APPROVED EQUAL. ALL HYDRANTS SHALL BE BAGGED UNTIL SYSTEM IS APPROVED.

THE LEAD FROM THE SERVICE MAIN TO THE FIRE HYDRANT SHALL BE DUCTILE IRON CEMENT MORTAR LINED CLASS 52, NO LESS THAN 6 INCHES IN DIAMETER, WITH A MAXIMUM LENGTH OF 50 FEET. WHERE LEADS REQUIRE MORE THAN ONE LENGTH OF PIPE, FIELD LOK GASKETS ARE REQUIRED.

FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS, AT LOCATIONS AS SHOWN ON THE APPROVED PLANS. THEY SHALL BE PAINTED WITH 2 COATS OF HIGH GLOSS CATERPILLAR YELLOW PRESERVATIVE 43–616 TYPE PAINT.

ALL HOOK–UPS TO FIRE HYDRANTS FOR TEMPORARY WATER FOR WHATEVER PURPOSE SHALL BE APPROVED BY THE CITY.

HYDRANT VALVES INSTALLED IN UNPAVED AREAS SHALL HAVE A 4–INCH THICK, 2–FEET SQUARE ASPHALT CEMENT PAD PLACED AROUND THEM.

HYDRANTS SHALL STAND PLUMB, BE SET TO THE FINISHED GRADE PER THE STANDARD DETAIL WITH THE LOWEST OUTLET OF THE HYDRANT NO LESS THAN 18 INCHES ABOVE GRADE AND NO LESS THAN 36 INCHES OF CLEAR AREA ABOUT THE HYDRANT FOR CLEARANCE OF A HYDRANT WRENCH ON ALL OUTLETS AND ON THE CONTROL VALVE. THE PUMPER PORT SHALL FACE THE STREET. WHERE THE STREET CANNOT BE CLEARLY DEFINED OR RECOGNIZED, THE PORT SHALL FACE THE MOST LIKELY ROUTE OF APPROACH AND LOCATION OF THE FIRE TRUCK WHILE PUMPING AS DETERMINED BY THE CITY.

VALVES
ALL VALVES AND FITTINGS SHALL BE DUCTILE IRON WITH ANSI FLANGES OR MECHANICAL JOINT ENDS. ALL EXISTING VALVES SHALL BE OPERATED BY CITY EMPLOYEES ONLY.

ALL VALVES SHALL BE INSPECTED UPON DELIVERY IN THE FIELD TO ENSURE PROPER WORKING ORDER AND DAMAGE TO PROTECTIVE COATINGS BEFORE INSTALLATION AND SHALL BE FREE OF ALL RUST AND DIRT. THEY SHALL BE SET AND JOINTED TO THE PIPE IN THE MANNER AS SET FORTH IN THE AWWA STANDARDS FOR THE TYPE OF CONNECTING ENDS FURNISHED. NO VALVES SHALL BE LOCATED IN SUCH POSITION AS TO PLACE THE VALVE CHAMBER OR BOX IN ANY ROADSIDE DITCH, DRAINAGE DITCH, OR CHANNEL.

GATE VALVES SHALL BE USED ON ALL 4–INCH TO 12–INCH LINES, UNLESS DEPTH RESTRICTIONS NECESSITATE INSTALLATION OF BUTTERFLY VALVE. THE DESIGN, MATERIALS, AND WORKMANSHIP OF ALL GATE VALVES SHALL CONFORM TO EITHER AWWA C509–01 (OR LATEST REVISION) OR AWWA C515–01 (OR LATEST REVISION). GATE VALVES SHALL BE RESILIENT WEDGE NON–RISING STEM (NRS) WITH TWO INTERNAL O–RING STEM SEALS.

BUTTERFLY VALVES SHALL BE USED ON ALL LINES 14 INCHES AND LARGER UNLESS DESIGNATED BY THE CITY. BUTTERFLY VALVES SHALL CONFORM TO ANSI/AWWA C504, CLASS 150, WITH CAST IRON SHORT BODY AND 'O' RING STEM SEAL. VALVES IN CHAMBERS SHALL HAVE A MANUAL CRANK OPERATION. BURIED VALVES SHALL HAVE A STEM EXTENSION WITH AWWA 2–INCH OPERATING NUT AND SUITABLE VALVE BOX.

VALVE BOXES
ALL VALVES SHALL HAVE A STANDARD APWA CAST IRON WATER VALVE BOX SET TO GRADE WITH TWO–PIECE, EXTENSION TYPE CAST IRON RISER FROM VALVE. VALVE BOX SHALL HAVE A LUG TYPE COVER, 18' OR 8' TOP AND 24' BOTTOM PER THE STANDARD DETAIL. VALVE BOX LIDS SHALL HAVE THE WORD 'WATER' CAST IN THE UPPER SURFACE AND THE VALVE BOX EARS SHALL BE SET IN DIRECTION OF FLOW.

IF VALVES ARE NOT SET IN PAVED AREA, A 2–FOOT BY 2–FOOT BY 4–INCH ASPHALT CONCRETE PAD SHALL BE SET AROUND EACH VALVE BOX AT FINISHED GRADE. IN AREAS WHERE VALVE BOX FALLS IN ROAD SHOULDER, THE DITCH AND SHOULDER SHALL BE GRADED BEFORE PLACING ASPHALT OR CONCRETE PAD. THE VALVE AND VALVE BOX SHALL BE SET PLUMB WITH THE VALVE BOX CENTERED ON THE OPERATOR NUT. VALVE BOXES SHALL BE SET FLUSH IN PAVEMENT OR ROAD SHOULDER. SEE STANDARD DETAILS.

OPERATING VALVE NUT EXTENSION. A VALVE STEM EXTENSION SHALL BE INSTALLED WHENEVER THE VALVE OPERATING NUT IS MORE THAN 3 FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF 1 FOOT WITH ONLY ONE EXTENSION PER VALVE. THE OPERATOR NUT EXTENSION SHALL EXTEND INTO THE TOP SECTION OF THE VALVE BOX AND SHALL CLEAR THE BOTTOM OF THE LID BY A MINIMUM OF 10 INCHES. SEE STANDARD DETAILS.

CITY'S SERVICE CONNECTIONS
ALL SERVICE CONNECTIONS RELATING TO NEW DEVELOPMENT SHALL BE INSTALLED BY THE DEVELOPER AT THE TIME OF MAINLINE CONSTRUCTION. AFTER THE LINES HAVE BEEN CONSTRUCTED, TESTED, APPROVED, AND A LETTER OF ACCEPTANCE HAS BEEN ISSUED, THE OWNER MAY APPLY FOR A WATER METER. THE CITY WILL INSTALL A WATER METER AFTER THE APPLICATION HAS BEEN MADE AND ALL APPLICABLE FEES HAVE BEEN PAID. WATER METERS WILL BE SET ONLY AFTER THE SYSTEM IS INSPECTED AND APPROVED.

WHEN WATER IS DESIRED TO A PARCEL FRONTING AN EXISTING MAIN, BUT NOT SERVED BY AN EXISTING METER, AN APPLICATION MUST BE MADE TO THE CITY. UPON APPROVAL OF THE APPLICATION AND PAYMENT OF ALL APPLICABLE FEES, THE CITY WILL ALLOW TAPPING OF THE MAIN, AND INSTALLATION OF THE METER, BOX, AND SETTER.

CORPORATION STOP SHALL BE ALL BRONZE ALLOY AND SHALL BE FORD, MUELLER, OR APPROVED EQUAL IN ACCORDANCE WITH AWWA STANDARD C800 WITH IRON PIPE THREAD (IP) THREAD INLET BY COMPRESSION FITTING OUTLET FOR HI–MOL PLASTIC, CL 200 (IPS) .

CORPORATION STOPS FOR 1–INCH TAPS SHALL BE BALL VALVE TYPE WITH I.P. INLET AND COMPRESSION OUTLET. CORPORATION STOPS FOR 1–1/2–INCH AND 2–INCH TAPS SHALL BE THE BALL VALVE TYPE WITH I.P. THREAD INLET AND OUTLET.

ALL JOINTS WITH PLASTIC PIPE SHALL BE MADE UTILIZING STAINLESS STEEL INSERTS WITH COUPLINGS OR ADAPTERS.

SERVICE CONNECTIONS FOR ANY SERVICE SHALL BE INSTALLED WITH ROMAC OR APPROVAL EQUAL PIPE SADDLES. THE MINIMUM ACCEPTABLE TAP SIZE SHALL BE 1 INCH.

SERVICE SADDLE SHALL BE ROMAC 202BS, ALL BRONZE WITH STAINLESS STRAPS AND (IP) THREAD OR APPROVED EQUAL. ALL CLAMPS SHALL HAVE RUBBER GASKET AND IRON PIPE THREADED OUTLETS.

SERVICE LINES SHALL BE POLYETHYLENE MEETING THE REQUIREMENTS OF AWWA C901, WITH HIGH MOLECULAR MASS WITH AT LEAST 200 PSI RATING, AND HAVE A 16 GAUGE COPPER TRACER WIRE WRAPPED ALONG ITS ENTIRE LENGTH (ONE WRAP PER FOOT).

3/4" AND 1" POLYETHYLENE TUBING SHALL BE IRON PIPE SIZE (IPS) – ID ASTM D2239 – SIDR 7 (PE 3408).

METER SETTER. METER SETTERS (1 INCH AND SMALLER) SHALL BE 12 INCHES IN HEIGHT WITH HORIZONTAL INLET AND OUTLET, DOUBLE PURPOSE COUPLINGS, UNLESS OTHERWISE SPECIFIED, ANGLE BALL VALVE WITH DRILLED WINGS FOR PADLOCK, AND ANGLE CHECK VALVE FOR THE SIZE METER TO BE INSTALLED, PER THE STANDARD DETAIL.

METER BOX. MID–STATES HDPE METER BOX SHALL BE COMPLETE WITH LID AS SPECIFIED IN THE STANDARD DETAILS.

ANY PLUMBING IN A RESIDENTIAL OR NONRESIDENTIAL FACILITY PROVIDING WATER FOR HUMAN CONSUMPTION, WHICH IS CONNECTED TO A PUBLIC WATER SYSTEM, SHALL BE LEAD FREE. WITH RESPECT TO SOLDERS AND FLUX, LEAD FREE SHALL MEAN NO MORE THAN 0.2% LEAD, AND WITH RESPECT TO PIPES AND PIPE FITTINGS NO MORE THAN 8% LEAD.

TURN ON – NEW INSTALLATION FOR OWNER
WHEN NEW WATER SERVICE CONNECTIONS ARE INSTALLED BY THE CITY OR DEVELOPER'S CONTRACTOR FOR ANY PREMISES THE VALVE AT THE METER SHALL BE TURNED TO THE 'OFF' POSITION AND REMAIN OFF UNTIL A TURN–ON IS APPLIED FOR AND AN ORDER SHALL BE ISSUED BY THE CITY UPON WRITTEN APPLICATION THEREFORE BY THE OWNER OF THE PREMISES TO BE SUPPLIED AFTER INSPECTION AND APPROVAL BY THE CITY, AND AFTER THE CITY PLUMBING INSPECTOR HAS ISSUED A CERTIFICATE THAT ALL PROVISIONS OF THE APPLICABLE PLUMBING CODE HAVE BEEN COMPLIED WITH.

OWNER'S SERVICE PIPE SPECIFICATIONS
ALL WATER SERVICE LINE PIPING LEADING FROM THE METER TO THE PREMISES, SHALL BE LAID NOT LESS THAN 18 INCHES BELOW THE SURFACE OF THE GROUND. WATER SERVICE LINE PIPES OR ANY UNDERGROUND WATER PIPES SHALL NOT BE LAID IN THE SAME TRENCH WITH BUILDING SEWER OR DRAINAGE PIPING. WATER SERVICE LINE PIPES, PARALLEL TO BUILDING SEWERS OR DRAINAGE PIPING, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY, UNLESS OTHERWISE APPROVED BY THE CITY.

SHUTOFF VALVES OF APPROVED FULL–FLOW PATTERN WITH KEY OR HAND WHEEL SHALL BE INSTALLED IN THE WATER SERVICE PIPE LEADING FROM THE CITY METER TO THE BUILDING, WITHIN THE PREMISES SERVED, IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE. SHUTOFF VALVES WHERE BURIED SHALL BE PROPERLY ENCLOSED IN A MINIMUM SIX–INCH DIAMETER PIPE, OR BOX, OF CONCRETE, PLASTIC, OR IRON WITH AN APPROVED COVER, PROTECTED FROM FREEZING AND READILY ACCESSIBLE. VALVES INTERNAL TO THE STRUCTURE ARE RECOMMENDED.

CUSTOMER–OWNED VALVES OR EQUIPMENT ARE NOT PERMITTED TO BE INSTALLED WITHIN THE CITY'S METER BOX.

SERVICE CONNECTIONS AND EXTENSION PIPES LAID UNDERGROUND SHALL BE SIZED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE IBC AS ADOPTED BY THE CITY.

OWNER'S PLUMBING SPECIFICATIONS
ALL PERSONS INSTALLING FIXTURES OR APPLIANCES TO BE SUPPLIED WITH WATER FROM THE CITY SYSTEM SHALL BE SUBJECT TO THE REQUIREMENTS OF THE APPLICABLE PLUMBING CODE OF THE CITY. PERSONS INSTALLING PLUMBING IN NEW BUILDINGS SHALL LEAVE THE VALVE AT THE METER IN THE OFF POSITION UPON COMPLETION OF THEIR WORK. THE CITY SHALL HAVE THE RIGHT TO REFUSE WATER SERVICE OR DISCONTINUE WATER SERVICE IN ANY SITUATION WHERE IT IS DISCOVERED THAT APPLICABLE CITY STANDARDS AND CODES HAVE NOT BEEN COMPLIED WITH IN MAKING THE INSTALLATION.

IRRIGATION SYSTEM SPECIFICATIONS
AN IRRIGATION SYSTEM CONNECTED TO A DOMESTIC, OR COMMERCIAL CONNECTION SHALL BE EQUIPPED WITH AN APPROVED BACKFLOW DEVICE PER APPENDIX A AND THE WSDOH LIST OF APPROVED CROSS CONNECTION CONTROL DEVICES. THE APPROVED DEVICE SHALL BE PLACED AT A HEIGHT AS PROVIDED IN THE APPLICABLE PLUMBING CODE

BLOWOFF ASSEMBLY
IF A FIRE HYDRANT IS NOT LOCATED AT THE END OF A DEAD END MAIN, A BLOWOFF ASSEMBLY SHALL BE REQUIRED. ON WATER MAINS WHICH WILL BE EXTENDED IN THE FUTURE, PROVIDE TEE AND BLOCKING AS SHOWN ON STANDARD DETAILS.

CONCRETE BEDDING AND BLOCKING
BEDDING, BLOCKING, ENCASEMENT, OR SLOPE ANCHOR CONCRETE SHALL BE PREMIXED BAGS OF CONCRETE OR CONCRETE MIXED FROM MATERIALS ACCEPTABLE TO THE ENGINEER AND SHALL HAVE A 30–DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 2,500 PSI. THE MIX SHALL CONTAIN FIVE SACKS OF CEMENT PER CUBIC YARD AND SHALL BE OF SUCH CONSISTENCY THAT THE SLUMP IS BETWEEN 1 INCH AND 5 INCHES. ALL CONCRETE SHALL BE MIXED PRIOR TO INSTALLATION.

CONCRETE THRUST BLOCKING, AS INDICATED ON THE STANDARD DETAILS, SHALL BE PLACED AT BENDS, TEES, DEAD ENDS, CROSSES, AND AS DESIGNATED BY THE ENGINEER.

LOCATION OF THRUST BLOCKING SHALL BE SHOWN ON PLANS. THRUST BLOCK CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH. A PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND FITTINGS. SEE STANDARD DETAILS FOR THRUST BLOCK LOCATIONS AND CALCULATIONS. ALL BLOCKING AS SHOWN ON THE STANDARD DETAILS ARE CONSIDERED AS MINIMUMS, AND CONSIDERATION SHALL BE GIVEN TO UNUSUAL CIRCUMSTANCES SUCH AS UNSTABLE SOIL, ADJACENT PIPE LINES, AND TOPOGRAPHY.

BACKFLOW PREVENTION
ALL WATER SYSTEM CONNECTIONS TO SERVE BUILDINGS OR PROPERTIES WITH DOMESTIC POTABLE WATER, FIRE SPRINKLER SYSTEMS, OR IRRIGATION SYSTEMS SHALL COMPLY WITH THE MINIMUM BACKFLOW REQUIREMENTS AS ESTABLISHED BY THE DEPARTMENT OF HEALTH (DOH) AND THE CITY.

WHEN UTILITY SERVICES OCCUPY THE SAME SPACE AS THE NEW WATER MAIN, THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION TO FULLY EXPOSE SUCH SERVICES. THE CONTRACTOR SHALL PROTECT SAID SERVICES AND WORK AROUND THEM DURING EXCAVATING AND PIPE LAYING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO THE SERVICES DUE TO HIS OPERATION AND SHALL IMMEDIATELY NOTIFY THE CITY AND OTHER UTILITY AND ARRANGE FOR REPLACEMENT OF ALL DAMAGED SERVICES.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION AND 10 FEET OF HORIZONTAL SEPARATION BETWEEN SANITARY SEWERS AND WATER MAINS. THE MINIMUM COVER FOR WATER MAIN OF 42 INCHES MAY BE REDUCED TO 30 INCHES UPON APPROVAL BY THE CITY TO PROVIDE FOR AS MUCH VERTICAL SEPARATION AS POSSIBLE.

THE LONGEST STANDARD LENGTH OF WATER PIPE SHALL BE INSTALLED SO THAT THE JOINTS WILL FALL EQUIDISTANT FROM ANY SEWER CROSSING. IN SOME CASES WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED, IT MAY BE NECESSARY TO ENCASE THE WATER PIPE AND/OR SEWER SERVICE IN A CARRIER PIPE OR CONTROL DENSITY FILL. NO CONCRETE SHALL BE INSTALLED UNLESS SPECIFICALLY DIRECTED BY THE CITY.

ALL SURVEYING AND STAKING SHALL BE PERFORMED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK. THE ENGINEER OR SURVEYOR DIRECTING SUCH WORK SHALL BE LICENSED AS A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR BY THE STATE OF WASHINGTON.

A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CITY PRIOR TO COMMENCING STAKING. ALL CONSTRUCTION STAKING SHALL BE INSPECTED BY THE CITY PRIOR TO CONSTRUCTION.

THE MINIMUM STAKING OF WATERLINES SHALL BE AS DIRECTED BY THE CITY OR AS FOLLOWS:

STAKE CENTERLINE ALIGNMENT EVERY 50 FEET WITH CUT OR FILL TO INVERT OF PIPE MAINTAINING 42 INCHES OF COVER OVER PIPE. CUTS ARE NORMALLY NOT REQUIRED WHEN ROAD GRADE HAS BEEN BUILT TO SUBGRADE ELEVATION.

STAKE ALIGNMENT OF ALL FIRE HYDRANTS, TEES, WATER METERS, SETTERS AND OTHER FIXTURES AND MARK CUT OR FILL TO HYDRANT FLANGE FINISHED GRADE.

MINIMUM COVER
MINIMUM COVER FOR ALL WATER MAINS FROM TOP OF PIPE TO FINISH GRADE SHALL BE 36 INCHES FOR ALL PIPES 8 INCHES DIAMETER AND SMALLER, AND 48 INCHES FOR ALL PIPES GREATER THAN 8 INCHES DIAMETER, AND MAXIMUM DEPTH OF 60 INCHES, UNLESS OTHERWISE APPROVED BY THE CITY.

THE INSTALLATION OF ALL WATER MAINS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION PLANS AS APPROVED BY THE CITY FOR THE PROJECT. ANY DEVIATION OR CHANGES ARE TO BE APPROVED BY THE CITY BEFORE THE CHANGES ARE INCORPORATED INTO THE WORK.

DIRT OR OTHER FOREIGN MATERIAL SHALL BE PREVENTED FROM ENTERING THE PIPE OR PIPE JOINT DURING HANDLING OR LAYING OPERATIONS, AND ANY PIPE OR FITTING THAT HAS BEEN INSTALLED WITH DIRT OR FOREIGN MATERIAL IN IT SHALL BE REMOVED, CLEANED, AND RE–LAID. WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY WATERTIGHT PLUGS OR BY OTHER MEANS APPROVED BY THE CITY.

PIPE SHALL BE STACKED IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE PIPE, TO PREVENT DIRT AND DEBRIS FROM ENTERING THE PIPE, AND TO PREVENT ANY MOVEMENT OF THE PIPE. THE BOTTOM TIERS OF THE STACK SHALL BE KEPT OFF THE GROUND ON TIMBERS, OR OTHER SIMILAR SUPPORTS.

CUTTING PIPE – WHENEVER IT BECOMES NECESSARY TO CUT A LENGTH OF PIPE, THE CUT SHALL BE MADE BY ABRASIVE SAW OR BY PIPE CUTTER. ALL PIPE ENDS SHALL BE SQUARE WITH THE LONGITUDINAL AXIS OF THE PIPE AND THE OUTSIDE SHALL BE BEVELED AND OTHERWISE SMOOTHED SO THAT GOOD CONNECTIONS CAN BE MADE WITHOUT DAMAGE TO THE GASKET. THREADS SHALL BE CLEANLY CUT. OXYACETYLENE TORCH CUTTING OF DUCTILE IRON WILL NOT BE ALLOWED.

PIPE BEDDING
PIPE BEDDING MATERIAL, SHALL BE CRUSHED SURFACING TOP COURSE CSTC PER WSDOT STD. SPEC. SECTION 9–03.9(3). BEDDING IS DEFINED AS 6 INCHES BELOW THE PIPE, AROUND THE PIPE, AND 12 INCHES ABOVE THE PIPE.

THE AMOUNT OF DEFLECTION AT EACH PIPE JOINT WHEN PIPE IS LAID ON A HORIZONTAL OR VERTICAL CURVE SHALL NOT EXCEED HALF THE MANUFACTURER'S PRINTED MAXIMUM RECOMMENDED DEFLECTIONS. WHERE FIELD CONDITIONS REQUIRE DEFLECTION OR CURVES NOT ANTICIPATED IN THE DRAWINGS, THE ENGINEER WILL DETERMINE THE METHODS TO BE USED. WHEN RUBBER GASKETED PIPE IS LAID ON A CURVE, THE PIPE SHALL BE JOINTED IN A STRAIGHT ALIGNMENT AND THEN DEFLECTED TO THE CURVED ALIGNMENT. TRENCHES SHALL BE MADE WIDER ON CURVES FOR THIS PURPOSE.

HYDROSTATIC PRESSURE TESTS
THE CITY OR ITS REPRESENTATIVE WILL INSPECT AND OBSERVE THE HYDROSTATIC TEST OF THE PIPE WITHIN 48 HOURS AFTER NOTIFICATION BY THE CONTRACTOR THAT A SECTION IS READY FOR INSPECTION AND TEST. THE CONTRACTOR SHALL CONTACT THE CITY AT LEAST 48 HOURS IN ADVANCE OF THE COMPLETION OF STERILIZATION AND FLUSHING AND THE CITY WILL TAKE THE REQUIRED WATER SAMPLES. THE CONTRACTOR SHALL PAY FOR THE COST OF THE WATER QUALITY TESTS.

PRIOR TO THE ACCEPTANCE OF THE WORK, THE INSTALLATION SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST AND ANY LEAKS OR IMPERFECTIONS DEVELOPING UNDER SAID PRESSURE SHALL BE REMEDIED BY THE CONTRACTOR BEFORE FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR SHALL PERFORM A PRELIMINARY TEST TO ASSURE THAT THE EQUIPMENT TO BE USED FOR THE TEST IS ADEQUATE AND IN GOOD OPERATING CONDITION AND THE AIR IN THE LINES HAS BEEN RELEASED BEFORE REQUESTING THE CITY WITNESS THE TEST. THE CITY OR HIS REPRESENTATIVE SHALL WITNESS THE TEST; IF THE TEST DOES NOT PASS INSPECTION FOR ANY REASON, ADDITIONAL TRIPS REQUIRED TO WITNESS THE TEST SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

NO AIR WILL BE ALLOWED IN THE LINES. THE MAINS SHALL BE TESTED BETWEEN VALVES. INSOFAR AS POSSIBLE, NO HYDROSTATIC PRESSURE SHALL BE PLACED AGAINST THE OPPOSITE SIDE OF THE VALVE BEING TESTED. TEST PRESSURE SHALL BE MAINTAINED WHILE THE ENTIRE INSTALLATION BEING TESTED IS INSPECTED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT AND SHALL PERFORM ALL WORK CONNECTED WITH THE TEST. TESTS SHALL BE MADE BEFORE ALL VALVED CONNECTIONS HAVE BEEN MADE. AT UNVALVED CONNECTION POINTS, A TEMPORARY PLUG (OR 2' BLOW–OFF ASSEMBLY ON LINES WITHOUT HYDRANTS) SHALL BE INSTALLED AT THE END OF THE NEW MAIN. THIS SHALL INCLUDE CONCRETE BLOCKING AND/OR RESTRAINED JOINTS NECESSARY TO WITHSTAND PRESSURES ENCOUNTERED DURING THE HYDROSTATIC TEST.

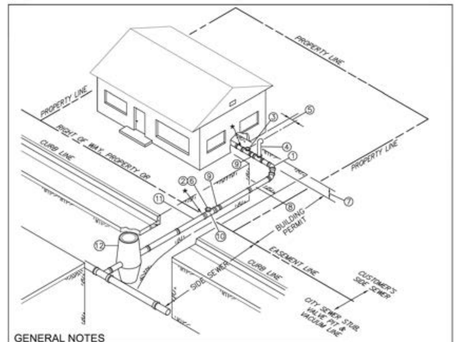
ONCE THE NEW LINE IS SUCCESSFULLY TESTED AND DISINFECTED, THE PLUG (BLOW–OFF) SHALL BE REMOVED AND THE CONNECTION TO THE EXISTING MAIN COMPLETED.

THE CONTRACTOR SHALL PROVIDE SPECIAL PLUGS AND BLOCKING NECESSARY IN THOSE LOCATIONS WHERE IT WOULD BE NECESSARY TO TEST AGAINST BUTTERFLY VALVES TO ENSURE THAT THE PRESSURE RATING OF THESE VALVES IS NOT EXCEEDED DURING TESTING.

ALL WATER MAINS AND APPURTENANCES SHALL BE HYDROSTATICALLY TESTED AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

STERILIZATION AND FLUSHING OF WATER MAINS
STERILIZATION OF WATER MAINS SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE HEALTH DEPARTMENT AND IN A MANNER SATISFACTORY TO THE CITY. THE SECTION TO BE STERILIZED SHALL BE THOROUGHLY FLUSHED AT MAXIMUM FLOW ESTABLISHED BY THE CITY PRIOR TO CHLORINATION, NO LESS THAN 2.5 FT/S

SEWER DETAILS
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

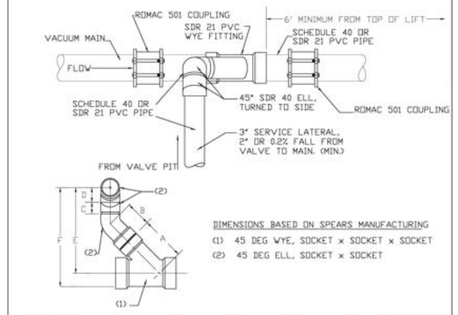


GENERAL NOTES

1. 45° BENDS WITH 24" MIN. SEPARATION BETWEEN BENDS.
2. CONNECT BUILDING SEWER TO SIDE SEWER PER DETAIL S-16.
3. BACKWATER VALVE PER STANDARD DETAIL.
4. SURFACE AIR VENT PER STANDARD DETAIL. THE SURFACE AIR VENT MAY ALSO DOUBLE AS A SECONDARY CLEAN OUT AT OWNER'S OPTION. THE SURFACE AIR VENT MAY BE INSTALLED LATERAL TO THE SIDE SEWER LINE (MAX. 4'). LOCATION OF SURFACE AIR VENT IS AT OWNER'S DISCRETION BUT SHALL BE MIN. 10' UPSTREAM OF THE CITY SIDE SEWER CONNECTION UNLESS OTHERWISE APPROVED.
5. 18" TO 36" RECOMMENDED DISTANCE.
6. PLUG OR CLEANOUT AT OWNER'S OPTION.
7. 18" MIN. COVER.
8. 4" OR 6" SDR 21 PVC SIDE SEWER. SDR 35 PVC & CLASS 50 DUCTILE IRON PIPE ARE ALSO ACCEPTABLE.
9. 4"x 6" REDUCER FITTING AS REQUIRED.
10. 6" TEST TEE WITH PLUG. TEST TEE MAY DOUBLE AS A CLEAN OUT AT OWNER'S OPTION.
11. 6" SIDE SEWER STUB w/ CAP.
12. VALVE PIT

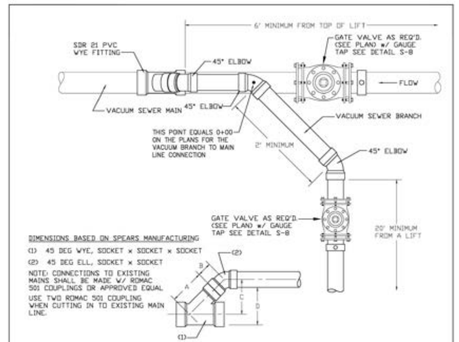
★DURING TESTING, CAP INSTALLED SIDE SEWER AT THESE LOCATIONS. AFTER SUCCESSFUL TEST, REMOVE CITY-SIDE CAP & CONNECT TO CITY SEWER STUB. TESTING METHODS ARE DESCRIBED IN THE CITY SIDE SEWER STANDARDS.

LOCHNER (425)-454-3160 | TYPICAL BUILDING CONNECTION | 08/2017 | DWG. NO. S-1



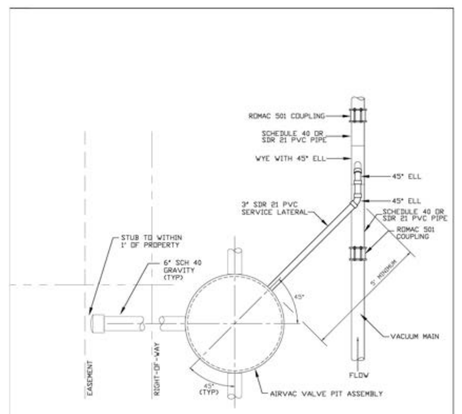
WYE SIZE	A	B	C	D	E	F- INVERT
4 x 4 x 3	8 7/8"	2 7/8"	2 7/8"	3 23/32"	14.93"	1.24'
6 x 6 x 3	10 1/4"	2 7/8"	2 7/8"	3 23/32"	15.35"	1.32'
8 x 8 x 3	13"	2 7/8"	2 7/8"	3 23/32"	17.82"	1.48'
10 x 10 x 3	14 5/8"	2 7/8"	2 7/8"	3 23/32"	18.97"	1.58'

LOCHNER (425)-454-3160 | VACUUM SERVICE LATERAL TO MINOR BRANCH CONNECTION | 08/2017 | DWG. NO. S-2

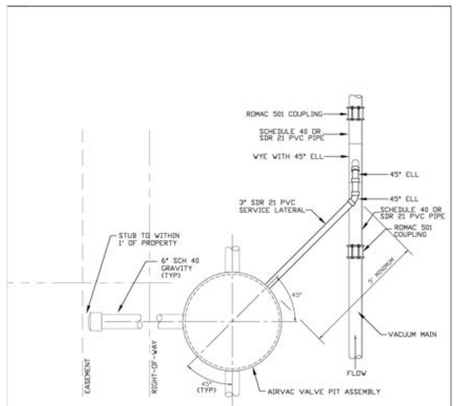


WYE SIZE	A	B	C	D- INVERT
4 x 4 x 4	8 3/4"	3 5/16"	8.53"	0.71'
4 x 4 x 3	9 1/4"	3 1/16"	8.70"	0.73'
6 x 6 x 6	12 1/8"	5 9/16"	12.5"	1.04'
6 x 6 x 4	10"	3 5/16"	9.41"	0.78'
6 x 6 x 3	10 1/2"	3 1/16"	9.59"	0.80'
8 x 8 x 8	18 3/4"	6 13/16"	18.07"	1.52'
8 x 8 x 6	16 1/4"	5 9/16"	15.42"	1.30'
8 x 8 x 4	14 1/4"	3 5/16"	12.42"	1.05'
8 x 8 x 3	13"	3 1/16"	11.36"	0.99'
10 x 10 x 10	22 3/8"	8 19/32"	21.90"	1.89'
10 x 10 x 8	20 1/4"	6 13/16"	19.13"	1.61'
10 x 10 x 6	17 3/4"	5 9/16"	16.46"	1.42'
10 x 10 x 4	15 3/4"	3 5/16"	13.48"	1.18'
10 x 10 x 3	14 3/4"	3 1/16"	12.33"	1.08'

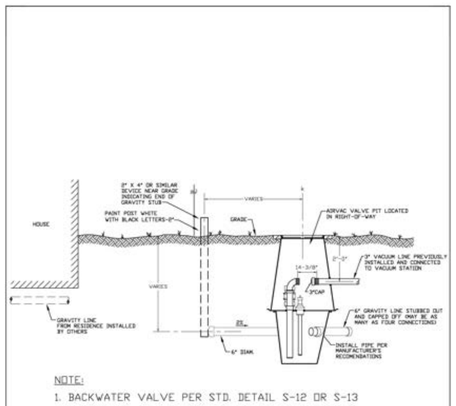
LOCHNER (425)-454-3160 | VACUUM BRANCH TO MAIN CONNECTION | 08/2017 | DWG. NO. S-3



LOCHNER (425)-454-3160 | VALVE PIT: SINGLE CONNECTION | 08/2017 | DWG. NO. S-4

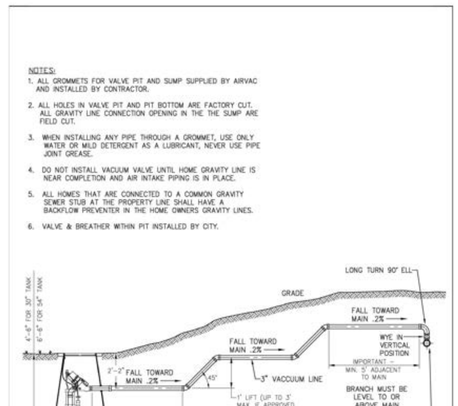


LOCHNER (425)-454-3160 | VALVE PIT: SINGLE CONNECTION | 08/2017 | DWG. NO. S-4

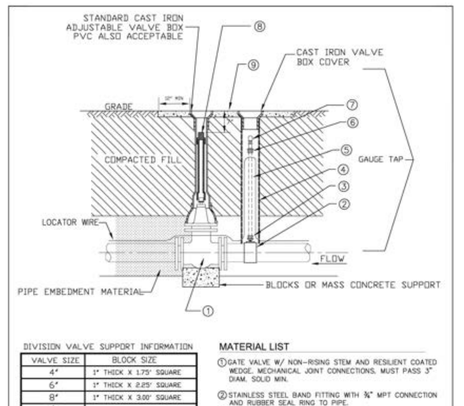


NOTE:
1. BACKWATER VALVE PER STD. DETAIL S-12 OR S-13
2. SDR 21 PRESSURE RATED PVC PIPE AND FITTINGS
3. AIR INTAKE/BETN PER STD. DETAIL S-14
4. CORE ON FLAT SURFACE 1'-6" ABOVE BOTTOM OF LOWER SUMP. SPECIAL CIRCULAR SAW BLADE REQUIRED FOR CORING INTO VALVE PIT. THE BLADE IS AVAILABLE FROM THE VALVE PIT MANUFACTURER.

LOCHNER (425)-454-3160 | VALVE PIT PRIOR TO HOME HOOK-UP | 08/2017 | DWG. NO. S-6



LOCHNER (425)-454-3160 | VALVE PIT AND LATERAL INSTALLATION | 08/2017 | DWG. NO. S-7



DIVISION VALVE SUPPORT INFORMATION

VALVE SIZE	BLOCK SIZE
4"	1' THICK X 1.75' SQUARE
6"	1' THICK X 2.25' SQUARE
8"	1' THICK X 3.00' SQUARE
10"	1' THICK X 3.50' SQUARE

MATERIAL LIST
1. GATE VALVE W/ NON-RISING STEM AND RESILIENT COATED WEDGE, MECHANICAL JOINT CONNECTIONS. MUST PASS 3" DIAM. SOLID MIN.
2. STAINLESS STEEL BAND FITTING WITH ¾" MPT CONNECTION AND RUBBER SEAL RING TO PIPE.
3. ¾" MPT, COMPRESSION FITTING
4. 6" PVC PIPE EXTENSION.
5. ¾" SDR-7, 200 PSI, POLYETHYLENE TUBING.
6. ¾" FPT, COMPRESSION FITTING
7. ¾" BARB ADAPTOR WITH CAP.
8. VALVE EXTENSION W/ 2" SQUARE NUT.
9. AC PAVEMENT OR GRAVEL PER PLANS, MUST BE INSTALLED BETWEEN VALVE AND MIN 12" SURROUNDING VALVE BOX COVERS.

LOCHNER (425)-454-3160 | DIVISION VALVE & GUAGE TAP | 08/2017 | DWG. NO. S-8

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SEWER DETAILS
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON — STATE OF WASHINGTON — #1423 — REGISTERED PROFESSIONAL ENGINEER — 2/14/22

Scale: Horizontal N/A Vertical N/A
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 65 of 83

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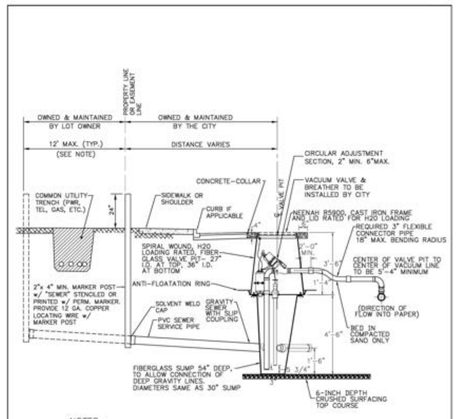
SEWER DETAILS
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

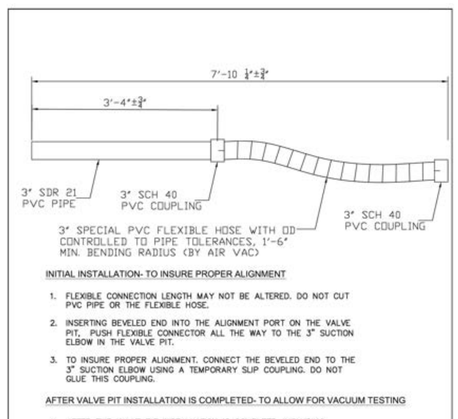


NOTES:
(1) DEVELOPER/CONTRACTOR MAY EXTEND STUB SERVICE WITH MARKER POST PAST COMMON TRENCH DURING SEWER MAIN CONSTRUCTION(MAX. 12').

(2) BACKFILL VALVE PIT WITH CSTC, COMPACTED TO 90% DENSITY, 95% DENSITY IN TRAFFIC AREAS

(3) INSTALL GRAVITY SIDE SEWER CONNECTION TO VALVE PIT PER MANUFACTURER'S RECOMMENDATIONS. A SPECIFIC SAW BLADE, AVAILABLE FROM THE VALVE PIT MANUFACTURER, IS REQUIRED TO CUT INTO THE FIBERGLASS VALVE PIT.

LOCHNER (425)-454-3160 | VALVE PIT & SIDE SEWER STUB SERVICE CONSTRUCTION DETAIL | 08/2017 | DWG. NO. S-9



3" SPECIAL PVC FLEXIBLE HOSE WITH OD CONTROLLED TO PIPE TOLERANCES, 1'-6" MIN. BENDING RADIUS (BY AIR VAC)

INITIAL INSTALLATION- TO INSURE PROPER ALIGNMENT

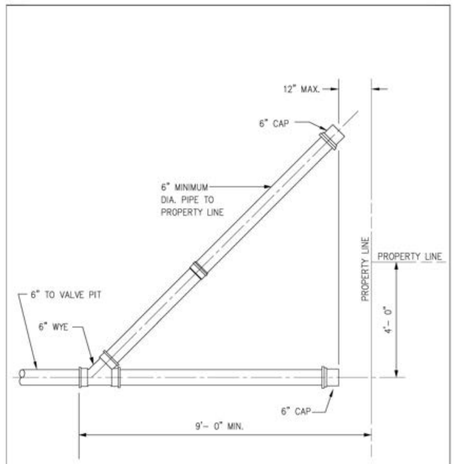
1. FLEXIBLE CONNECTION LENGTH MAY NOT BE ALTERED. DO NOT CUT PVC PIPE OR THE FLEXIBLE HOSE.
2. INSERTING BEVELED END INTO THE ALIGNMENT PORT ON THE VALVE PIT, PUSH FLEXIBLE CONNECTOR ALL THE WAY TO THE 3" SUCTION ELBOW IN THE VALVE PIT.
3. TO INSURE PROPER ALIGNMENT, CONNECT THE BEVELED END TO THE 3" SUCTION ELBOW USING A TEMPORARY SLIP COUPLING. DO NOT GLUE THIS COUPLING.

AFTER VALVE PIT INSTALLATION IS COMPLETED- TO ALLOW FOR VACUUM TESTING

1. AFTER THE VALVE PIT INSTALLATION IS COMPLETE, INCLUDING BACKFILL REMOVE TEMPORARY PVC COUPLING AND CUT THE PVC PIPE TO THE CENTER OF THE VALVE PIT ±1". GLUE 3" PVC CAP ONTO END OF PVC PIPE.
2. DO NOT CONDUCT MAIN LINE VACUUM TESTING UNTIL THE TEMPORARY COUPLING HAS BEEN REMOVED AND THE PVC CAP GLUED ON.

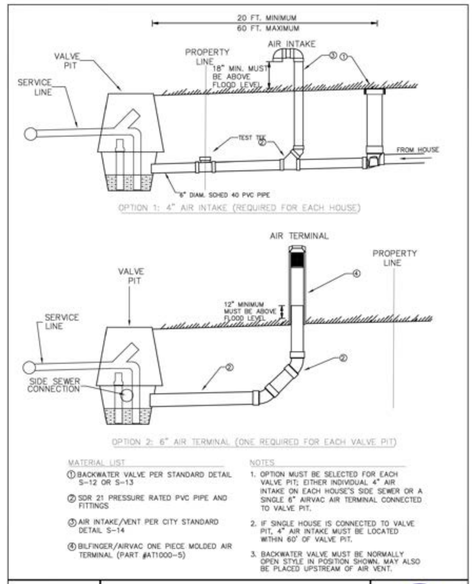
SEE AIRVAC INSTALLATION INSTRUCTION FOR ADDITIONAL DETAILS

LOCHNER (425)-454-3160 | AIRVAC FLEXIBLE CONNECTOR | 08/2017 | DWG. NO. S-9A



PLAN VIEW

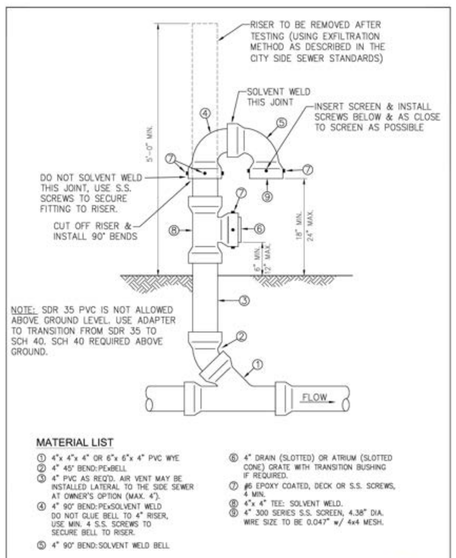
LOCHNER (425)-454-3160 | STANDARD PLAN SIDE SEWER STUB | 08/2017 | DWG. NO. S-10



MATERIAL LIST
① BACKWATER VALVE PER STANDARD DETAIL S-12 OR S-13
② SDR 21 PRESSURE RATED PVC PIPE AND FITTINGS
③ AIR INTAKE/VENT PER CITY STANDARD DETAIL S-14
④ BILFINGER/AIRVAC ONE PIECE MOLDED AIR TERMINAL (PART #AT1000-5)

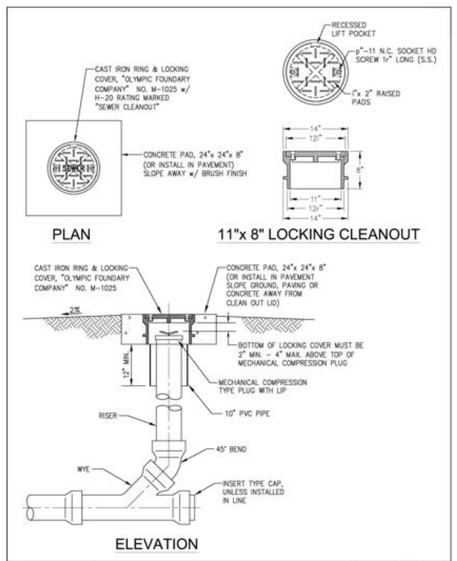
NOTES
1. OPTION MUST BE SELECTED FOR EACH VALVE PIT; EITHER INDIVIDUAL 4" AIR INTAKE ON EACH HOUSE'S SIDE SEWER OR A SINGLE 6" AIRVAC AIR TERMINAL CONNECTED TO VALVE PIT.
2. IF SINGLE HOUSE IS CONNECTED TO VALVE PIT, 4" AIR INTAKE MUST BE LOCATED WITHIN 60' OF VALVE PIT.
3. BACKWATER VALVE MUST BE NORMALLY OPEN STYLE IN POSITION SHOWN, MAY ALSO BE PLACED UPSTREAM OF AIR VENT.

LOCHNER (425)-454-3160 | AIR INTAKE OPTIONS | 08/2017 | DWG. NO. S-11

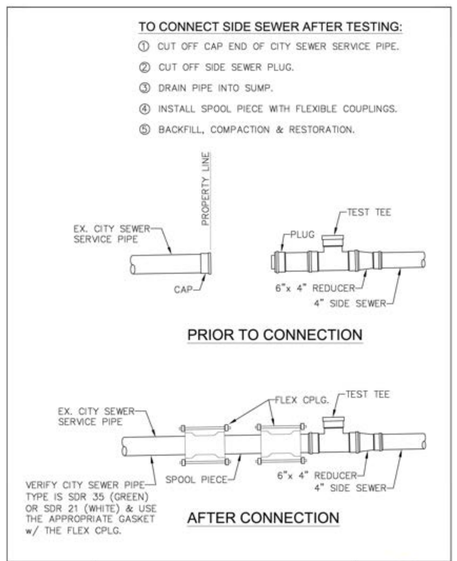


MATERIAL LIST
① 4"x 4"x 4" OR 6"x 6"x 4" PVC WYE
② 4" 45° BEND:PE&BELL
③ 4" PVC AS REQ'D. AIR VENT MAY BE INSTALLED LATERAL TO THE SIDE SEWER AT OWNER'S OPTION (MAX. 4').
④ 4" 90° BEND:PE&SOLVENT WELD DO NOT GLUE BELL TO 4" RISER, USE MIN. 4 S.S. SCREWS TO SECURE BELL TO RISER.
⑤ 4" 90° BEND:SOLVENT WELD BELL
⑥ 4" DRAIN (SLOTTED) OR ATRIUM (SLOTTED CONE) GRATE WITH TRANSITION BUSHING IF REQUIRED.
⑦ #6 EPOXY COATED, DECK OR S.S. SCREWS, 4 MIN.
⑧ 4"x 4" TEE: SOLVENT WELD.
⑨ 4" 300 SERIES S.S. SCREEN, 4.38" DIA. WIRE SIZE TO BE 0.047" w/ 4x4 MESH.

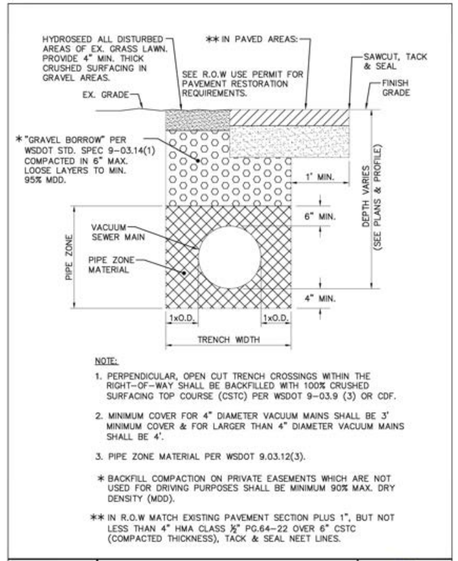
LOCHNER (425)-454-3160 | AIR VENT DETAIL | 08/2017 | DWG. NO. S-14



LOCHNER (425)-454-3160 | SURFACE CLEANOUT DETAIL | 08/2017 | DWG. NO. S-15



LOCHNER (425)-454-3160 | SIDE SEWER STANDARDS CONNECTION SCHEMATIC-SUPPLEMENT | 08/2017 | DWG. NO. S-16



NOTE:
1. PERPENDICULAR, OPEN CUT TRENCH CROSSINGS WITHIN THE RIGHT-OF-WAY SHALL BE BACKFILLED WITH 100% CRUSHED SURFACING TOP COURSE (CSTC) PER WSDOT 9-03.9 (3) OR CDF.
2. MINIMUM COVER FOR 4" DIAMETER VACUUM MAINS SHALL BE 3' MINIMUM COVER & FOR LARGER THAN 4" DIAMETER VACUUM MAINS SHALL BE 4'.
3. PIPE ZONE MATERIAL PER WSDOT 9.03.12(3).

* BACKFILL COMPACTION ON PRIVATE EASEMENTS WHICH ARE NOT USED FOR DRIVING PURPOSES SHALL BE MINIMUM 90% MAX. DRY DENSITY (MDD).

** IN R.O.W MATCH EXISTING PAVEMENT SECTION PLUS 1", BUT NOT LESS THAN 4" HMA CLASS ½" PG.64-22 OVER 6" CSTC (COMPACTED THICKNESS), TACK & SEAL NEET LINES.

LOCHNER (425)-454-3160 | TYPICAL VACUUM SEWER MAIN TRENCH DETAIL | 08/2017 | DWG. NO. S-20

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SEWER DETAILS
FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON
STATE OF WASHINGTON
#1423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal N/A Vertical N/A

Designed RK | Drawn RK | Checked BJT | Approved BJT | Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 66 of 83

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SEWER NOTES
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

GENERAL SANITARY SEWER CONSTRUCTION NOTES:

SEE THE CITY OF CARNATION WATER AND SEWER COMBINED UTILITY STANDARDS (CITY STANDARDS), CURRENT EDITION, FOR FULL REQUIREMENT DETAILS.

PRIOR TO ANY PAVEMENT CUTTING OR REMOVAL, OR EXCAVATION FOR PIPE LAYING, THE CONTRACTOR SHALL VERIFY, IN THE PRESENCE OF THE CITY'S INSPECTOR, THE LOCATION AND DEPTH OF THE EXISTING SEWER MAIN AT THE POINT WHERE CONNECTION IS TO BE MADE. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS, TYPE, AND CONDITION OF THE EXISTING SEWER MAIN. IF NECESSARY, THE GRADE SHALL BE ADJUSTED SO NEITHER A HIGH SPOT NOR A LOW SPOT IS CREATED ADJACENT TO THE CONNECTION TO THE EXISTING SEWER MAIN.

WATER MAINS, PARALLEL TO A SEWER, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY. UNDER UNUSUAL CIRCUMSTANCES, THE HORIZONTAL SPACING MAY BE ADJUSTED, SUBJECT TO THE APPROVAL OF THE CITY. WATER MAINS CROSSING SEWERS SHOULD BE NOT LESS THAN 18 INCHES ABOVE THE SEWER. WHERE IT IS NECESSARY FOR A SEWER TO CROSS WITHIN 18 INCHES, OR OVER THE WATER MAIN, PROTECTIVE MEASURES PER THE DOE CRITERIA FOR SEWAGE WORKS DESIGN (ORANGE BOOK) SHALL BE TAKEN.

FIELD STAKING FOR SEWER LINE AND GRADE FOR SEWER VACUUM BRANCH MAIN AND VACUUM SEWER LATERALS SHALL BE PERFORMED BY LICENSED SURVEYOR.

PIPING, VALVES, VALVE PITS, AND APPURTENANCES SHALL NOT BE BURIED UNTIL OBSERVED AND ACCEPTED BY CITY REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND SCHEDULING TIMELY SITE OBSERVATIONS BY CITY REPRESENTATIVE.

TRENCHES SHALL BE EXCAVATED TO THE LINE AND DEPTH DESIGNATED BY THE PLANS TO PROVIDE THE COVER ON THE WATER SYSTEM OR SANITARY SEWER SYSTEM AS SPECIFIED BY THE CITY. PERFORM TRENCHING IN ACCORDANCE WITH THE GENERAL UTILITY PIPE TRENCHING AND TRENCH PATCHING NOTES ON SHEET 47.

THE CITY HAS A VACUUM SEWER SYSTEM THAT OPERATES DIFFERENTLY THAN STANDARD GRAVITY SEWER. A BREAK IN THE MAINLINE, OR BETWEEN MAINLINE AND VALVE PITS, WILL SHUTDOWN THE ENTIRE TRUNKLINE, BETWEEN VACUUM STATION AND END USER. THE INSTALLATION OF ALL SANITARY SEWER FACILITIES SHALL BE DONE PER PLANS WHICH HAVE BEEN APPROVED BY THE CITY.

BEFORE INSTALLATION, MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR ACCEPTANCE FOR ALL MATERIALS TO BE INSTALLED. ALL MATERIALS SHALL BE NEW AND UNDAMAGED. ALL MATERIALS NOT SPECIFICALLY REFERENCED SHALL COMPLY WITH APPLICABLE SECTIONS OF ANSI, ASTM, AWWA, AND THE STANDARD SPECIFICATIONS.

APPROVED MANUFACTURERS AND MODEL NUMBERS OF VARIOUS MATERIALS ARE LISTED IN APPROVED MATERIALS LIST INCLUDED IN THE CITY STANDARDS. WHEN SPECIFIC MANUFACTURERS OR MODELS ARE LISTED, NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE CITY.

PIPE
VACUUM SEWER MAIN AND LATERALS SHALL BE CONSTRUCTED OF ASTM 2241 SDR 21 PVC, 200 PSI PRESSURE RATED, UNLESS OTHERWISE APPROVED BY CITY.

CONNECTIONS TO EXISTING VACUUM SEWER MAIN SHALL BE MADE WITH ROMAC 501 COUPLINGS OR APPROVED EQUAL.

GRAVITY SEWERS AND SERVICES SHALL BE CONSTRUCTED OF ASTM 2241 SDR 21 PVC, ASTM 3034 SDR 35 PVC, OR CLASS 50 DUCTILE IRON PIPE CONFORMING TO SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS UNLESS SHOWN OTHERWISE ON DRAWINGS. PVC GRAVITY SEWER SERVICE PIPE SHALL BE CONSIDERED FLEXIBLE CONDUIT. PVC COMPOUND SHALL MEET THE REQUIREMENTS OF ASTM D 1784 FOR CLASS 12454-B PVC. VENT PIPES SHALL BE PVC SDR 21 OR SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS AS SHOWN ON THE STANDARD DETAIL. INSTALLATION OF TRACER TAPE OR WIRE OVER THE SIDE SEWER IS REQUIRED.

DUCTILE IRON PIPE (CLASS 50) MAY BE USED IN LIEU OF PVC PIPE PROVIDED THE DUCTILE IRON PIPE IS LINED WITH PROTECTO 401 CERAMIC-EPOXY OR APPROVED EQUAL. ALL LININGS SHALL BE APPLIED PER THE MANUFACTURER'S RECOMMENDATIONS.

THE INTERIOR OF THE PIPE SHALL BE KEPT CLEAN AND FREE FROM DIRT, CEMENT, OR ANY OTHER SUPERFLUOUS, AND EACH JOINT LEFT ENTIRELY FREE FROM ANY PROTRUDING MATERIAL ON THE INSIDE OF THE PIPE JOINT OR PIPE BARREL.

COUPLINGS
ONLY ROMAC, FERNCO COUPLINGS OR FORD FLEXIBLE COUPLINGS MAY BE USED. FERNCO COUPLINGS ARE ONLY ALLOWED AT THE BUILDING CONNECTION TO THE SIDE SEWER, NOT AT THE CONNECTION TO THE CITY SIDE SEWER. THEY SHALL BE INSTALLED AS PRESCRIBED BY THE MANUFACTURER OF THE COUPLING, AND IN A MANNER SATISFACTORY TO THE CITY.

WYES, TEES AND CLEANOUTS
CLEANOUTS SHALL BE REQUIRED FOR ALL SIDE SEWERS LONGER THAN 100 FEET AS MEASURED FROM THE OWNER'S PROPERTY OR EASEMENT LINE AND THE BUILDING FOUNDATION. CLEANOUTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 100 FEET AND ARE ENCOURAGED AT CHANGES OF PIPE ALIGNMENT.

WYES AND CLEANOUTS SHALL BE PLACED AT ANY LOCATION OR LOCATIONS WHICH, IN THE CITY'S OPINION, ARE REASONABLY NECESSARY TO ASSURE A PROPER INSTALLATION.

ALL WYES TO BE INSTALLED FOR USE AS A PERMANENT CLEANOUT, AND ALL TEMPORARY OR FUTURE ENDS OF RUNS SHALL BE PLUGGED WITH A PLUG OF A TYPE SATISFACTORY TO THE CITY AND SHALL BE MADE COMPLETELY WATERTIGHT. IT IS THE INSTALLER'S RESPONSIBILITY TO ASSURE THAT SUCH PLUG WILL NOT BE BLOWN OUT OR MOVED BY THE TESTING PRESSURE IN THE SEWER SYSTEM. ANY SUCH MEANS OF PREVENTION SHALL BE EASILY REMOVABLE WITHOUT DAMAGE TO THE FITTING OR THE PLUG.

NO SIDE SEWER SHALL BE COVERED OR BACKFILLED PRIOR TO THE FIELD INSPECTION BY THE CITY. ANY PERSON PERFORMING WORK SUBJECT TO THE PROVISIONS OF THIS POLICY SHALL NOTIFY THE CITY AS LEAST FORTY EIGHT (48) HOURS IN ADVANCE OF WHEN THE WORK WILL BE READY FOR INSPECTION AND TESTING, AND AN APPOINTMENT WILL BE ARRANGED FOR THE INSPECTION. THE OWNER OR CONTRACTOR MUST BE PRESENT DURING THE INSPECTION. IF AN APPOINTMENT HAS BEEN SCHEDULED AND THE INSPECTOR ARRIVES AND FINDS THAT, IN FACT, THE SIDE SEWER IS NOT READY FOR TESTING AND INSPECTION, A NEW APPOINTMENT MUST BE MADE AND A CHARGE MADE FOR THE SECOND VISIT AS ESTABLISHED BY THE CITY.

BENDS
BENDS USED FOR VACUUM LINE DIRECTIONAL CHANGES, BRANCH TO MAIN CONNECTIONS, AND VALVE PIT TO BRANCH OR MAIN CONNECTIONS MAY NOT EXCEED 45 DEGREES. FITTINGS SHALL BE CONSTRUCTED OF ASTM 2241 SDR21 UNLESS OTHERWISE APPROVED BY CITY.

VALVES
GATE VALVES USED FOR VACUUM SEWER SYSTEM SHALL CONFORM TO ANSI/AWWA C509-94, STANDARD FOR RESILIENT SEATED GATE VALVES, AS MANUFACTURED BY MUELLER OR M&H.

MECHANICAL JOINT CONNECTIONS WITH TRANSITION TO PVC GASKETS SHALL BE PROVIDED. ALL FLANGE FACES SHALL BE MACHINED AND DRILLED TO STRADDLE THE VERTICAL CENTERLINE

BURIED VALVES SHALL BE PROVIDED WITH VALVE BOXES AND THE OPERATING NUT SHALL BE EXTENDED TO WITHIN 9', PLUS OR MINUS 6', OF THE FINISHED GRADE. THE VALVE BOX COVER SHALL HAVE THE WORDS 'SEWER' AND 'OPEN' WITH A DIRECTIONAL ARROW CAST ON IT. LOCK DOWN SET SCREWS SHALL NOT BE USED ON VALVE OPERATING NUT EXTENSIONS

TWO (2) TEE KEYS SHALL BE PROVIDED FOR EACH VALVE SIZE REQUIRED.

VALVE PIT
SHALL BE AS MANUFACTURED BY BILFIGER/AIR VAC, MODEL TO BE SPECIFIED ON DRAWINGS.

VALVE PIT COVERS SHALL BE MODEL R5900 BY NEENAH FOUNDRY OR EQUAL, AND SHALL BE DESIGNED FOR H-20 LOADING. CASTINGS SHALL MEET ASTM A-48, CLASS 30 GRAY CAST IRON. COVERS SHALL BEAR THE NAME 'AIRVAC SEWER' ON ITS TOP IN 1" TALL RAISED LETTERS, UNLESS OTHERWISE DIRECTED BY CITY. RISER RINGS ARE NOT TO BE USED ON VALVE PITS UNLESS PRIOR APPROVAL IS OBTAINED FROM CITY.

VALVE PITS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.

AN ELASTOMER SEAL/GROMMET SHALL BE PROVIDED FOR EACH PIPE PASSING THROUGH VALVE PIT, VALVE PIT BOTTOM AND SUMP TO PROVIDE A SEAL AGAINST GROUND WATER WITHOUT THE USE OF THREADED FASTENERS. IF THE VALVE PIT IS PROVIDED WITH AN INTEGRAL PLAIN END PORTION OF PIPE, THE GRAVITY SEWER TO VALVE PIT CONNECTION SHALL BE MADE USING A STANDARD GASKETED BELL END CONNECTION.

VALVE PIT BEDDING & BACKFILL
VALVE PITS SHALL BE FOUNDED ON A 3' LAYER OF CRUSHED SURFACING TOP COURSE (CSTC) PER WSDOT STD. SPEC. SECTION 9-03.9(3) AND BACKFILLELD WITH CSTC PER SAME STANDARD OR SAND PER WSDOT STD. SPEC. SECTION 9-03.13(1) OR CSTC. ALL VALVE PITS WITHIN ROW SHALL HAVE TOP 12' BACKFILLED WITH CRUSHED SURFACING BASE COURSE (CSBC) PER WSDOT STD. SPEC. SECTION 9-03.9(3). VALVE PIT BACKFILL SHALL BE MECHANICALLY COMPACTED TO 90% OF MAXIMUM DENSITY (MODIFIED PROCTOR TEST) AND 95% AT THE UPPER 4 FEET WITHIN THE ROW AND ALL AREAS (PAVED AND UNPAVED) WHERE STREETS, ROADWAY SHOULDERS, DRIVEWAYS, SIDEWALKS, OR PARKING LOTS WILL BE CONSTRUCTED OR RECONSTRUCTED. SPECIAL CARE SHALL BE TAKEN IMMEDIATELY ADJACANT TO VALVE PIT STRUCTURES WHILE COMPACTING AND THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE INCURRED TO VALVE PITS DURING COMPACTION. SEE DETAIL FOR VALVE PIT INSTALLATION.

VACUUM SYSTEM AIR INTAKE
EACH BUILDING'S GRAVITY SEWER SERVICE SHALL BE FITTED WITH A 4" AIR VENT OR A 6" AIR TERMINAL SHALL BE PROVIDED FOR EACH VALVE PIT, PER CITY STANDARDS.

PIPE BEDDING
PIPE BEDDING MATERIAL, SHALL BE CRUSHED SURFACING TOP COURSE (CSTC) PER WSDOT STD. SPEC. SECTION 9-03.9(3). NATIVE MATERIAL MAY BE USED FOR GRAVITY SIDE SEWER PIPE BEDDING IF IT IS SAND OR SMALL GRAVEL MATERIAL WITH STONES NO LARGER THAN 1 ½-INCH DIAMETER, ONLY AS APPROVED IN ADVANCE BY THE CITY.

HAND SELECTED AND PLACED NATIVE MATERIAL MAY BE USED ONLY IF IT IS FREE OF STONES LARGER THAN 1 ½ INCHES IN DIAMETER AND IS HAND PLACED AROUND THE PIPE TO AT LEAST 6 INCHES OVER THE TOP OF THE PIPE.

IF THE NATIVE MATERIAL IS NOT SUITABLE FOR GRAVITY SEWER PIPE BEDDING, THE IMPORTED PIPE BEDDING SHALL BE 5/8-INCH CRUSHED SURFACING. THE TOP OF THE PIPE AND ALL FITTINGS SHALL REMAIN EXPOSED FOR INSPECTION. THE LOWER PORTION OF THE BEDDING TO THE SPRING LINE SHALL BE COMPLETED BEFORE INSPECTION OR TESTING OF THE SIDE SEWER.

WHERE TRENCH BOTTOM IS IN QUICKSAND, MULCH, PEAT OR OTHER UNSTABLE MATERIAL, A STABLE FOUNDATION OF GRAVEL SHALL BE PROVIDED. THE RESPONSIBILITY FOR ADEQUATE PIPE BEDDING WILL REST ENTIRELY WITH THE CONTRACTOR. BEDDING MATERIAL SHALL BE SATISFACTORY TO THE CITY AND SO PLACED AS TO PRECLUDE THE POSSIBILITY OF LARGE ROCKS OR BOULDERS BEARING DIRECTLY AGAINST THE SEWER PIPE.

SERVICE CONNECTIONS FROM VALVE PIT TO BRANCH OR MAIN LINES (INCLUDING FLEXIBLE CONNCECTOR PIPE) SHALL BE SET ON A COMPACTED BENCH OF BACKFILL MATERIAL CONSISTANT WITH VALE PIT BACKFILL REQUIREMENTS ABOVE. THIS SHALL ENCOMPASS PARTIALLY BACKFILLING THE VALVE PIT PRIOR TO INSTALLING THE SERVICE CONNECTION.

GRADE AND ALIGNMENT (MINIMUM AND MAXIMUM)
ALL SIDE SEWERS SHALL BE LAID TO A MINIMUM GRADE OF ONE AND ONE-HALF (1.5)% AND A MAXIMUM GRADE OF 2 FEET VERTICAL TO 1 FOOT HORIZONTAL (200%), UNLESS OTHERWISE EXPLICITLY AUTHORIZED IN WRITING BY THE CITY. SIDE SEWER GRADES OF 2% MINIMUM ARE RECOMMENDED. SIDE SEWERS SHALL BE CONSTRUCTED WITH A MAXIMUM PIPE DEFLECTION OF NOT MORE THAN 2 INCHES PER FOOT. THE MAXIMUM DEFLECTION PERMISSIBLE AT ANY ONE FITTING SHALL NOT EXCEED 45 DEGREES WITH MINIMUM OF 24 INCHES SEPARATION BETWEEN BENDS.

A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN ALL SEWER LINES AND WATER LINES MUST BE MAINTAINED, PER WASHINGTON DEPARTMENTS OF ECOLOGY'S ORANGE BOOK (2008, OR LATEST EDITION). ANY UNUSUAL CONDITIONS WHICH PREVENT THESE SEPARATIONS SHALL CONFORM TO ALL GUIDELINES WITHIN THE ORANGE BOOK AND SHALL UTILIZE APPLICABLE MITIGATION TECHNIQUES.

HDPE PIPE AND FITTINGS – FORCE MAINS ONLY
HDPE PIPING COMPONENTS SHALL BE MANUFACTURED FROM MATERIALS THAT MEET OR EXCEED THE REQUIREMENTS OF THE PLASTIC PIPING INSTITUTE DESIGNATION PE3408 AND THAT CONFORM TO THE REQUIREMENTS OF ASTM D3350 FOR A CELL CLASSIFICATION OF PE 345434C. PIPE MARKING SHALL CONFORM TO THE REQUIREMENTS OF AWWA C906.

BOLTS AND NUTS FOR BURIED MECHANICAL JOINING COMPONENTS SUCH AS FLANGES SHALL BE MADE OF NONCORROSIVE, HIGH-STRENGTH, LOW-ALLOY STEEL HAVING THE CHARACTERISTICS SPECIFIED IN ANSI/AWWA C111/A21, REGARDLESS OF ANY PROTECTIVE COATING.

PIPE SHALL HAVE THE NOMINAL DIMENSIONS SHOWN WITH AN IPS OUTSIDE DIAMETER BASIS AND THE DIMENSIONS AND TOLERANCES SPECIFIED IN AWWA C906. DR RATING SHALL BE 26 AND PRESSURE CLASS SHALL BE 64 PSI.

FITTINGS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AWWA C906 FOR THE JOINING METHODS SPECIFIED IN THIS SPECIAL PROVISION.

FOR PIPE BENDS 14 INCHES AND SMALLER AND WHERE LONG RADIUS BENDS ARE SPECIFIED FOR THE PIPING SYSTEM, PROVIDE ARC 90 SWEEP BENDS MANUFACTURED BY PIPESTAR INTERNATIONAL, OR EQUAL. BEND RADIUS SHALL BE THREE TIMES THE PIPE DIAMETER, MEASURED TO THE CENTER LINE OF THE BEND FOR LONG-RADIUS BENDS. FLANGE FITTINGS SHALL BE FLANGE TYPE VR 955.

SIDE SEWER STUB SERVICE (RIGHT-OF-WAY CONSTRUCTION)
NOTE: THE FOLLOWING SPECIFICATIONS ARE IN ADDITION TO THE REQUIREMENT OF ANY STUB SERVICE ROAD CUT PERMIT.

LARGER CHANGES IN DIRECTION SHALL BE MADE BY USE OF STANDARD 11-1/4 DEGREE OR 22-1/2 DEGREE BENDS. NO MORE THAN ONE BEND PER STUB SERVICE WILL BE ALLOWED.

GRADE AND ALIGNMENT SHALL BE PER OTHER SECTION OF THESE STANDARDS. EACH SIDE SEWER STUB SHALL TERMINATE WITH A 6 INCH CAP WITHIN 1 FOOT OF THE PROPERTY OR PERMANENT EASEMENT LINE.

THE CONTRACTOR MAY ELECT TO EXTEND THE SIDE SEWER STUB BY ONE LENGTH OF SIDE SEWER PIPE. ANY SUCH EXTENSION SHALL NOT EXCEED 12 FEET IN LENGTH FROM A TEE INSTALLED AT THE PROPERTY LINE. THE TEE, WITH A PUSH-IN PLUG, SHALL BE LAID IN SUCH A FASHION THAT THE BRANCH IS VERTICAL. SUCH LENGTH OF SIDE SEWER SHALL TERMINATE WITH A CAP, AND SHALL BE TESTED ALONG WITH THE STUB SERVICE.

ALL SIDE SEWER STUBS SHALL BE 6-INCH MINIMUM. COMMERCIAL OR MULTIFAMILY UNITS MAY REQUIRE LARGER SIDE SEWER STUBS AND WILL BE REVIEWED BY THE CITY.

DIVISION VALVES & GAUGE TAPS
DIVISION VALVE AND GAUGE TAP INSTALLATION SHALL BE CONSTRUCTED PER CITY STANDARD DETAIL. ALL GATE VALVES AND FITTINGS SHALL BE DUCTILE IRON WITH ANSI MECHANICAL JOINT ENDS. ALL EXISTING VALVES SHALL BE OPERATED BY CITY EMPLOYEES ONLY. THE DESIGN, MATERIALS, AND WORKMANSHIP OF ALL GATE VALVES SHALL CONFORM TO AWWA C515-01 (OR LATEST REVISION). GATE VALVES SHALL BE RESILIENT WEDGE NON-RISING STEM (NRS) WITH TWO INTERNAL O-RING STEM SEALS.

TESTING SPECIFICATIONS

VACUUM SEWER MAINS AND FITTINGS
TESTING OF ALL SEWER MAINS AND LATERAL CONNECTIONS SHALL BE PERFORMED DAILY IN ACCORDANCE TO THE FOLLOWING PROCEDURE:

PLUG ALL OPEN CONNECTIONS WITH RUBBER STOPPERS OR TEMPORARY CAPS, FITTED TO THE PIPE BY "NO-HUB" COUPLINGS. APPLY A VACUUM TO 22 INCHES HG TO THE PIPES AND ALLOW THE PRESSURE TO STABILIZE FOR 15 MINUTES. THERE SHALL BE NO LOSS OF VACUUM IN EXCESS OF 1% PER HOUR FOR A TWO-HOUR TEST PERIOD. THERE SHALL BE ABSOLUTELY NO WATER ALLOWED TO BE ADMITTED INTO THE PIPING NETWORK DURING THIS TEST. AS PIPE IS LAID THE NEW SECTION SHALL BE TESTED IN ADDITION TO THE PREVIOUSLY LAID PIPE ON THAT MAIN.

THE CONTRACTOR SHOULD LEAVE THE SEWER MAIN PIPE JOINTS UNCOVERED UNTIL AFTER THE DAILY VACUUM TEST IS COMPLETE SO THAT ANY LEAKS CAN BE EASILY LOCATED AND REPAIRED.

TESTING MODIFICATIONS MAY BE ALLOWED IF DEEMED APPROPRIATE AND SUFFICIENT BY THE CITY. ALL MODIFICATIONS MUST BE APPROVED BY CITY PRIOR TO USE IN THE FORM OF EXPLICIT WRITTEN CONSENT.

VACUUM PIPE FLUSHING
AFTER ACCEPTANCE OF VACUUM TESTING, FLUSH LINES TO REMOVE DEBRIS AND FOREIGN MATERIALS THAT ACCUMULATED IN THE LINES DURING CONSTRUCTION.

SIDE SEWER TESTING
PRIOR TO BEING CONNECTED TO THE PREMISES ALL SIDE SEWERS SHALL BE TESTED BY ONE OF THE TWO FOLLOWING METHODS:

EXFILTRATION:

THE SIDE SEWER SHALL BE FILLED WITH WATER THROUGH A RISER THAT EXTENDS A MINIMUM OF 5 FEET ABOVE FINISHED GRADE AT THE INSTALLATION. THE RISER SHALL BE FILLED WITH WATER AND NO NOTICEABLE DROP IN THE WATER LEVEL SHALL BE ACCEPTED FOR A PERIOD OF NOT LESS THAN 10 MINUTES OF OBSERVATION. THE RISER MAY DOUBLE AS THE SIDE SEWER VENT PIPE. THE RISER SHALL BE CUT TO THE REQUIRED LENGTH FOR THE VENT PIPE AFTER THE SIDE SEWER PASSES THE EX-FILTRATION TEST.

AIR TEST
ALL EQUIPMENT REQUIRED TO MAKE SUCH TESTS, INCLUDING PLUGS, HOSES, BLOCKING, AIR PUMPS, WATER AND OTHER EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.

AIR TESTING SHALL MEET THE FOLLOWING REQUIREMENTS:

PIPE SIZESECONDS PER LINEAL FOOT OF PIPE4'1.06'1.5DECOMPRESSION IS FROM 3.5 PSI TO 3.0 PSI. FOR HIGH GROUNDWATER TABLE CONDITIONS, ADD 0.5 PSI PER FOOT OF GROUND WATER ABOVE THE PIPE.

HDPE FORCE MAIN TESTING (IF APPLICABLE)
HDPE FORCE MAIN SHALL BE TESTED AT 60 PSI HYDROSTATIC FOR 3 MINUTES.

SIDE SEWER CONNECTIONS
NO MORE THAN ONE BUILDING MAY BE CONNECTED WITH THE SIDE SEWER UNLESS THE CITY ISSUES AN EXEMPTION FOR MULTIPLE CONNECTIONS. AN EXEMPTION WILL BE ISSUED ONLY UPON THE CONDITION THAT THE PERMITTEE HAS NO OTHER FEASIBLE OPTION BASED ON UTILITY CONFLICTS OR SPACE CONSIDERATIONS OR OTHER TECHNICAL ISSUE THAT PREVENTS INSTALLATION OF SEPARATE SIDE SEWERS. THE PERMITTEE SHALL HOLD THE CITY HARMLESS FROM ANY DAMAGES BY REASON OF SUCH INSTALLATION AND SUBJECT TO THE FOLLOWING REGULATIONS:

COMMON SIDE SEWERS
TWO HOUSES MAY BE CONNECTED TO A COMMON SIDE SEWER WHEN THE FOLLOWING CONDITIONS ARE MET: (1) AT THE END OF THE COMMON PORTION OF THE JOINT SIDE SEWER A CLEANOUT SHALL BE INSTALLED PER DETAIL FOR JOINT SIDE SEWER CLEANOUT; AND (2) A BACKWATER VALVE SHALL BE INSTALLED ON BOTH HOUSES.

BACKWATER VALVES
BACKWATER VALVES SHALL BE INSTALLED ON ALL BUILDINGS EXCEPT WHEN WAIVED BY THE CITY. BACKFLOW VALVES MAY BE USED AS THE CLEANOUT BETWEEN THE HOUSE PLUMBING AND SIDE SEWER AS OTHERWISE REQUIRED BY THESE STANDARDS. BACKFLOW VALVES MAY BE EITHER ALTERNATE NO. 1 OR NO 2 AS SHOWN ON THE STANDARD DETAILS.

REQUIRED SIDE SEWER SIZE
SIDE SEWERS SHALL BE 6" UNLESS OTHERWISE APPROVED BY THE CITY.

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SEWER NOTES FOR TOLT RIVER TERRACE

For: MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON, STATE OF WASHINGTON, 41423, REGISTERED PROFESSIONAL ENGINEER, 2/19/22

Scale: Horizontal N/A Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 18057

Sheet 67 of 83

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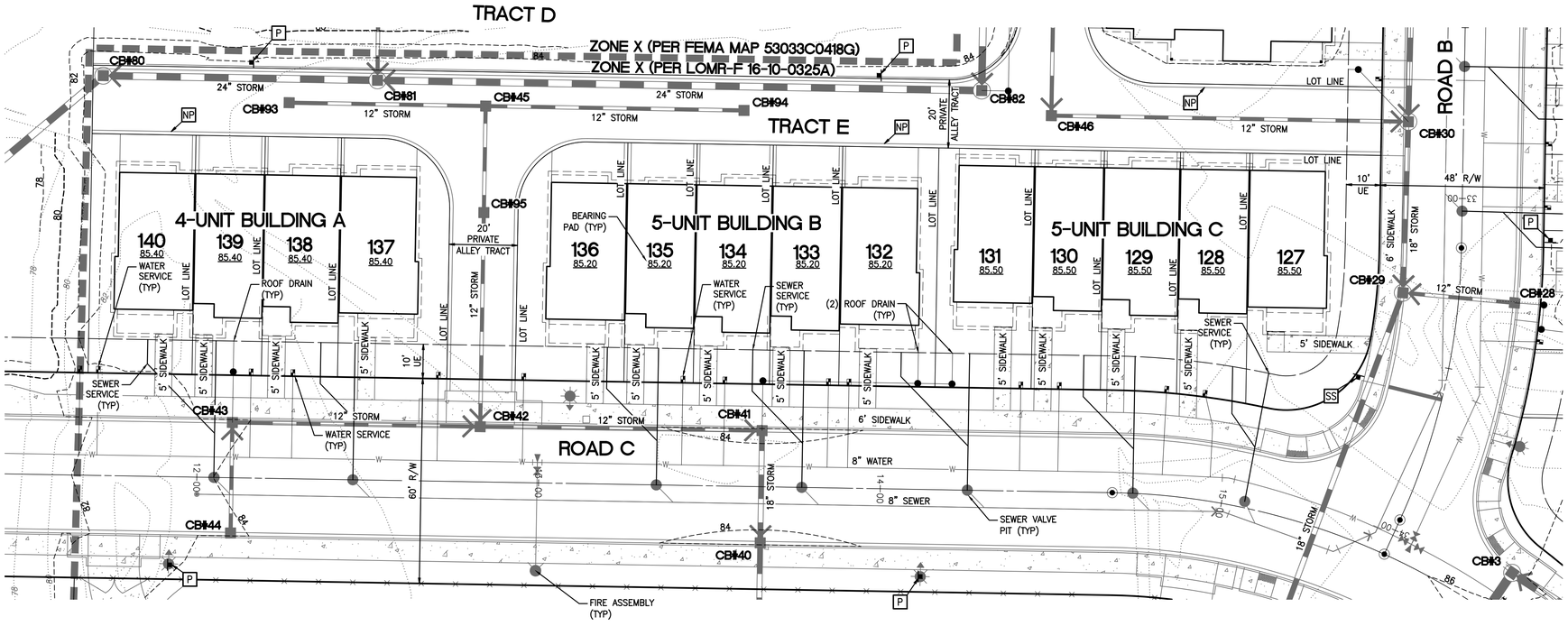
MULTI-FAMILY LOT UTILITY PLAN
FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



N

0 10' 20' 40'

SCALE: 1"=20'

KEYNOTES:

- P "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS
- SS STOP SIGN W/ "NO PARKING WITHIN 30 FEET" SIGN. STREET SIGN TO BE MOUNTED ON TOP. SEE DETAIL ON SHEET 72
- NP "NO PARKING FIRE LANE" PAINTED CURB. SEE DETAIL ON SHEET 4. MAINTENANCE OF ALL PAINTED CURBS SHALL BE A RESPONSIBILITY OF THE HOA.

NOTE:

SEE SHEETS 71 AND 72 FOR SIGNAGE DETAILS.

N

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No.	Date	By	Ckd.	Appr.	Revision
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Title: MULTI-FAMILY LOT UTILITY PLAN

FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON
STATE OF WASHINGTON
21423
REGISTERED
PROFESSIONAL ENGINEER
2/19/22

Scale: Horizontal 1" = 20' Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 68 of 83

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MULTI-FAMILY LOT UTILITY PLAN
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

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SCALE: 1"=20'

KEYNOTES:

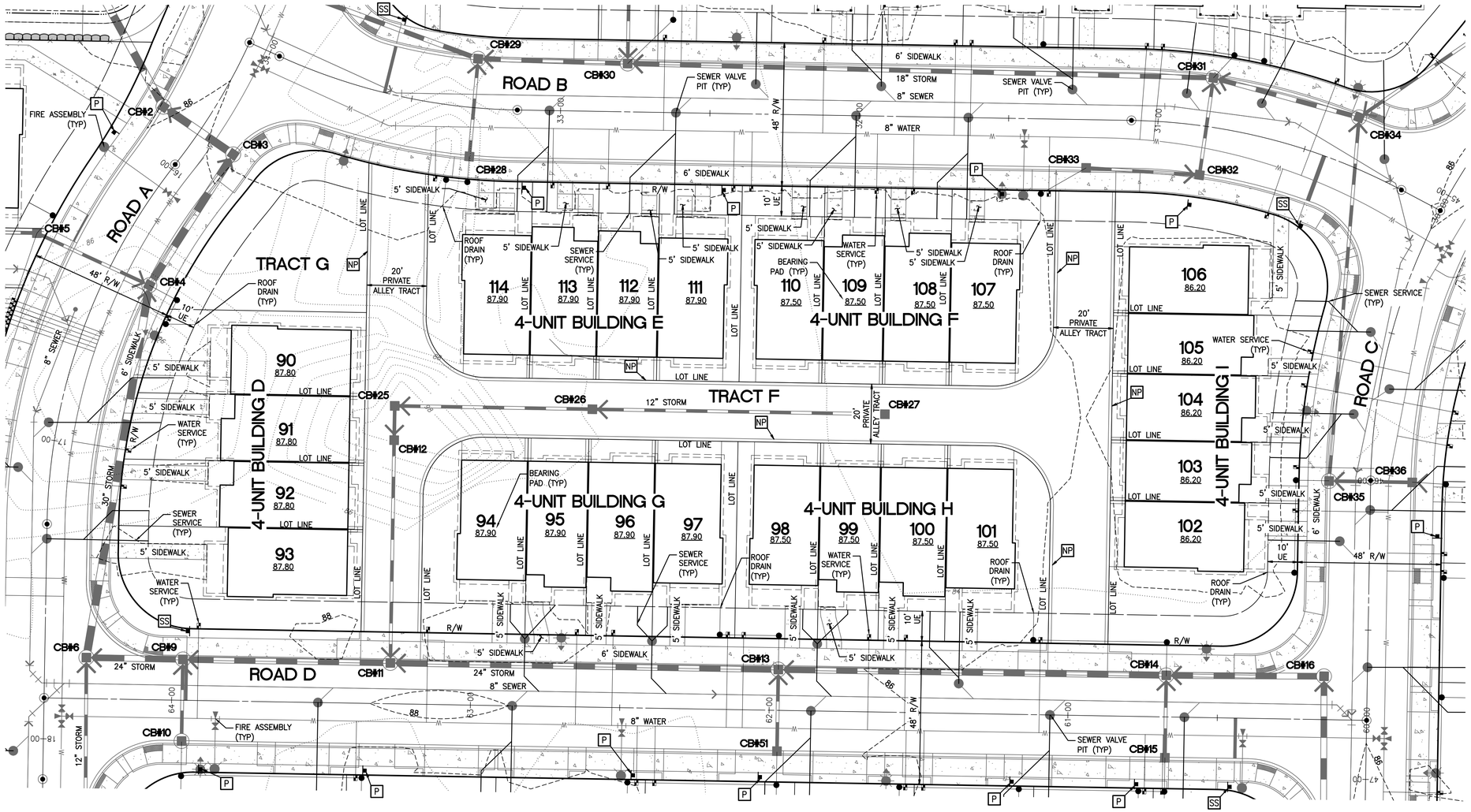
P "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS

SS STOP SIGN W/ "NO PARKING WITHIN 30 FEET" SIGN. STREET SIGN TO BE MOUNTED ON TOP. SEE DETAIL ON SHEET 72

NP "NO PARKING FIRE LANE" PAINTED CURB. SEE DETAIL ON SHEET 4. MAINTENANCE OF ALL PAINTED CURBS SHALL BE A RESPONSIBILITY OF THE HOA.

NOTE:

SEE SHEETS 71 AND 72 FOR SIGNAGE DETAILS.



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Title: MULTI-FAMILY LOT UTILITY PLAN

FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

STATE OF WASHINGTON
BARRY J TALKINGTON
#21423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 20' Vertical N/A
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

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18215 72nd Avenue South
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425.251.6222 barghausen.com

Job Number 18057
Sheet 69 of 83

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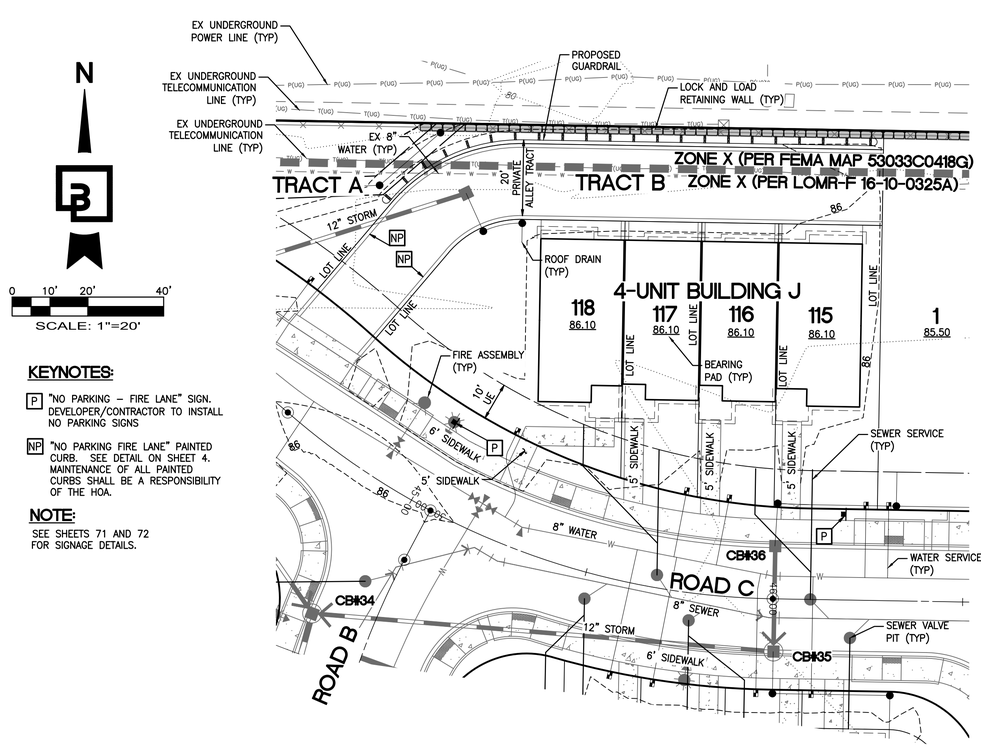
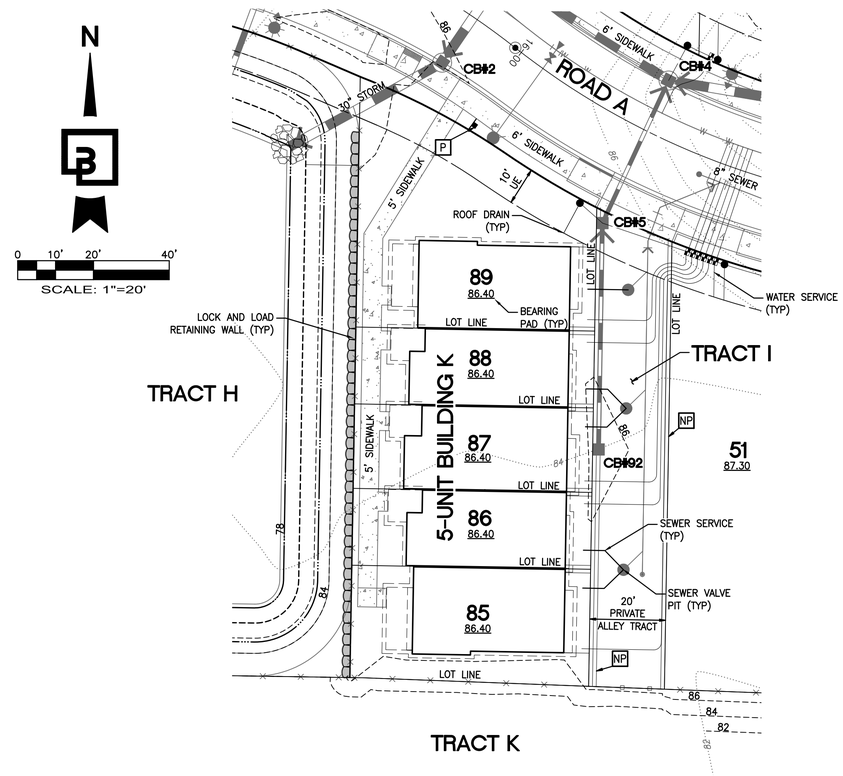
MULTI-FAMILY LOT UTILITY PLAN
FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON





KEYNOTES:

P "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS

NP "NO PARKING FIRE LANE" PAINTED CURB. SEE DETAIL ON SHEET 4. MAINTENANCE OF ALL PAINTED CURBS SHALL BE A RESPONSIBILITY OF THE HOA.

NOTE:

SEE SHEETS 71 AND 72 FOR SIGNAGE DETAILS.

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: MULTI-FAMILY LOT UTILITY PLAN

FOR
TOLT RIVER TERRACE

For:
MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON — STATE OF WASHINGTON — #1423 — REGISTERED PROFESSIONAL ENGINEER — 2/14/22

Scale:			
	Horizontal	1" = 20'	Vertical N/A

Designed	RK	Checked	BJT	Date	2/19/22
Drawn	RK	Approved	BJT		

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 70 of 83

P:\18000s\18057\engineering\18057-pse-mf3.dwg 2/18/2022 12:46 PM TSKODA

CHANNELIZATION AND SIGNAGE PLAN WEST FOR PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

0 25' 50' 100'
SCALE: 1"=50'

TRACT A OPEN SPACE
TRACT B ACCESS TRACT
TRACT C OPEN SPACE
TRACT D OPEN SPACE
TRACT E ACCESS TRACT
TRACT F ACCESS TRACT
TRACT G OPEN SPACE
TRACT H DRAINAGE FACILITY
TRACT I ACCESS TRACT
TRACT J OPEN SPACE

ROAD A (MINOR COLLECTOR STREET)
ROAD B (MINOR COLLECTOR STREET)
ROAD C (MINOR COLLECTOR STREET)
ROAD C (LOCAL ACCESS STREET)
ROAD D (LOCAL ACCESS STREET)
ROAD E (LOCAL ACCESS STREET)

TOLT AVE (SR-203) (FRONTAGE ROAD)
EX 60' R/W
EX 80' R/W
EX ADA RAMP
SEE SHEET 23 FOR INTERSECTION DETAILS
SEE SHEET 23 FOR RAMP DETAIL
SAWCUT 9' FROM CENTERLINE
PLAT BOUNDARY
N14°47'10"E 61.82'
N89°09'16"W 286.34'
S0°50'52"W 275.00'
N89°09'16"W 333.98'
N14°47'10"E 190.40'
S89°09'16"E 1987.66'
TREE PROTECTION FENCE. SEE SHEET 78 TO 83 FOR MORE DETAILS
6' SOLID WOOD FENCE. SEE DETAIL ON SHEET 47.
KING COUNTY FIRE DISTRICT 10 212507-9064
LOCK AND LOAD RETAINING WALL. SEE SHEET 15 FOR WALL PROFILE
LOCK AND LOAD RETAINING WALL. SEE SHEET 16 FOR WALL PROFILE.
SEE TYPICAL WALL AND FALL PROTECTION FENCE DETAIL ON SHEET 11
TOLT MIDDLE SCHOOL RIVERVIEW SCHOOL DISTRICT 407 212507-9003
EX FENCE TO BE RELOCATED AS NEEDED
SEE SHEET 21 FOR INTERSECTION DETAILS
SEE SHEET 22 FOR INTERSECTION DETAILS
SEE SHEET 19 FOR INTERSECTION DETAILS
SEE SHEET 20 FOR INTERSECTION DETAILS
PROPOSED MAILBOX LOCATION
CURB TO BE PAINTED YELLOW FOR TEMPORARY LOAD/UNLOAD ZONE. SEE THIS SHEET FOR DETAILS.
INSTALL CRITICAL AREA SIGN ON FENCE. DETAIL TO BE PROVIDED BY CITY
INSTALL SPLIT RAIL FENCE AS SHOWN PER DETAIL SHEET 47
TREE PROTECTION FENCE. SEE SHEET 78 TO 83 FOR MORE DETAILS
SEE SHEETS 40, 41 & 42 FOR DETENTION POND DETAIL
SEE SHEET 46 FOR PEDESTRIAN BRIDGE DETAIL
PROPOSED GUARD RAIL. SEE SHEETS 46, 49 & 50 FOR DETAILS.
Δ=13°40'37" R=1382.50' L=330.01'
Δ=62°45'05" R=90.00' L=98.57'

ZONE X (PER FEMA MAP 53033C0418G)
ZONE AO (53033C0418G)
ZONE X (PER FEMA MAP)
ZONE X (PER LOMR-F 16-10-0325A)

SEE SHEET 72 FOR CONTINUATION

KEYNOTES

[P] "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS

[NP] "NO PARKING FIRE LANE" PAINTED CURB. SEE DETAIL ON SHEET 4. MAINTENANCE OF ALL PAINTED CURBS SHALL BE A RESPONSIBILITY OF THE HOA

[SS] STOP SIGN W/ "NO PARKING WITHIN 30 FEET" SIGN. STREET SIGN TO BE MOUNTED ON TOP. SEE DETAIL ON SHEET 72

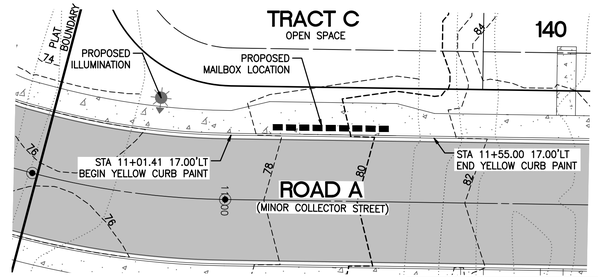
[SB] STOP BAR (TYP)

NOTES

STREET NAME SIGNS TO BE MOUNTED ON SAME POST AS STOP SIGNS

N

0 10' 20' 40'
SCALE: 1"=20'



CALL BEFORE YOU DIG: 1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: CHANNELIZATION AND SIGNAGE PLAN WEST FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON — STATE OF WASHINGTON — #21423 — REGISTERED PROFESSIONAL ENGINEER — 2/14/22

Scale: Horizontal 1" = 50' Vertical N/A

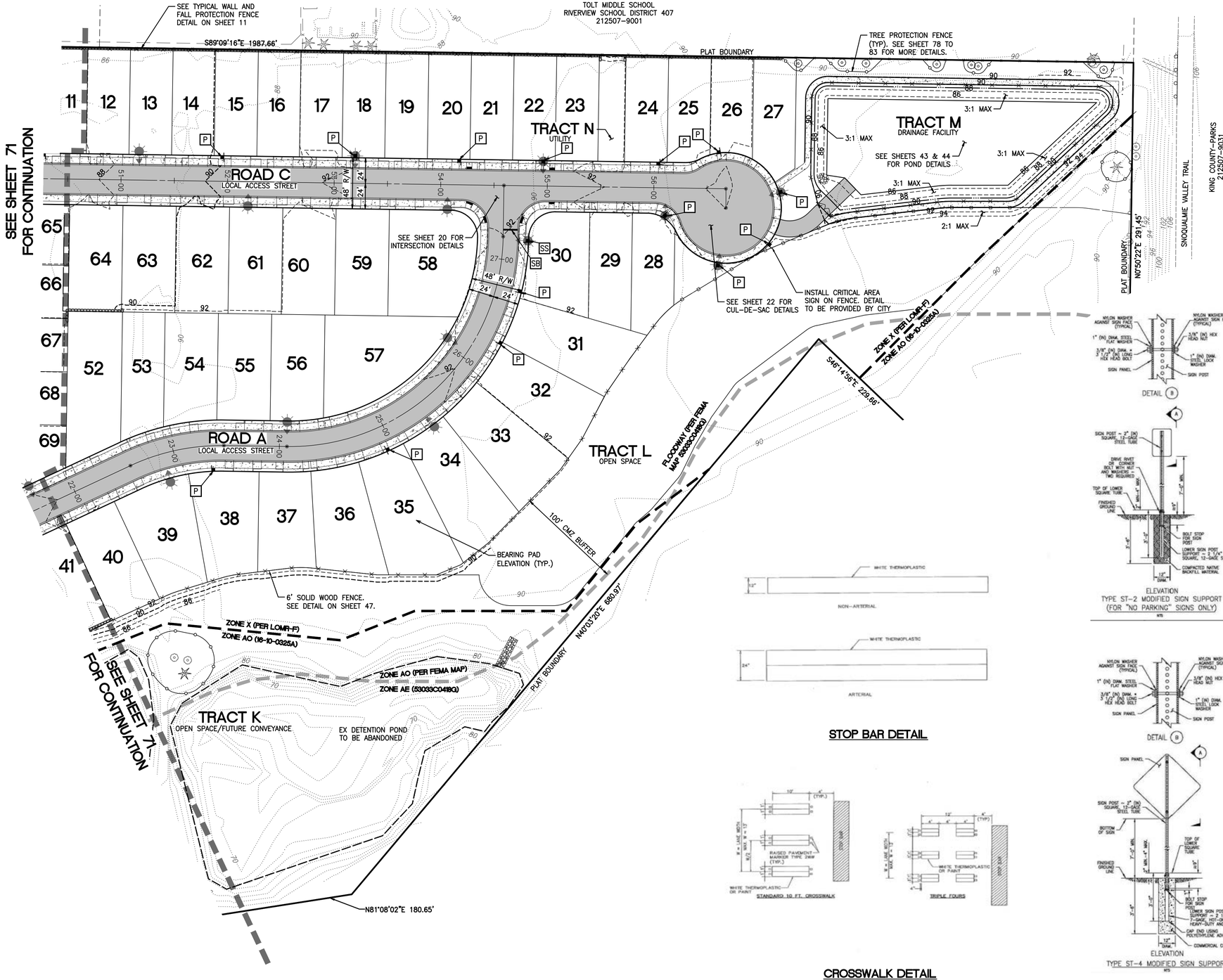
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057 Sheet 71 of 83

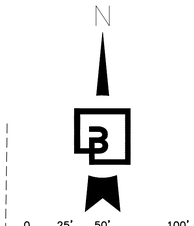
P:\18000s\18057\engineering\18057-sc1.dwg 2/18/2022 12:42 PM TSKODA

CHANNELIZATION AND SIGNAGE PLAN EAST
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



STOP BAR DETAIL

CROSSWALK DETAIL



KEYNOTES

P "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS

SS STOP SIGN W/ "NO PARKING WITHIN 30 FEET" SIGN. STREET SIGN TO BE MOUNTED ON TOP. SEE DETAIL ON THIS SHEET.

SB STOP BAR (TYP)

NOTE

STREET NAME SIGNS TO BE MOUNTED ON SAME POST AS STOP SIGNS

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
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Title: CHANNELIZATION AND SIGNAGE PLAN EAST FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON
STATE OF WASHINGTON
21423
REGISTERED
PROFESSIONAL ENGINEER
2/19/22

Scale: Horizontal 1" = 50' Vertical N/A
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

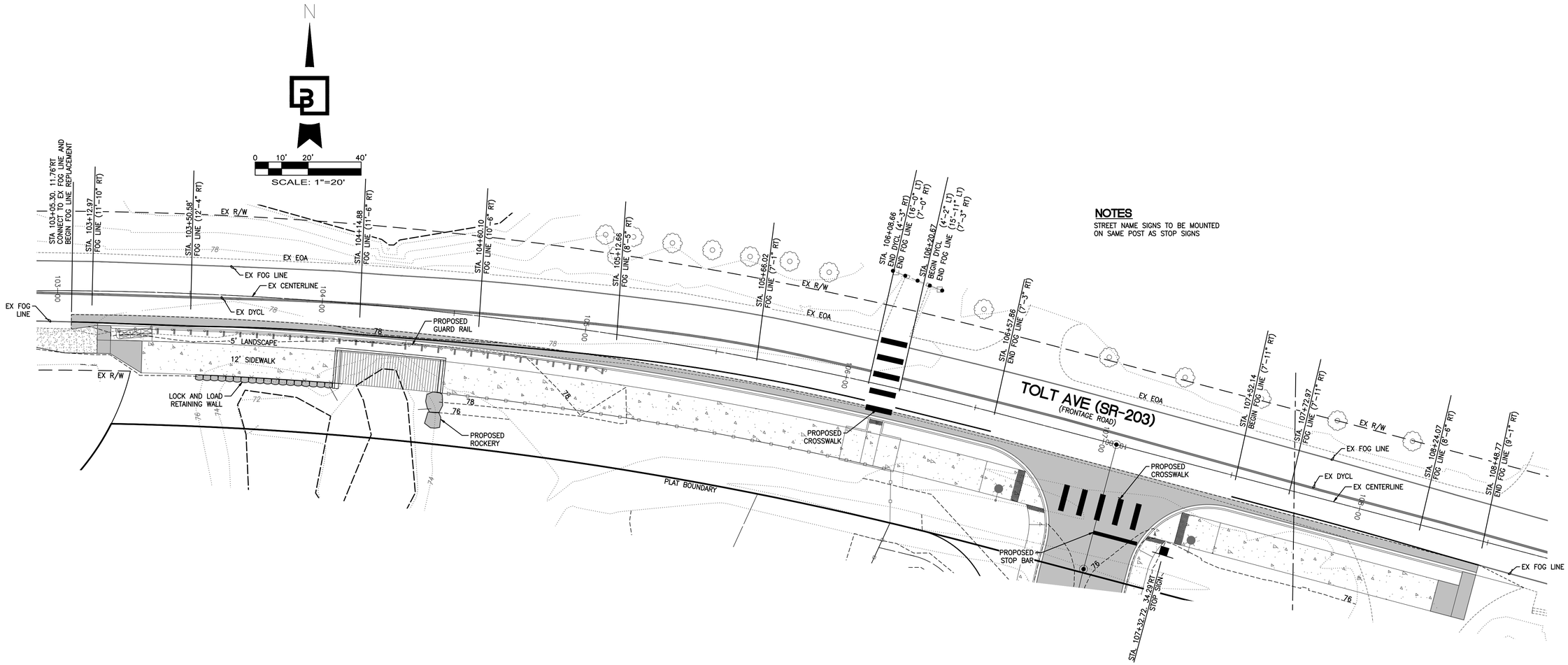
Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 18057
Sheet 72 of 83

CALL BEFORE YOU DIG: 1-800-424-5555

P:\18000s\18057\engineering\18057-es2.dwg 2/18/2022 12:33 PM TSKODA

FRONTAGE FOG LINE REPLACEMENT PLAN
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON



NOTES
STREET NAME SIGNS TO BE MOUNTED ON SAME POST AS STOP SIGNS

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: FRONTAGE FOG LINE REPLACEMENT PLAN FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON — STATE OF WASHINGTON — 41423 — REGISTERED PROFESSIONAL ENGINEER — 2/19/22

Scale: Horizontal 1" = 20' Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 73 of 83

P:\18000s\18057\engineering\18057-sc3.dwg 2/19/2022 1:28 PM TSKODA

AUTOTURN - E ONE - TRACT L

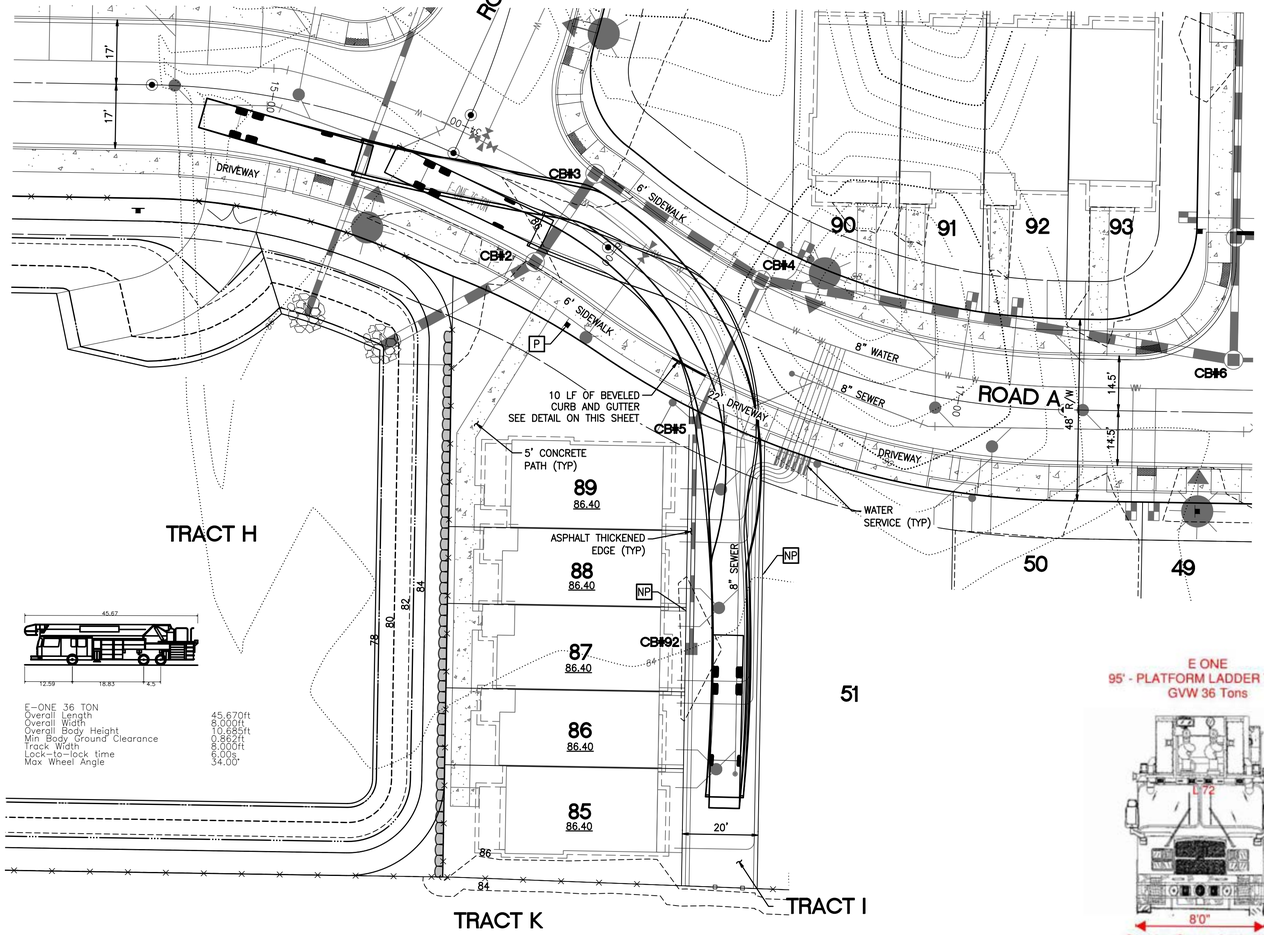
FOR

PLAT OF TOLT RIVER TERRACE

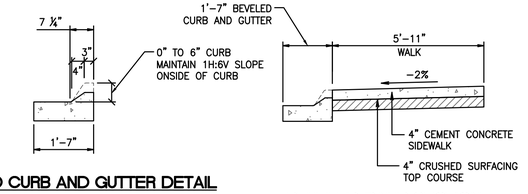
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

0 10' 20' 40'
SCALE: 1"=20'

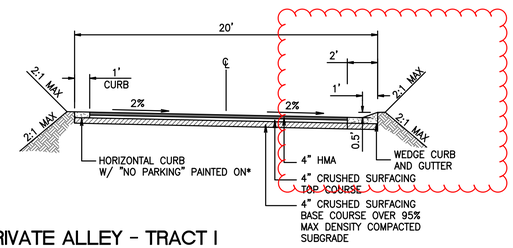


TRACT I - AUTOTURN - E ONE



BEVELED CURB AND GUTTER DETAIL

BEVELED RAMP SECTION



PRIVATE ALLEY - TRACT I

NOT TO SCALE

*CURB PAINT IS RED FOR THE ENTIRE LENGTH OF THE FIRE LANE. "NO PARKING FIRE LANE" IS STENCILED WITH A 3.5 INCH MINIMUM HEIGHT; BLOCK WHITE LETTERING WITH A MINIMUM OF A .5 INCH STROKE. STENCIL PLACEMENT IS 20 FEET ON CENTER AND AT CHANGES IN DIRECTION WHERE THE LETTERING MAY NOT BE VISIBLE FROM A VEHICLE.

KEYNOTES

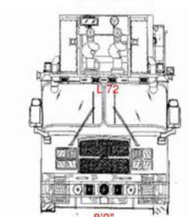
P "NO PARKING – FIRE LANE" SIGN. DEVELOPER/CONTRACTOR TO INSTALL NO PARKING SIGNS

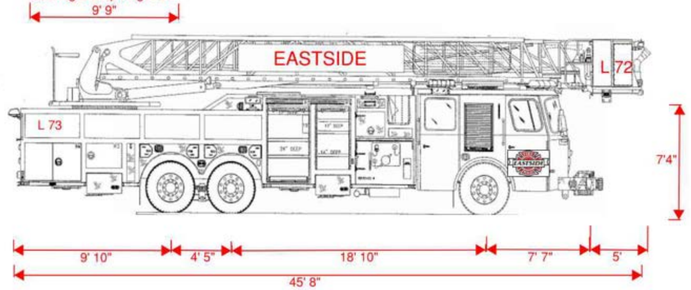
NP "NO PARKING FIRE LANE" PAINTED CURB. SEE DETAIL ON SHEET 4. MAINTENANCE OF ALL PAINTED CURBS SHALL BE A RESPONSIBILITY OF THE HOA.

E ONE
95' - PLATFORM LADDER TRUCK
GVW 36 Tons

Eastside Fire & Rescue Ladder Truck Dimensions

175 Newport Way NW Issaquah, WA 98027 425-313-3200





CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: AUTOTURN - E ONE - TRACT L

FOR

TOLT RIVER TERRACE

For:
MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON
STATE OF WASHINGTON
21423
REGISTERED
PROFESSIONAL ENGINEER
2/14/22

Scale: Horizontal 1" = 20' Vertical 1" = 5'

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

Sheet 74 of 83

P:\18000s\18057\engineering\18057-cd3.dwg 2/18/2022 10:50 AM TSKODA

SWPPP - WEST
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

SPECIAL NOTE:
- NO SITE DRAINAGE SHALL RUNOFF ONTO ADJACENT PROPERTIES. SILT FENCE REQUIRED ON ALL DOWNSLOPES.

NOTE:
ALL EX ONSITE UTILITIES, STORM, WATER AND SEWER TO BE REMOVED UNLESS OTHERWISE NOTED.

SPECIAL NOTE:
CONTRACTOR SHALL WATER ALL DUST GENERATING SURFACES A MINIMUM OF THREE TIMES DAILY OR MORE AS NEEDED DURING CONSTRUCTION. ALTERNATIVE NON-CHEMICAL METHODS MAY BE CONSIDERED FOR APPROVAL BY THE CITY OF CARNATION. IF WATERING DOES NOT PREVENT SEDIMENTATION FROM BEING TRACKED OFF SITE, TRUCK WHEELS SHALL BE WASHED BEFORE TRUCKS LEAVE THE SITE.

N
0 25' 50' 100'
SCALE: 1"=50'

EXISTING EASEMENTS
1. INGRESS, EGRESS, UTILITY SLOPE AND LANDSCAPING EASEMENT REC#9111180491
2. 15' SEWER EASEMENT REC#20061025001501
3. 7' POWER EASEMENT REC#8203010366
4. 20' UTILITY EASEMENT REC#9106109001 & REC#9110179004 TO BE RELINQUISHED
5. R/W PER REC#9106109001 & REC#9110179004
6. 50' BUILDING SETBACK PER REC#9106109001 & REC#9110179004

OUTFALL KEYNOTE
1. OUTFALL ROCK PROTECTION IE = 78.0 (18" SW)
   SEE WEST POND OUTFALL SIZING TABLE ON SHEET 77 FOR MORE DETAILS
2. OUTFALL ROCK PROTECTION. IE = 73.5
   SEE WEST POND/ SEDIMENT TRAP OUTFALL SIZING TABLE ON SHEET 77 FOR MORE DETAILS.

NOTE:
1. RETAINING WALLS ARE NOT APPROVED UNDER EARLY CLEAR AND GRADING PERMIT. GRADE FROM BOTTOM OF WALL TO UPPER LOT @ 2:1 MAX SLOPE
2. WHEEL WASHING BMP PER DOE BMP C106.

LEGEND:
- PROPOSED SILT FENCE
- PROPOSED CLEARING LIMITS
- PROPOSED TEMPORARY DITCHES W/ CHECK DAMS
- PROPOSED TEMPORARY STORM PIPE (UNLESS NOTED OTHERWISE)
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED MAJOR CONTOUR 330
- PROPOSED MAJOR CONTOUR 332
- PROPOSED ROCKERY WALL
- PROPOSED MSE WALL
- EXISTING MAJOR CONTOUR ·330·
- EXISTING MINOR CONTOUR ·332·

FLOODPLAIN FILL AND COMPENSATORY STORAGE VOLUME

ELEVATION	FILL VOLUME	COMPENSATORY VOLUME
< 74	4 CY	0 CY
74-75	30 CY	0 CY
75-76	90 CY	75 CY
76-77	215 CY	366 CY
77-78	315 CY	97 CY
78-79	134 CY	228 CY
79-80	93 CY	245 CY
80-81	125 CY	253 CY
81-82	98 CY	70 CY
TOTAL	1,105 CY	1,334 CY

CALL BEFORE YOU DIG: 1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
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4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SWPPP - WEST FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON, STATE OF WASHINGTON, 41423, REGISTERED PROFESSIONAL ENGINEER, 2/19/22

Scale: Horizontal 1" = 50' Vertical N/A
Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057
Sheet 75 of 83

P:\18000s\18057\engineering\18057-tesc1.dwg 2/18/2022 10:35 AM TSKODA

SWPPP - EAST

FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

0 25' 50' 100'
SCALE: 1"=50'

NOTE:

(1) RETAINING WALLS ARE NOT APPROVED UNDER EARLY CLEAR AND GRADING PERMIT. GRADE FROM BOTTOM OF WALL TO UPPER LOT @ 2:1 MAX SLOPE

EX FENCE TO BE RELOCATED AS NEEDED
EX WATER TO BE ABANDONED
EX UNDERGROUND TELEPHONE TO BE ABANDONED
CLEARING LIMITS ALONG SILT FENCE
EXISTING PEDESTAL TO BE REMOVED
SEWER CONNECTION TO BE DONE UNDER SEPARATE PERMIT.
TOLT MIDDLE SCHOOL RIVERVIEW SCHOOL DISTRICT 407 212507-9001
TREE PROTECTION FENCE. SEE SHEETS 78 TO 83 FOR MORE DETAILS.
EX TRANSFORMER TO REMAIN
EX TRANSFORMER TO BE REMOVED
THE EAST INFILTRATION POND IN TRACT M WILL NOT BE CONSTRUCTED OR USED AS SEDIMENT DETENTION DURING PHASE 1. ONCE SITE HAS BEEN STABILIZED WERE NO ADVERSE SEDIMENT WILL ACCUMULATE IN THE INFILTRATION POND.
PLAT BOUNDARY
INSTALL SILT FENCE AS SHOWN PER DETAIL SHEET 77
EXISTING J-BOX TO BE REMOVED
TRACT N UTILITY
TRACT M DRAINAGE FACILITY 85.00
EX SHED TO BE REMOVED
INSTALL V-DITCH W/ROCK CHECK DAMS SEE SHEET 77 FOR DETAIL
12" TEMPORARY CMP PIPE @ 1.0% MIN SLOPE
126 LF OF TEMPORARY 24" SD @ 0.6%
ROAD C
ROAD A
CLEARING LIMITS ALONG SILT FENCE
CB#69
TYPE 2-48"
W/ SOLID LOCKING LID
RIM=90.81
IE=84.45 (24" W) TEMP
IE=84.45 (24" SW)
5.5' POND DIVIDER
TRACT L OPEN SPACE
ZONE AO (PER FEMA MAP)
ZONE AE (53033C0418G)
428 LF 24" SD @ 0.50%
PROPOSED RETAINED TREES SEE SHEETS 78 TO 83 FOR MORE DETAILS.
KING COUNTY-PARKS 212507-9031
TOLT RIVER TRAIL
TOLT RIVER
EAST SEDIMENT/PHASE 1 POND
SURFACE AREA REQUIRED = 18,000 SF
SURFACE AREA PROVIDED = 20,100 SF
TOP OF POND = 91.50
MAX WATER SURFACE = 89.50
STATIC WATER SURFACE = 85.50
BOTTOM OF POND = 84.00
ORIFICE DIAMETER = 5.50"
ORIFICE ELEVATION = 85.50
INSTALL PERMANENT STORM OUTFALL PER PROFILE ON SHEETS 44.
EX ECOLOGY BLOCKS TO BE REMOVED
ZONE X (PER LOMR-F)
ZONE AO (11-10-0859A)
FLOODWAY (PER FEMA MAP 53033C0418G)
OUTFALL W/ TRASH RACK IE =82.30 (24" SW)
OUTFALL ROCK PROTECTION. SEE EAST / PHASE 1 POND OUTFALL SIZING TABLE ON SHEET 77 FOR MORE DETAILS
TRACT K OPEN SPACE/FUTURE CONVEYANCE
EX DETENTION POND TO BE ABANDONED
SEE SHEET 75 FOR CONTINUATION

SPECIAL NOTE:

- NO SITE DRAINAGE SHALL RUNOFF ONTO ADJACENT PROPERTIES. SILT FENCE REQUIRED ON ALL DOWNSLOPES.

NOTE:

ALL EX ONSITE UTILITIES, STORM, WATER AND SEWER TO BE REMOVED UNLESS OTHERWISE NOTED.

EXISTING EASEMENTS

(3) 7' POWER EASEMENT REC#8203010366 TO BE RELINQUISHED
(6) 50' BUILDING SETBACK PER REC#9106109001 & REC#9110179004
(7) LIMIT OF BLANKET POWER EASEMENT REC#9112091438 TO BE RELINQUISHED
(8) POWER FACILITIES WITHIN BLANKET POWER EASEMENT REC#9112091438 TO BE RELINQUISHED
(9) 16.5' TELECOMMUNICATIONS EASEMENT REC#20080519000521
(10) 50' RESERVATION FOR OPEN SPACE REC#9106109001 & REC#9110179004
(11) 50' DEDICATION TO CITY REC#9106109001 & REC#9110179004
(12) 15' SEWER EASEMENT REC#20060130000134

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
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4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SWPPP - EAST FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON — STATE OF WASHINGTON — 41423 — REGISTERED PROFESSIONAL ENGINEER — 2/19/22

Scale: Horizontal 1" = 50' Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
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Job Number 18057

Sheet 76 of 83

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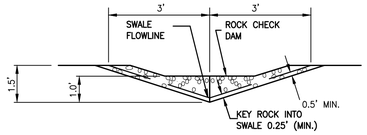
SWPPP NOTES AND DETAILS
FOR
PLAT OF TOLT RIVER TERRACE
A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

SITE GRADING AND T.E.S.C. NOTES

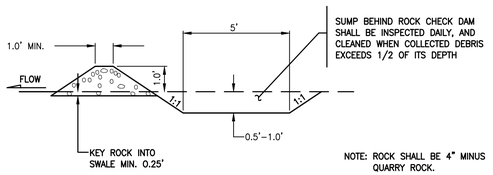
1. ALL GRADING SHALL COMPLY WITH THE REQUIREMENTS IN CHAPTER 30.63B SCC AND CHAPTER 33 OF THE UNIFORM BUILDING CODE.
2. T.E.S.C. MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE WORK.
3. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. PUBLIC STREETS ARE TO BE KEPT CLEAR OF DIRT AND DEBRIS DURING EXCAVATION AND FILL OPERATIONS. STREETS ARE TO BE CHECKED DAILY AND SWEPT AS NEEDED.
4. THE TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING IN ACCORDANCE WITH THE APPROVED TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCITON IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
5. NONCOMPLIANCE WITH THE EROSION CONTROL REQUIREMENTS, WATER QUALITY REQUIREMENTS AND/OR CLEARING LIMITS MAY RESULT IN REVOCATION OF PROJECT PERMITS, PLAN APPROVAL AND BOND FORECLOSURES.
6. CONSTRUCTION ACCEPTANCE WILL BE SUBJECT TO A WELL ESTABLISHED GROUND COVER THAT FULFILLS THE REQUIREMENT OF THE APPROVED CONSTRUCTION PLANS AND TITLE 30.63A, SNOHOMISH COUNTY DRAINAGE ORDINANCE.
7. ALL AREAS TO BE SEEDED SHALL BE CULTIVATED TO THE SATISFACTION OF THE CITY INSPECTOR. THIS MAY BE ACCOMPLISHED BY DISCING, RAKING, HARROWING OR OTHER ACCEPTABLE MEANS. PERFORM ALL CULTURAL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE. IF NECESSARY, SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKE/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO SEEDING.
8. ALL DISTURBED AREAS SUCH AS RETENTION FACILITIES, ROADWAY BACK SLOPES, ETC., SHALL BE SEEDED WITH A PERENNIAL GROUND COVER GRASS TO MINIMIZE EROSION. GRASS SEEDING WILL BE DONE USING AN APPROVED HYDROSEEDER OR AS OTHERWISE APPROVED BY CITY OF CARNATION.
9. CONTRACTOR SHALL COMPLY WITH THE RILEY GROUP GEOTECHNICAL RECOMMENDATIONS CONTAINED IN THE AUGUST 17, 2013 GEOTECHNICAL ENGINEERING REPORT.
10. IMMEDIATELY FOLLOWING FINISH GRADING, PERMANENT VEGETATION (CONSISTING OF RAPID, PERSISTENT AND LEGUME) WILL BE APPLIED (MINIMUM 80# PER ACRE). THIS IS TO INCLUDE THE FOLLOWING: 20 PERCENT ANNUAL, PERENNIAL OR HYBRID RYE GRASS, 40 PERCENT CREEPING RED FESCUE, 40 PERCENT WHITE CLOVER. HYDROSEED REQUIRED.
11. FERTILIZER SHALL BE APPLIED AT 400# PER ACRE OF 10-20-20 (10 POUNDS PER 1,100 SQUARE FEET) OR EQUIVALENT. DEVELOPMENTS ADJACENT TO WATER BODIES SHALL USE NON-PHOSPHOROUS FERTILIZER.
12. ANY AREA OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL BE UNWORKED FOR ONE DAY, PER GEOTECHNICAL RECOMMENDATION DURING THE WET SEASON (OCT. 1 - MAR. 31) OR SEVEN DAYS DURING THE DRY SEASON (APR. 1 - SEP. 30) SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED TESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.). PER GEOTECH RECOMMENDATIONS, INCLUDE: MULCHING WITH 3-INCH THICK STRAW COVERING. PLASTIC SHEETING SHALL BE ANCHORED.
13. STOCKPILES SHALL BE PLACED ON SITE AS SPECIFIED ON THE ENGINEERING PLANS. TOPSOIL AND OTHER TEMPORARY GRADING STOCKPILES SHALL BE IMMEDIATELY COVERED WITH PLASTIC SHEETING OR OTHER APPROVED STABILIZATION METHODS ACCORDING TO D.O.E. STD. II-5.3.3. WITHIN 24 HOURS OF FORMATION.
14. ALL NECESSARY EROSION CONTROL MATERIALS TO BE USED ON SITE (SILT FENCING, CATCH BASIN INSERTS, ETC.) SHALL BE STOCKPILED AT THE SITE PRIOR TO THE START OF ANY CONSTRUCTION.
15. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AND TO ENSURE THAT SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
16. GRADING AND CONSTRUCTION SHALL BE TIMED AND CONDUCTED IN STAGES TO MINIMIZE SOIL EXPOSURE.
17. DENUDED AREAS SHALL BE COVERED BY MULCH, SOD, PLASTIC, OTHER COVER BMP AS NEEDED.
18. CONTACT: BARRY TALKINGTON, P.E. AT BARGHAUSEN CONSULTING ENGINEERS (425) 251-6222 WITH ANY CHANGES THAT MAY BE REQUIRED.
19. THE DEVELOPER/ENGINEER IS RESPONSIBLE FOR THE WATER QUALITY MONITORING AS DETERMINED BY THE MONITORING PROGRAM, ESTABLISHED BY THE ENGINEER. THE PROJECT ENGINEERS NAME AND PHONE NUMBER ARE BARGHAUSEN CONSULTING ENGINEERS AT (425) 251-6222.
20. DURING TIMES OF NO CONSTRUCTION ACTIVITY ON SITE, ALL EXPOSED AREAS ARE TO BE STABILIZED WITH APPROVED TESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC). DURING EXTREME STORM EVENTS, SUCH AS 100 YEAR STORMS, SITE CONSTRUCTION SHALL BE LIMITED OR STOPPED TO REDUCE EXPOSED GROUND AND THE SITE SHALL BE STABILIZED WITH APPROVED TESC METHODS.
21. THE ESC BMP'S SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING IN ACCORDANCE WITH SNOHOMISH COUNTY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
22. THE ESC BMP'S ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.

SITE GRADING AND T.E.S.C. NOTES (CONTINUED)

23. WATER IN UNDERGROUND UTILITY TRENCHES SHALL BE ROUTED THROUGH TEMPORARY DRAINAGE DITCHES TO THE SEDIMENT POND.
24. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION
25. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
26. CONTRACTOR SHALL DISPOSE OF ALL POLLUTANTS AND WASTE MATERIALS IN A SAFE AND TIMELY MANNER.



SWALE X-SECTION AT ROCK CHECK DAM

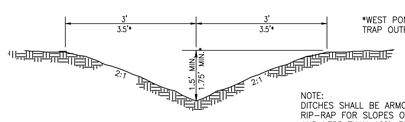


ROCK DAM X-SECTION

NOTE: REQUIRED ON SLOPES GREATER THAN 4 PERCENT

ROCK CHECK DAM

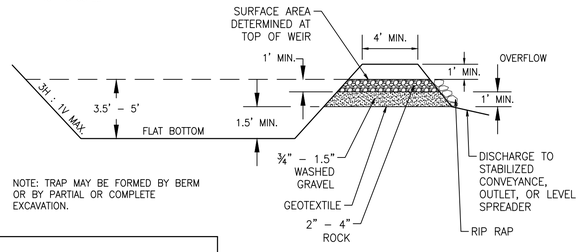
NOT TO SCALE



NOTE:
DITCHES SHALL BE ARMORED WITH RIP-RAP FOR SLOPES OVER 5% AND LESS THAN 10%. PIPES SHALL BE USED INSTEAD OF DITCHES OVER 10% SLOPE.

TEMPORARY 'V' DITCH

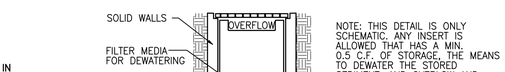
NOT TO SCALE



NOTE: TRAP MAY BE FORMED BY BERM OR BY PARTIAL OR COMPLETE EXCAVATION.

SEDIMENT TRAP

NOT TO SCALE



NOTE: THIS DETAIL IS ONLY SCHEMATIC. ANY INSERT IS ALLOWED THAT HAS A MIN. 0.5 C.F. OF STORAGE, THE MEANS TO DEWATER THE STORED SEDIMENT, AND OVERLOW AND CAN BE EASILY MAINTAINED.

MAINTENANCE STANDARDS CATCH BASIN INSERT (MANUFACTURED)

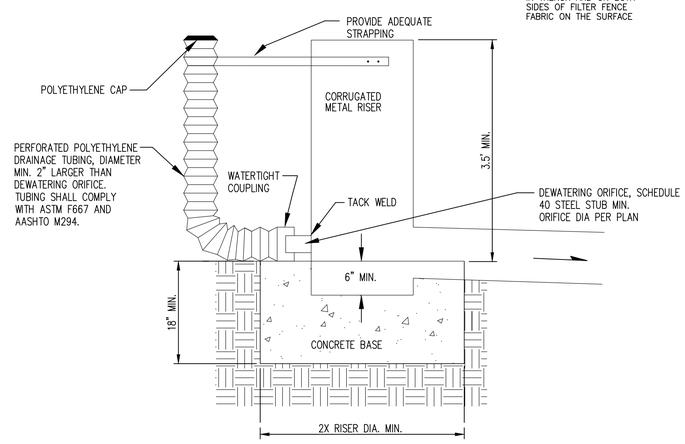
ANY ACCUMULATED SEDIMENT ON OR AROUND THE FILTER FABRIC PROTECTION SHALL BE REMOVED IMMEDIATELY. SEDIMENT SHALL NOT BE REMOVED WITH WATER, AND ALL SEDIMENT MUST BE DISPOSED OF AS FILL ON-SITE OR HAULED OFF-SITE.

ANY SEDIMENT IN THE CATCH BASIN INSERT SHALL BE REMOVED WHEN THE SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE. THE FILTER MEDIA FOR THE INSERT SHALL BE CLEANED OR REPLACED AT LEAST MONTHLY.

REGULAR MAINTENANCE IS CRITICAL FOR BOTH FORMS OF CATCH BASIN PROTECTION. UNLIKE MANY FORMS OF PROTECTION THAT FAIL GRADUALLY, CATCH BASIN PROTECTION WILL FAIL SUDDENLY AND COMPLETELY IF NOT MAINTAINED PROPERLY.

CATCH BASIN PROTECTION

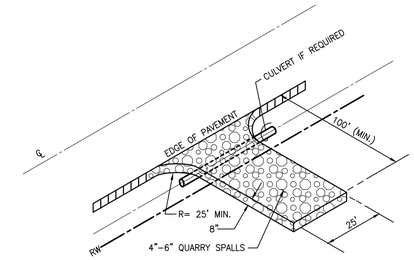
NOT TO SCALE



SEDIMENT POND RISER DETAIL

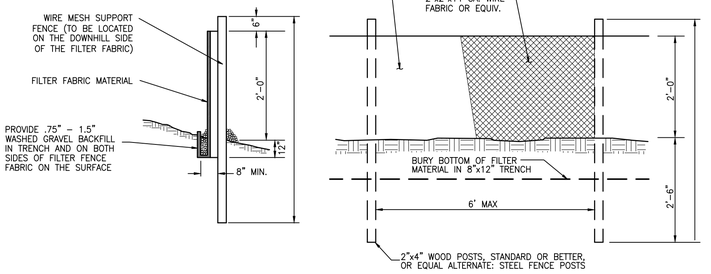
NOT TO SCALE

SEDIMENT POND DETAILS	WEST POND/ SEDIMENT TRAP	EAST/PHASE 1 SEDIMENT POND
DIAMETER OF PERFORATED POLYETHYLENE DRAINAGE TUBING	6 INCHES	8 INCHES
DEWATERING ORIFICE	4 INCHES	5 1/2 INCHES
RISER PIPE	18 INCHES	24 INCHES
TEMPORARY CPEP	18 INCHES	24 INCHES



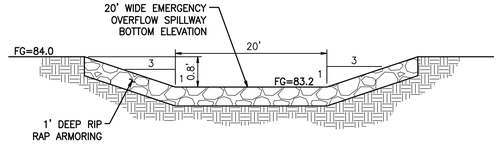
TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE



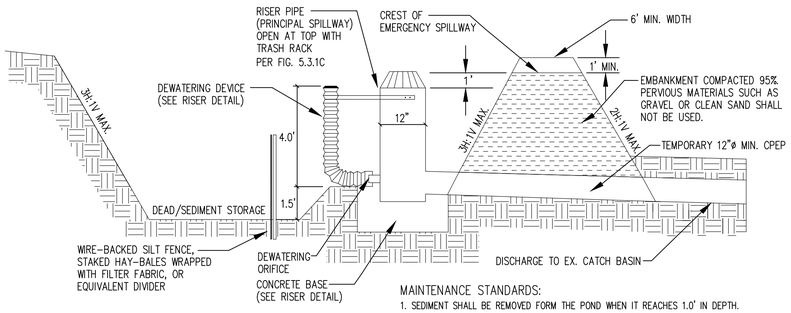
SILT FENCE DETAIL

NOT TO SCALE



EMERGENCY OVERFLOW SPILLWAY DETAIL:

NOT TO SCALE



MAINTENANCE STANDARDS:
1. SEDIMENT SHALL BE REMOVED FORM THE POND WHEN IT REACHES 1.0' IN DEPTH.
2. ANY DAMAGE TO THE POND EMBANKMENTS OR SLOPES SHALL BE REPAIRED.

SEDIMENT POND DETAIL

NOT TO SCALE

BEST MANAGEMENT PRACTICES (BMP) ALTERNATIVES

MULCH MATERIAL	QUALITY STANDARDS	APPLICATION /1000 SF	APPLICATION /ACRE	DEPTH OF APPLICATION	REMARKS
GRAVEL, SLAG, OR CRUSHED STONE	WASHED, 3/4"-1-1/2"		9 CU YDS	3 INCHES	FOR SHORT SLOPES AND AROUND WOODY PLANTS & ORNAMENTALS USE WHERE SUBJECT TO FOOT TRAFIC. APPOX. 2000 LBS/CU YD.
HAY OR STRAW	AIR DRIED, FREE FROM UNWANTED SEEDS & COARSE MATERIAL	75-100LBS OR 2-3 BALES	1-1/2 TO 2-1/2 TONS OR 90-120 BALES	MINIMUM OF 2 IN DEPTH, GREATER ON STEEP AREAS OR NEAR PROTECTED AREAS)	USE WHERE THE MULCHING EFFECT IS TO BE MAINTAINED FOR LESS THAN 3 MONTHS. ANCHOR BY CRIMPING, COVERING WITH NETTING SPRAYING WITH TACKIFIER AND/OR KEPT MOIST.
PLASTIC SHEETING	MINIMUM 6-MIL THICKNESS				ANCHOR WITH SANDBAGS OR TIRES ON 10-FOOT GRID IN ALL DIRECTIONS. OVERLAP EDGES.
JUTE MAT, WOVEN STRAW BLANKET SYNTHETIC FIBER BLANKET	N/A	N/A			USE ON STEEP SLOPES GREATER THAN 2:1 IN ADDITION TO HYDROSEED OR WOOD FIBER WITH TACKIFIER.
WOOD FIBER CELLULOSE (PARTIALLY DIGESTED WOOD FIBERS)	DYED GREEN SHOULD NOT CONTAIN GROWTH INHIBITING FACTORS	25-30 LBS.	1000-1500LBS		IF USED ON CRITICAL AREAS, OR STEEP SLOPES, DOUBLE THE NORMAL APPLICATION RATE. APPLY W/HYDROMULCHER. NO TIE-DOWN REQUIRED.
WOOD FIBER APPLIED WITH HYDROSEEDING OR ALONE		1.25 TONS PER ACRE;			USE 90 GAL/ACRE TACKIFIER FOR STEEP SLOPES LESS THAN 2:1; 120 GAL/ACRE FOR STEEPER THAN 2:1
BARK CHIPS				MIN. OF 2 IN. DEPTH	DO NOT USE ON SLOPES STEEPER THAN 6%
WOOD CHIPS (HOG FUEL)	TREAT WITH 12LBS NITOGEN FERTILIZER/TON			MIN. OF 2 IN. DEPTH	DO NOT USE ON SLOPES STEEPER THAN 15%
HYDROSEED	USE MIX RECOMMENDED ABOVE				USE DOT SLOPE MIX FOR STEEP SLOPES.

ROCK PROTECTION AT OUTFALLS

LOCATION	DISCHARGE VELOCITY AT DESIGN FLOW	REQUIRED PROTECTION MINIMUM DIMENSIONS				
		TYPE	THICKNESS	WIDTH	LENGTH	HEIGHT
WEST POND (TEMP 18" PIPE)	5-10 FPS / 7.9 CFS @ 1% SLOPE	RIPRAP(2)	2 FEET	7.5 FEET	12 FEET	CROWN + 1 FOOT
WEST POND/ SEDIMENT TRAP (DITCH LINE)	< 5 FPS @ 9.3 CFS	RIPRAP(2)	2 FEET	7 FEET	6 FEET	TAILWATER + 1 FOOT
EAST/PHASE 1 POND (24" PIPE)	5.34 FPS @ 13.9 CFS	RIPRAP(2)	2 FEET	8 FEET	12 FEET	CROWN + 1 FOOT

(1) ROCK LINING SHALL BE QUARRY SPALLS WITH GRADATION AS FOLLOWS:
PASSING 8-INCH SQUARE SIEVE: 100%
PASSING 3-INCH SQUARE SIEVE: 40-60% MAXIMUM
PASSING 3/4-INCH SQUARE SIEVE: 0-10% MAXIMUM

(2) RIPRAP SHALL BE REASONABLY WELL GRADED WITH GRADATION AS FOLLOWS:
MAXIMUM STONE SIZE: 24 INCHES (NOMINAL DIAMETER)
MEDIAN STONE SIZE: 16 INCHES
MINIMUM STONE SIZE: 4 INCHES

NOTE: RIPRAP SIZING GOVERNED BY SIDE SLOPES ON OUTLET CHANNEL IS ASSUMED TO BE APPROXIMATELY 3:1.

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Ckd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: SWPPP NOTES AND DETAILS FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
1110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J. TALKINGTON, STATE OF WASHINGTON, 41423, REGISTERED PROFESSIONAL ENGINEER, 2/19/22

Scale: Horizontal N/A Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

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TREE RETENTION PLAN WEST

FOR

PLAT OF TOLT RIVER TERRACE

A PORTION OF NE1/4, OF THE NW1/4 OF THE SE1/4 OF THE SW1/4 OF THE NE1/4 OF SEC. 21 TWP 25 N, RGE 7 E, W.M.
CITY OF CARNATION, KING COUNTY, WASHINGTON

N

SCALE: 1"=50'

SPECIAL KEYNOTE:

*PER THE ARBORIST PLAN/REPORT PREPARED BY GREENFOREST INC PRIOR TO CONSTRUCTION,

THE CONTRACTOR SHALL ERECT AND MAINTAIN SIX-FOOT (6') HIGH CHAIN LINK TEMPORARY CONSTRUCTION FENCING AROUND THE LIMITS OF DISTURBANCE (LOD) OF ALL RETAINED TREES. PLACEMENT OF TREE PROTECTION IS BASED OFF OF LIMITS OF DISTURBANCE SPECIFIED IN THE ARBORIST REPORT AND TABLES ON SHEET 83.

A CERTIFIED ARBORIST SHALL BE ONSITE TO INSPECT TREE PROTECTION AND DOCUMENT ANY ROOT EXPOSURE AND/OR INJURE PRIOR AND DURING: CLEAR AND GRADING, IN PROXIMITY OF RETAINED TREES AND ANY CONSTRUCTION ACTIVITIES NEAR THE RETAINED TREES.

IF ANY STRUCTURAL ROOTS ARE EXPOSED OR INJURED, THEY SHALL BE CUT IMMEDIATELY AS NECESSARY TO PROMOTE TREE HEALTH AND STABILITY.

ARBORIST SHALL PROVIDE MITIGATION MEASURES TO REDUCE STRESS AND NEGATIVE IMPACTS TO THE TREES IN A MEMO AFTER THE EXCAVATION IS COMPLETED OR RECOMMEND REMOVAL AT THAT TIME.

PROTECTION FENCING SHALL BE REINSTALLED AFTER EXCAVATION WITHIN LOD. PLEASE REFERENCE THE APPROVED ARBORIST REPORT PREPARED BY GREENFOREST INC FOR MORE DETAIL. APPROVED TREE PROTECTION PLANS ARE LOCATED ON SHEETS 78 TO 83.

IN ACCORDANCE WITH CMC 15.76.110, TREE PROTECTION DURING CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

- ALL CONSTRUCTION ACTIVITIES, INCLUDING STAGING AND TRAFFIC AREAS, SHALL BE PROHIBITED WITHIN THE ROOT PROTECTION ZONE OF A PROTECTED TREE. THE ROOT PROTECTION ZONE, ALSO KNOWN AS THE LIMITS OF DISTURBANCE.
- "TREE PROTECTION AREA" SIGNS SHALL BE POSTED VISIBLY ON ALL SIDES OF THE FENCED TREE PROTECTION AREAS.
- THE CITY PLANNER MAY REQUIRE AN EVALUATION BY A CERTIFIED ARBORIST TO DETERMINE IF PROTECTIVE MEASURES SHOULD BE REQUIRED BEYOND THE ROOT PROTECTION ZONE.

TREE NOTES:

SIGNIFICANT TREES TO BE RETAINED = 28
NON-SIGNIFICANT TREES TO BE RETAINED = 13

TREE PROTECTION KEYNOTE:

PROPOSED TREE TO BE SAVED. FOR EXACT DETAIL AS TO WHICH TREES ARE BEING COUNTED AND THOSE WITH POTENTIAL FOR SAVING AND NOT BEING COUNTED PLEASE REFERENCE THE TREE RETENTION PLAN ON SHEET 78 TO 83.

TREE PROTECTION FENCE*

DRIPLINE DELINEATED

ROAD C (MINOR COLLECTOR STREET)
TRACT A OPEN SPACE
TRACT B ACCESS TRACT
TOLT MIDDLE SCHOOL RIVERVIEW SCHOOL DISTRICT 407 212507-9033
KING COUNTY FIRE DISTRICT 10 212507-9064
ROAD B (MINOR COLLECTOR STREET)
TRACT D OPEN SPACE
TRACT E ACCESS TRACT
TRACT C OPEN SPACE
TRACT F ACCESS TRACT
ROAD C (LOCAL ACCESS STREET)
ROAD D (LOCAL ACCESS STREET)
ROAD E (LOCAL ACCESS STREET)
TRACT G OPEN SPACE
ROAD A (LOCAL ACCESS STREET)
ROAD A (MINOR COLLECTOR STREET)
TRACT J OPEN SPACE
TRACT H DRAINAGE FACILITY
TRACT I ACCESS TRACT
TRACT K OPEN SPACE/FUTURE CONVEYANCE
TOLT AVE (SR-203) (FRONTAGE ROAD)
PLAT BOUNDARY
SEE SHEET 79 FOR CONTINUATION
N81°08'02"E 1143.09'

CALL BEFORE YOU DIG:
1-800-424-5555

No.	Date	By	Chkd.	Appr.	Revision
3	12/01/21	RK	TJS	BJT	REVISED PER 1ST L&L BP REVIEW DATED 10/24/21
4	2/19/22	RK	TJS	BJT	REVISED PER 3RD REVIEW COMMENTS DATED 2/15/22

Title: TREE RETENTION PLAN WEST FOR *TOLT RIVER TERRACE*

For: MAINVUE WA LLC
110 112TH AVE NE, SUITE 202
BELLEVUE, WA 98004

BARRY J TALKINGTON — STATE OF WASHINGTON — 21423 — REGISTERED PROFESSIONAL ENGINEER — 2/14/22

Scale: Horizontal 1" = 50' Vertical N/A

Designed RK Drawn RK Checked BJT Approved BJT Date 2/19/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 18057

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