SECTION 10, TOWNSHIP T 26 N, RANGE R 4 E, W.M.

CITY OF LAKE FOREST PARK

SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

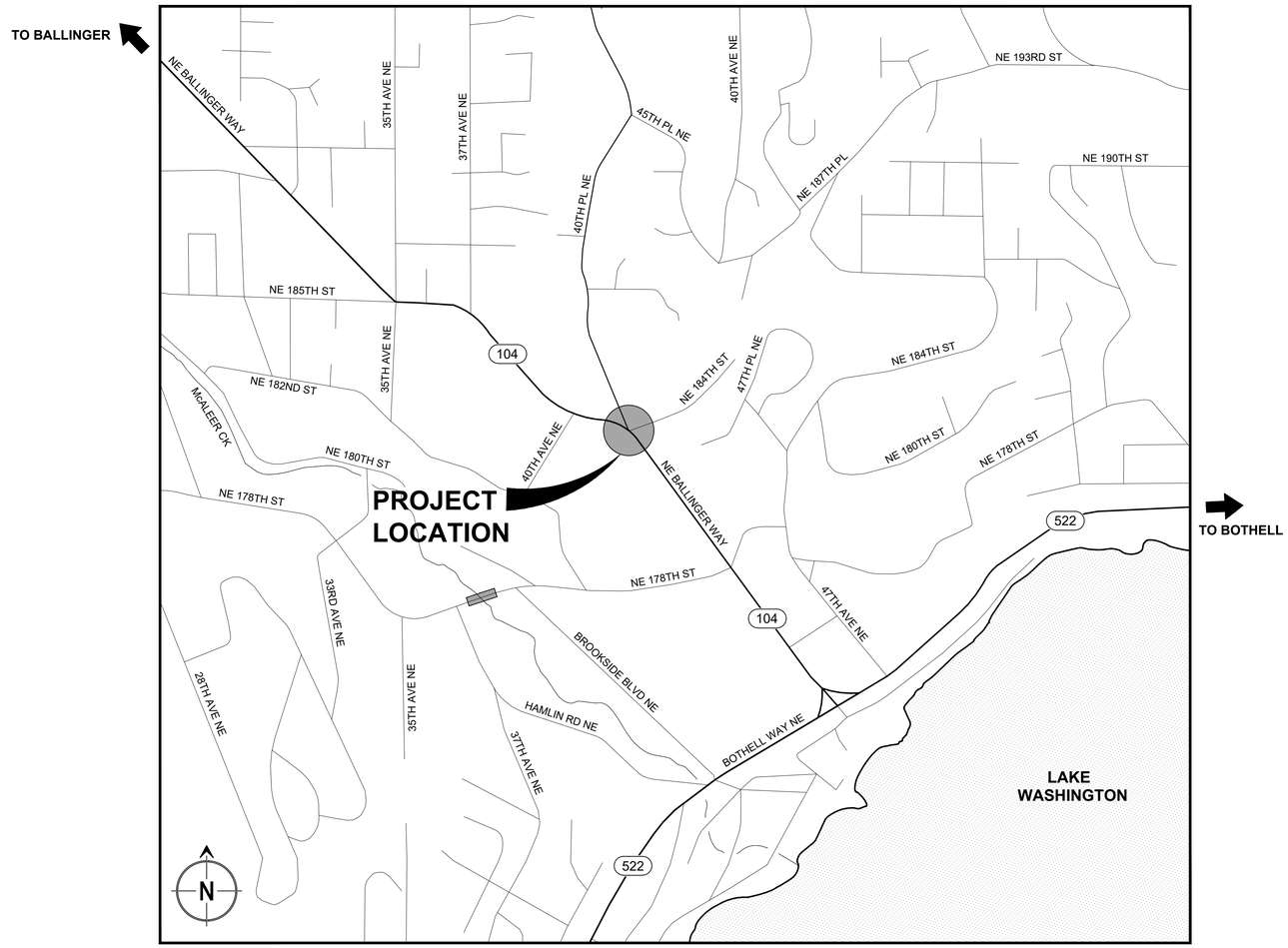
PLAN SET 1 OF 3

MAYOR:
THOMAS FRENCH

CITY COUNCIL:
SEMRA RIDDLE
JON LEBO
ELLYN SAUNDERS
TRACY FURUTANI
PAULA GOODE
LARRY GOLDMAN

CITY ADMINISTRATOR:
PHILLIP HILL, ICMA-CM

PUBLIC WORKS DIRECTOR:
REBECCA DICKINSON



HORIZONTAL DATUM: NAD 83/91
VERTICAL DATUM: NAVD 88

VICINITY MAP
N.T.S.

SHEET INDEX

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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Woodinville, WA 98072
(425) 883-4134 | www.tsinw.com

KIRK ANDREW HARRIS
STATE OF WASHINGTON
54403
REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

COVER, VICINITY MAP AND SHEET INDEX

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GN01
SHEET 1 OF 89

C:\Users\MikeSchaefer\TSI Dropbox\Mike Schaefer\TSI Projects\2021\221007 SR 104 and 40th Place NE Roundabout\0400CAD\PS&E\221007-GN.dwg, 06/09/25 10:06:26am

WATER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		CAP/PLUG
		COUPLING
		GUARD POST
		REDUCER
		THRUST BLOCK
		WATER METER
		2-NOZZLE
		3-NOZZLE
		FLANGE/BLIND FL
		MECHANICAL
		PUSH-ON/HUB
		THREAD
		AIR RELIEF
		BLOW-OFF
		BUTTERFLY
		CHECK
		GATE/GENERAL
		PLUG VALVE

GAS/POWER/TELEPHONE SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		GAS METER
		GAS VALVE
		PAD MOUNTED TRANSFORMER
P	P	POWER VAULT
		TRANSMISSION TOWER
		UTILITY POLE
		UTILITY POLE ANCHOR
		TELEPHONE RISER
T	T	TELEPHONE VAULT

SURVEY SYMBOLS

SYMBOL THEOR./ EXIST.	SYMBOL FOUND/ PROP.	DESCRIPTION
		ANGLE POINT
		BENCH MARK
		BLOCK CORNER
		IRON PIPE
		MONUMENT (IN CASE)
		OWNERSHIP TIE
		SECTION CENTER
		SECTION CORNER
		QUARTER CORNER
		SIXTEENTH CORNER
		CLOSING CORNER
MC	MC	MEANDER CORNER
WC	WC	WITNESS CORNER
		SOIL BORING
		SPOT ELEVATION
		TAX LOT / PARCEL NUMBER

SIGNALIZATION SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		AERIAL DISCONNECT
		AERIAL TERMINAL COMPARTMENT
		TYPE 3A ADVANCED LOOP
		TYPE 3S STOP LINE LOOP ARRAY
		EMERGENCY VEHICLE DETECTOR
		INDICATOR LIGHTS
		WAVETRONIX VEHICLE DETECTOR
		OPTICOM SENSOR W/ INDICATOR LIGHTS
		FLASHING WARNING SYSTEM
		JUNCTION BOX (TYPE 1, 2 & 8)
		R/R CROSSING GATE
		R/R CROSSING SIGNAL
		PEDESTRIAN SIGNAL HEAD
		VEHICLE SIGNAL HEAD
		VEHICLE SIGNAL HEAD W/ARROW INDICATOR
		SIGNAL CONTROLLER
		SIGNAL SERVICE CABINET
		STREET LIGHT ASSEMBLY
		SIGNAL POLE
		TRAFFIC SIGNAL POLE LUMINAIRE
		PS SIGNAL POLE (AT PEDESTRIAN CURB)
		PS SIGNAL POLE
		PEDESTRIAN PUSHBUTTON POST
		STREET NAME SIGN
		LANE CONTROL SIGN
		VEHICLE SIGNAL HEAD TENON
		VIDEO DETECTION CAMERA
		CCTV CAMERA
		RECTANGULAR RAPID FLASHING BEACON
		WIRE NOTE
		POLE NOTE

CHANNELIZATION SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		BIKE PATH
		HANDICAP SYMBOL
		H.O.V. LANE SYMBOL
ONLY	ONLY	ONLY
RR	RR	RAILROAD CROSSING
SCHOOL	SCHOOL	SCHOOL
STOP	STOP	STOP
YIELD	YIELD	YIELD
		STRAIGHT ARROW
		LT.RT.STR.ARROW
		LEFT-RIGHT ARROW
		2-WAY LEFT TURN
		LEFT TURN ARROW
		RIGHT TURN ARROW
		LEFT-SRAIGHT ARROW
		RIGHT-STRAIGHT ARROW
		SHARROW
		LANE MARKERS TYPE I
		LANE MARKERS TYPE II

SURFACE FEATURES/LANDSCAPING

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		MAIL BOX
		RIP RAP
		ROCKERY
		SHRUB
		SIGN
		TREE (Conifer)
		TREE (Deciduous)
		YARD LIGHT

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		SAN. SEWER CLEAN OUT
		SAN. SEWER MANHOLE
		STORM DRAIN CATCH BASIN
		STORM DRAIN CULVERT
		STORM DRAIN MANHOLE

LINETYPES

LINETYPE	DESCRIPTION
	SURFACE FEATURES:
	BUILDING LINE (EXISTING)
	BUILDING LINE (PROPOSED)
	CREEK/DITCH CENTERLINE (EXIST.)
	CREEK/DITCH CENTERLINE (PROP.)
	CURB/PAVEMENT/SIDEWALK (EX)
	CURB/PAVEMENT/SIDEWALK (PROP)
	FENCE (EXISTING)
	FENCE (PROPOSED)
	GUARDRAIL (EXISTING)
	GUARDRAIL (PROPOSED)
	RETAINING WALL (EXISTING)
	RETAINING WALL (PROPOSED)
	SURVEY:
	CENTERLINE (EXISTING)
	CENTERLINE (PROPOSED)
	CONTOUR (EXISTING)
	CONTOUR (INDEX)
	CONTOUR (PROPOSED)
	TEMPORARY CONSTRUCTION EASEMENT
	PROPERTY LINE (EXISTING)
	RIGHT-OF-WAY (EXISTING)
	RIGHT-OF-WAY (PROPOSED)
	SECTION LINE
	UTILITIES (EXISTING):
T T	COMM LINE (BURIED)
OHC OHC	COMM LINE (AERIAL)
G	GAS
OHP OHP	POWER (AERIAL)
P	POWER (BURIED)
SS SS	SANITARY SEWER
FO FO	FIBER OPTIC POWER (BURIED)
SD SD	STORM DRAINAGE
W	WATER

N

NORTH ARROW

DATUM

DATUM

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS
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REGISTERED PROFESSIONAL ENGINEER
5/14/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

LEGEND AND ABBREVIATIONS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **GN-02**
SHEET 2 OF 89

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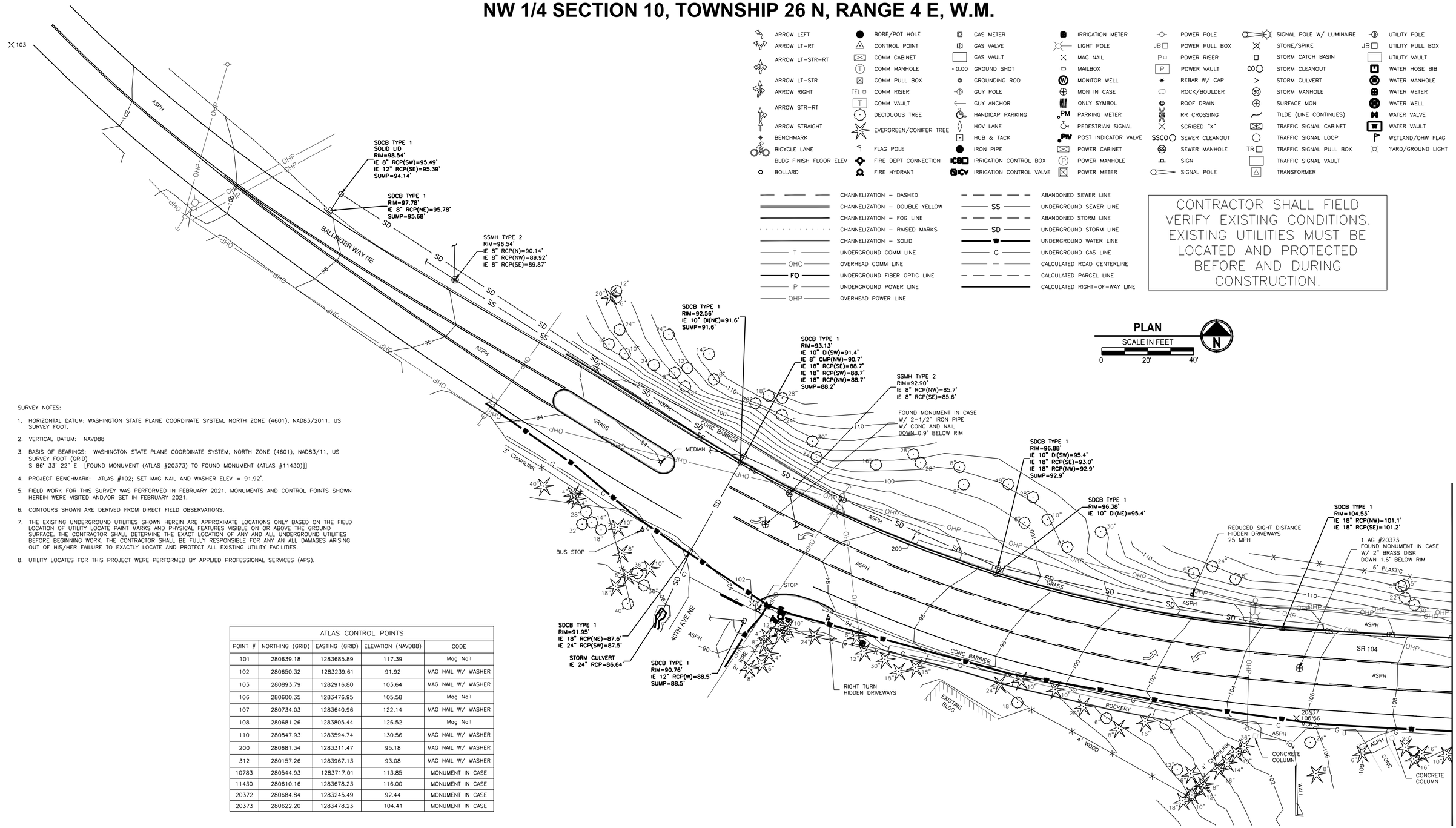
NW 1/4 SECTION 10, TOWNSHIP 26 N, RANGE 4 E, W.M.



SURVEY NOTES:

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/2011, US SURVEY FOOT.
2. VERTICAL DATUM: NAVD88
3. BASIS OF BEARINGS: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/11, US SURVEY FOOT (GRID)
   S 86° 33' 22" E [FOUND MONUMENT (ATLAS #20373) TO FOUND MONUMENT (ATLAS #11430)]]
4. PROJECT BENCHMARK: ATLAS #102; SET MAG NAIL AND WASHER ELEV = 91.92'.
5. FIELD WORK FOR THIS SURVEY WAS PERFORMED IN FEBRUARY 2021. MONUMENTS AND CONTROL POINTS SHOWN HEREIN WERE VISITED AND/OR SET IN FEBRUARY 2021.
6. CONTOURS SHOWN ARE DERIVED FROM DIRECT FIELD OBSERVATIONS.
7. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREIN ARE APPROXIMATE LOCATIONS ONLY BASED ON THE FIELD LOCATION OF UTILITY LOCATE PAINT MARKS AND PHYSICAL FEATURES VISIBLE ON OR ABOVE THE GROUND SURFACE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND UTILITIES BEFORE BEGINNING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES ARISING OUT OF HIS/HER FAILURE TO EXACTLY LOCATE AND PROTECT ALL EXISTING UTILITY FACILITIES.
8. UTILITY LOCATES FOR THIS PROJECT WERE PERFORMED BY APPLIED PROFESSIONAL SERVICES (APS).

ATLAS CONTROL POINTS

POINT #	NORTHING (GRID)	EASTING (GRID)	ELEVATION (NAVD88)	CODE
101	280639.18	1283685.89	117.39	Mag Nail
102	280650.32	1283239.61	91.92	MAG NAIL W/ WASHER
103	280893.79	1282916.80	103.64	MAG NAIL W/ WASHER
106	280600.35	1283476.95	105.58	Mag Nail
107	280734.03	1283640.96	122.14	MAG NAIL W/ WASHER
108	280681.26	1283805.44	126.52	Mag Nail
110	280847.93	1283594.74	130.56	MAG NAIL W/ WASHER
200	280681.34	1283311.47	95.18	MAG NAIL W/ WASHER
312	280157.26	1283967.13	93.08	MAG NAIL W/ WASHER
10783	280544.93	1283717.01	113.85	MONUMENT IN CASE
11430	280610.16	1283678.23	116.00	MONUMENT IN CASE
20372	280684.84	1283245.49	92.44	MONUMENT IN CASE
20373	280622.20	1283478.23	104.41	MONUMENT IN CASE

MATCHLINE - SHEET 4

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MM	4/25
Designed	MG	4/25
Reviewed	MG	4/25
Approved	VLS	4/25

BID SET

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CITY OF LAKE FOREST PARK

ATLAS
17619 NE 67TH CT #100
Redmond, Washington 98052
Ph: (425) 429-7800

MARK A. GROOT, STATE OF WASHINGTON, REGISTERED PROFESSIONAL LAND SURVEYOR 43143
4/03/2025

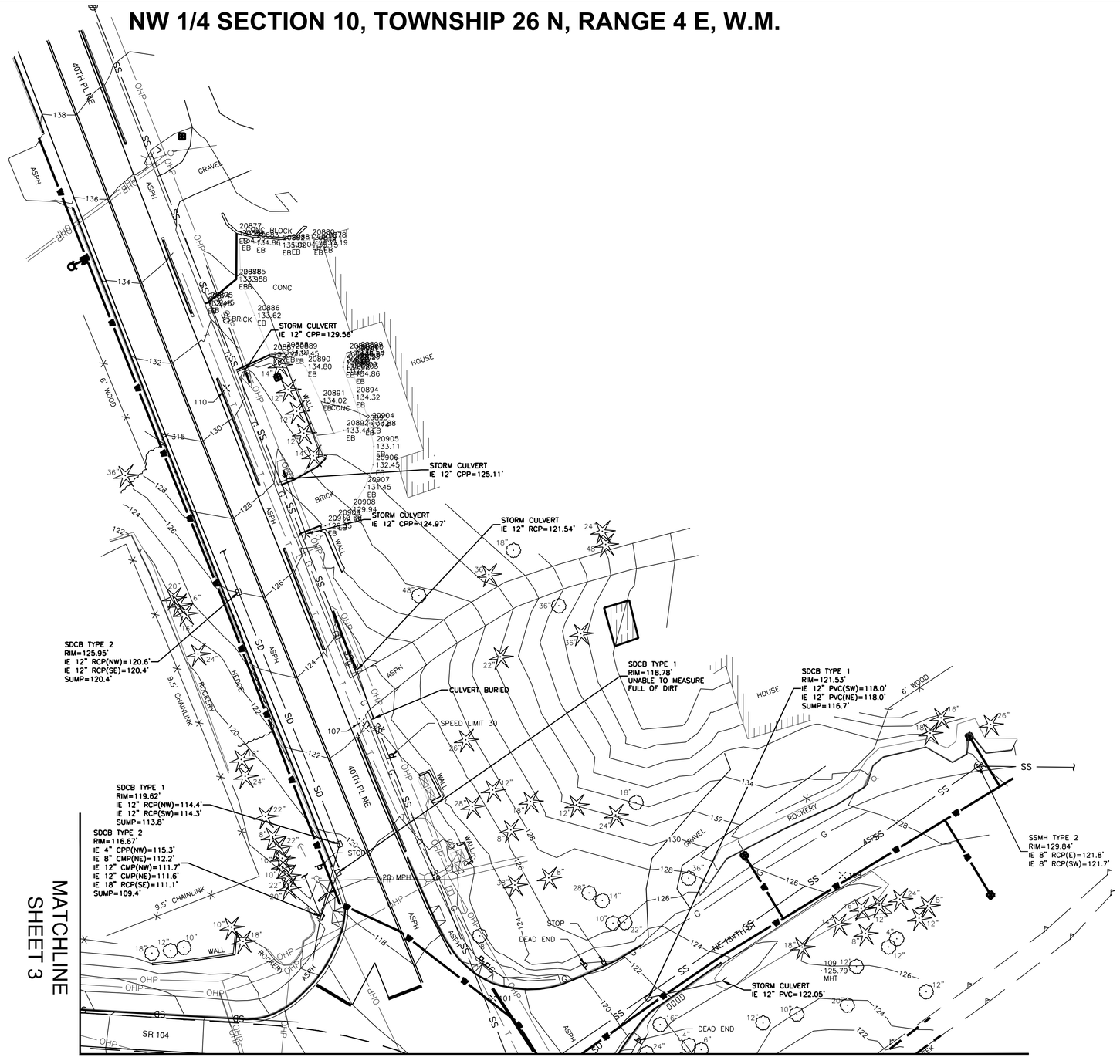
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT
EXISTING CONDITIONS AND TOPOGRAPHIC SURVEY

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. EC01
SHEET 3 OF 89

L:\TSIX_20-139 SR 104 Roundabout\0300CAD\BASES\20139-SV-BS.dwg, 05/19/25 12:40:22pm

NW 1/4 SECTION 10, TOWNSHIP 26 N, RANGE 4 E, W.M.

PLAN
SCALE IN FEET
0 20' 40'
N



NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MM	4/25
Designed	MG	4/25
Reviewed	MG	4/25
Approved	VLS	4/25

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MARK A. GROOT, STATE OF WASHINGTON, 34343, REGISTERED PROFESSIONAL LAND SURVEYOR
4/03/2025

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT
EXISTING CONDITIONS AND TOPOGRAPHIC SURVEY

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. EC02
SHEET 4 OF 89

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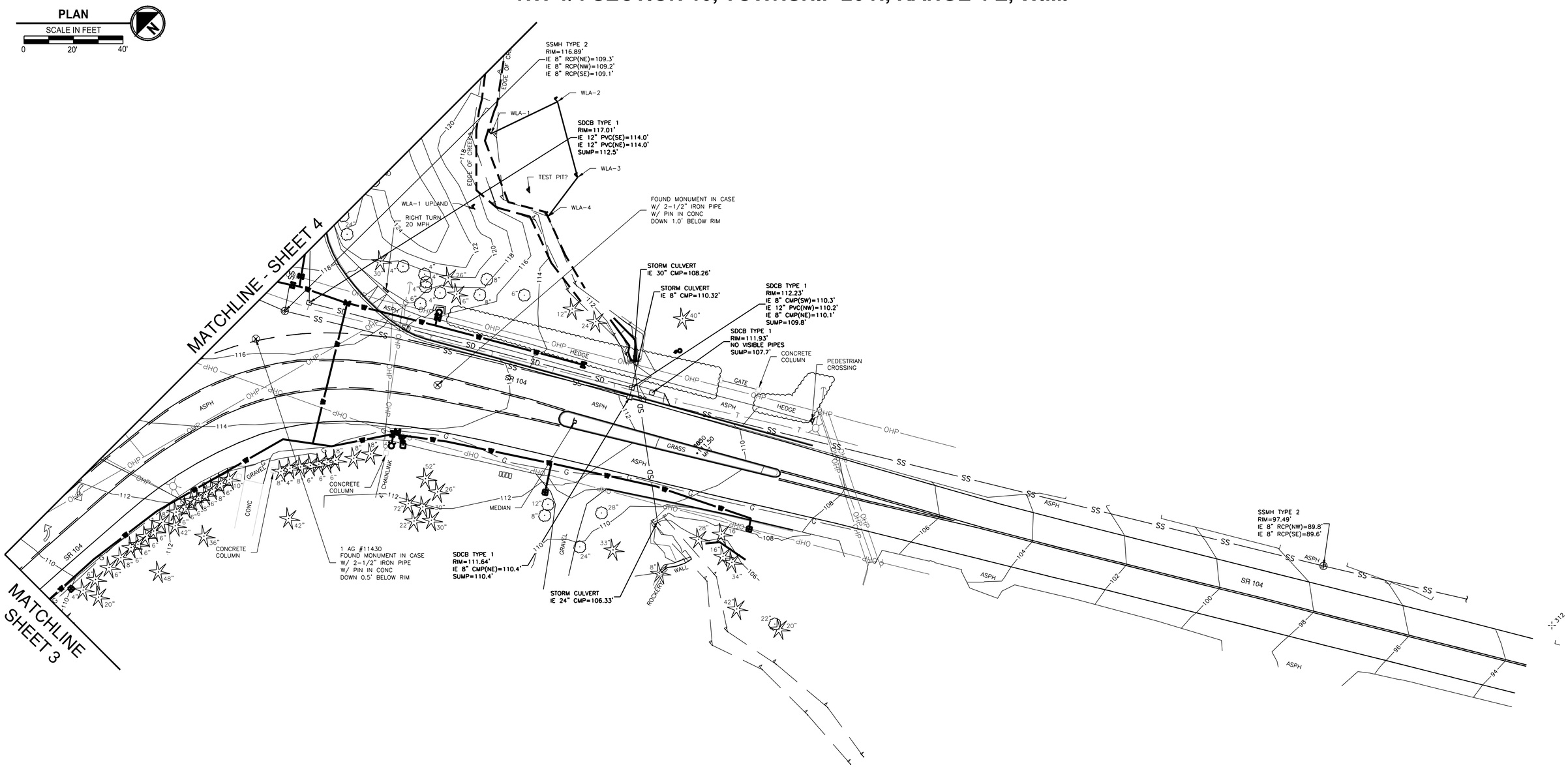

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MM	4/25
Designed	MG	4/25
Reviewed	MG	4/25
Approved	VLS	4/25

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Redmond, Washington 98052
Ph: (425) 429-7800

MARK A. GROOT
STATE OF WASHINGTON
44342
REGISTERED PROFESSIONAL LAND SURVEYOR
4/03/2025

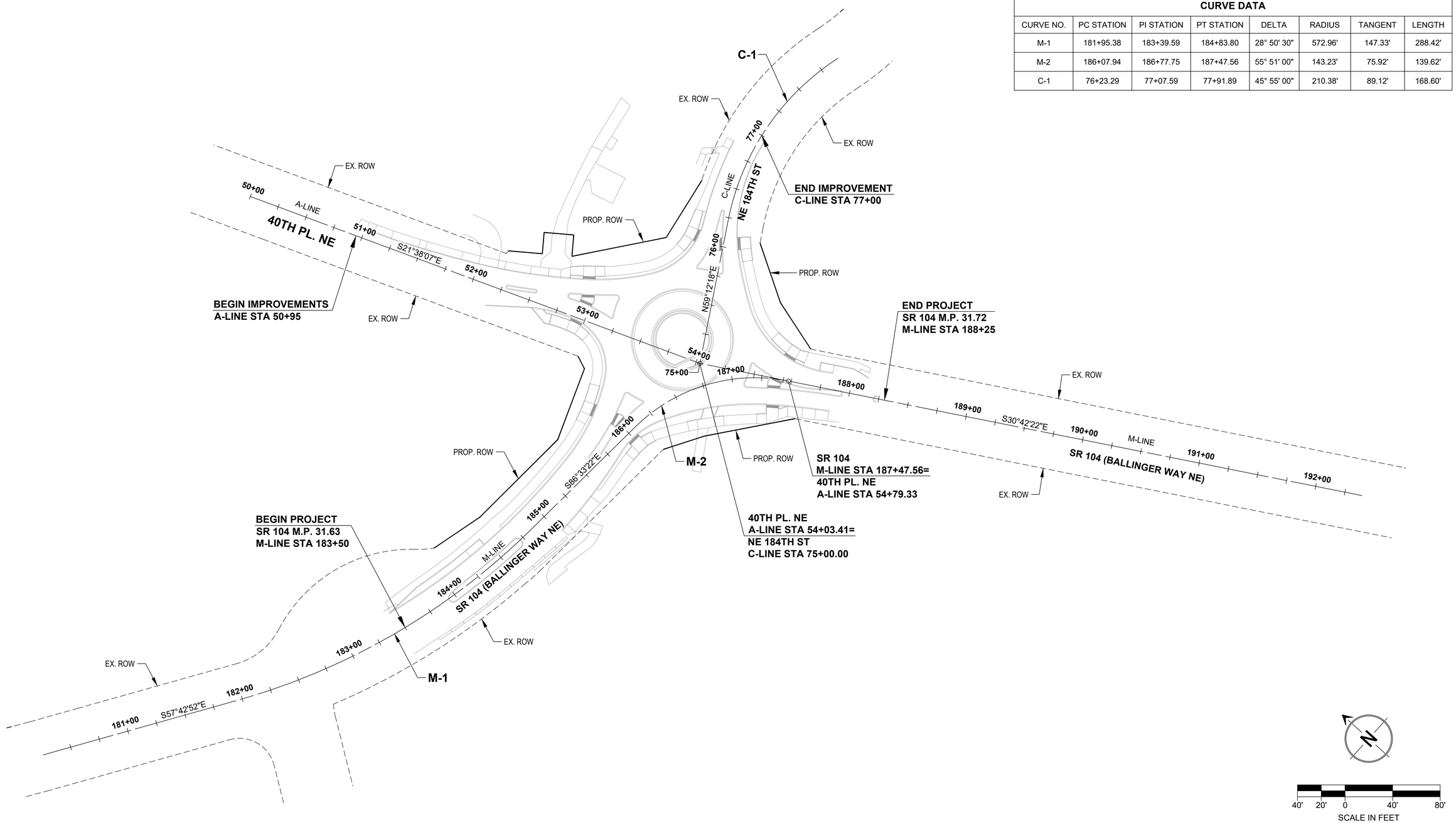
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT
EXISTING CONDITIONS AND TOPOGRAPHIC SURVEY

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. EC03
SHEET 5 OF 89

L:\TSIX_20-139 SR 104 Roundabout\0300CAD\BASES\20139-SV-BS.dwg, 05/19/25 12:55:36pm

SECTION 10, T 26 N, R 4 E, WM

CURVE DATA							
CURVE NO.	PC STATION	PI STATION	PT STATION	DELTA	RADIUS	TANGENT	LENGTH
M-1	181+95.38	183+39.59	184+83.80	28° 50' 30"	572.96'	147.33'	288.42'
M-2	186+07.94	186+77.75	187+47.56	55° 51' 00"	143.23'	75.92'	139.62'
C-1	76+23.29	77+07.59	77+91.89	45° 55' 00"	210.38'	89.12'	168.60'



NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
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KIRK ANDREW HARRIS
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44403
REGISTERED PROFESSIONAL ENGINEER
5/14/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ALIGNMENT PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. AL01
SHEET 6 OF 89

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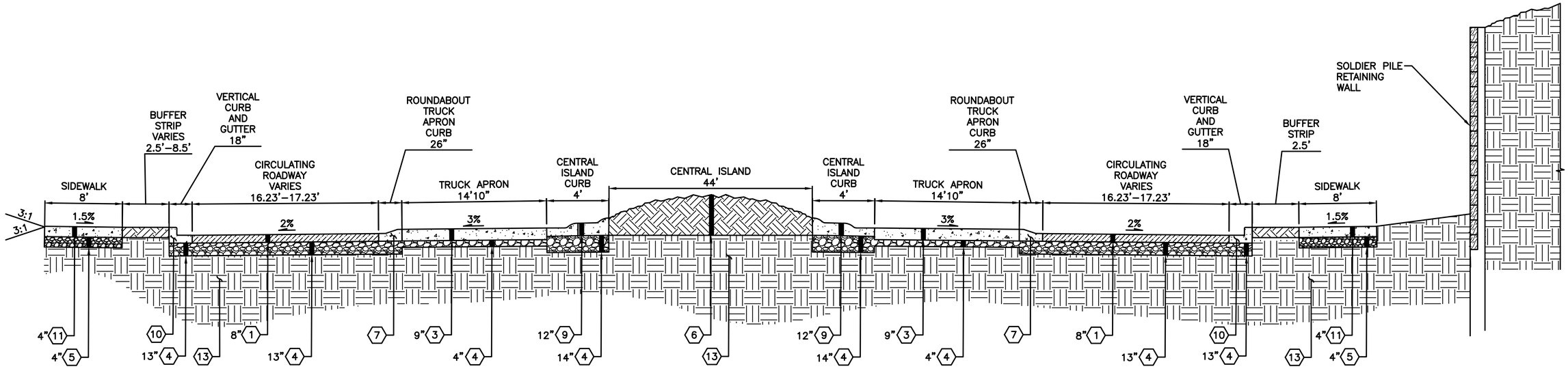
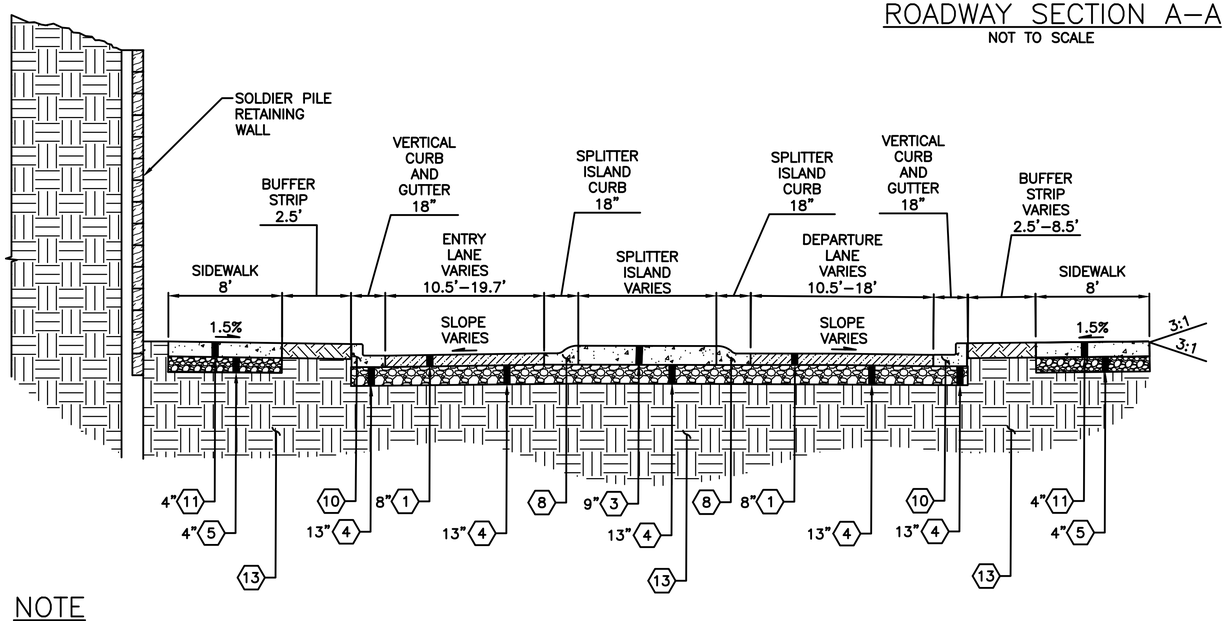
SEC 10, TWP 26 N, RGE 4 E



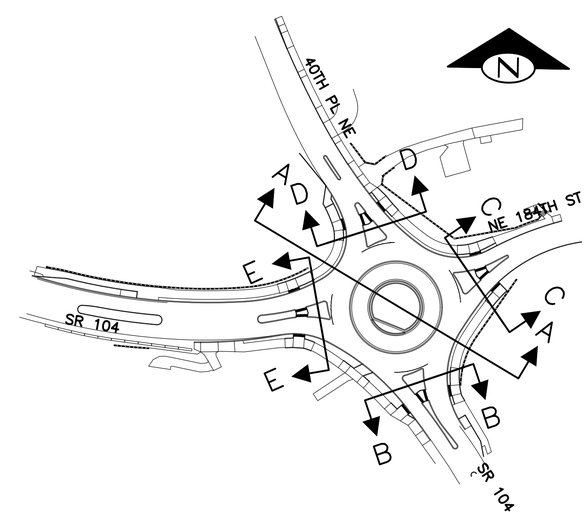
ROADWAY SECTION A–A

NOT TO SCALE



ROADWAY SECTION B–B

NOT TO SCALE



SR 104 & 40TH PL NE

NOT TO SCALE

CONSTRUCTION NOTES

1. HMA CL. 1/2" PG 58H–22 (2–INCH MAX LIFT)
2. NOT USED
3. TEXTURED AND PIGMENTED CONCRETE PAVEMENT WITH DOWEL BARS, SPLITTER ISLANDS AND TRUCK APRON. SEE PV SHEETS FOR DOWEL BAR JOINT SPACING.
4. CRUSHED SURFACING BASE COURSE
5. CRUSHED SURFACING TOP COURSE
6. NOT USED
7. ROUNDABOUT TRUCK APRON CEMENT CONCRETE CURB AND GUTTER #1 PER WSDOT STD. PLAN F–10.18–04.
8. ROUNDABOUT SPLITTER ISLAND CEMENT CONCRETE CURB AND GUTTER #2 PER WSDOT STD. PLAN F–10.18–04.
9. ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB #3 PER WSDOT STD. PLAN F–10.18–04.
10. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD. PLAN F–10.12–04.
11. CEMENT CONCRETE SIDEWALK PER WSDOT STD. PLAN F–30.10–04.
12. NOT USED
13. COMPACTED SUBGRADE, GRAVEL BORROW, UNDISTURBED NATIVE SOIL.

NOTE

1. EXISTING PCC PAVEMENT PANELS ARE PRESENT IN SOME ROAD SECTIONS. SEE SITE PREP SHEETS FOR APPROXIMATE LOCATIONS AND AREA OF REMOVAL.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360–691–9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT — STATE OF WASHINGTON — 36704 — REGISTERED PROFESSIONAL ENGINEER
5/25/25

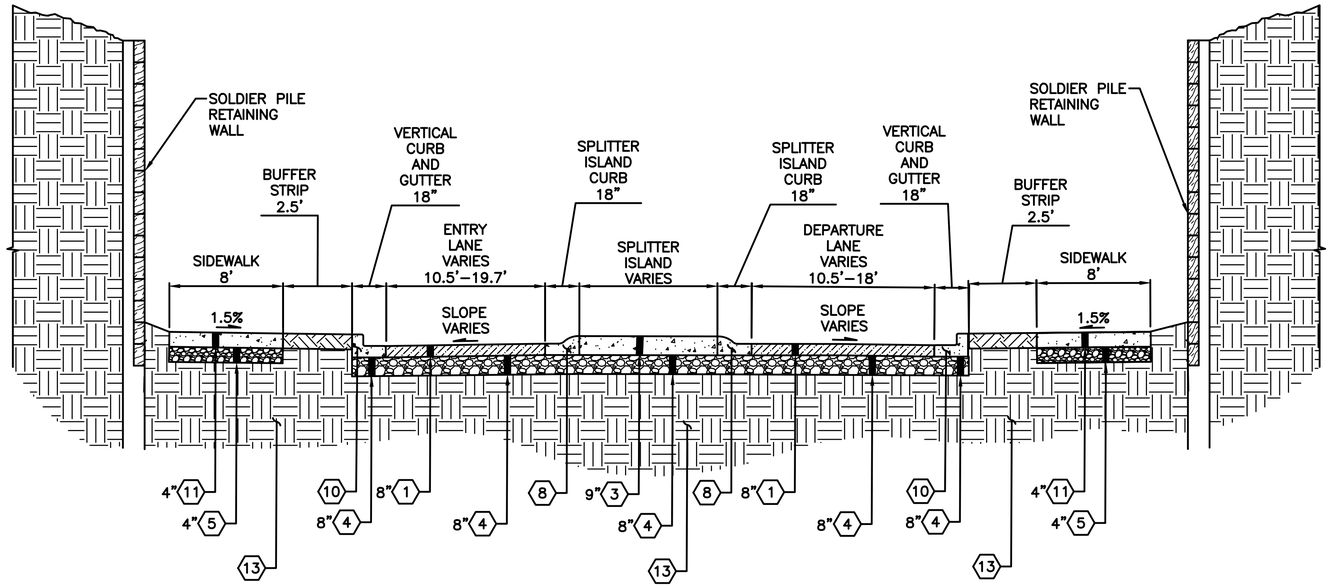
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ROADWAY SECTIONS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. RS01
SHEET 7 OF 89

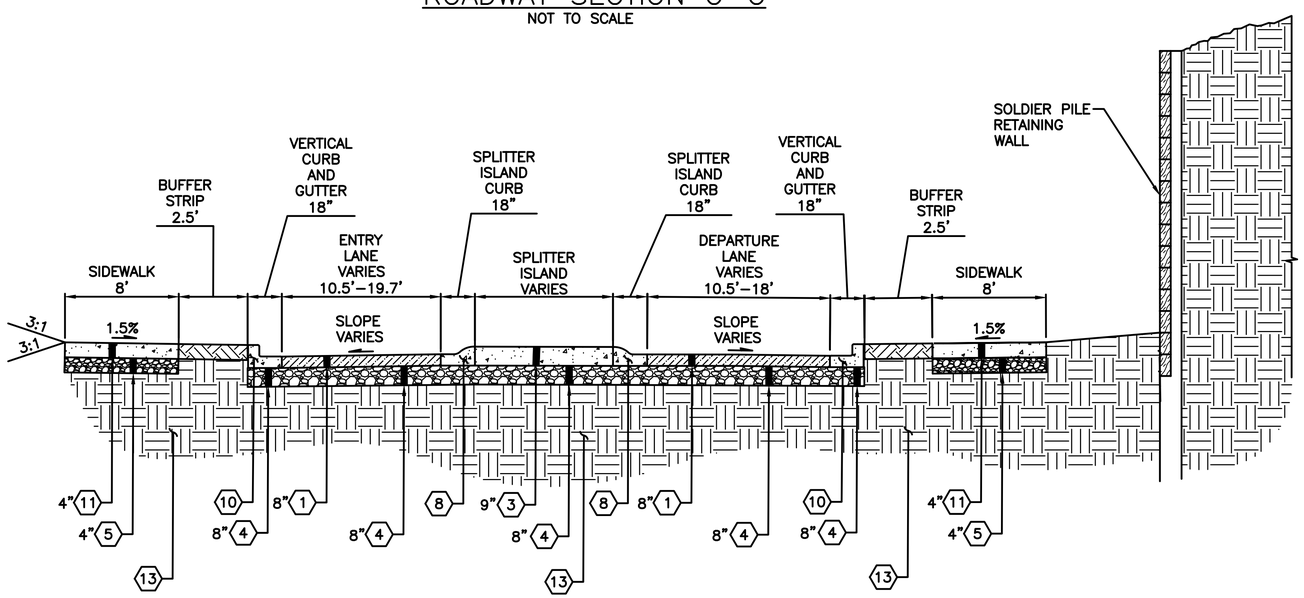
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:45:35pm

SEC 10, TWP 26 N, RGE 4 E



ROADWAY SECTION C–C

NOT TO SCALE



ROADWAY SECTION D–D

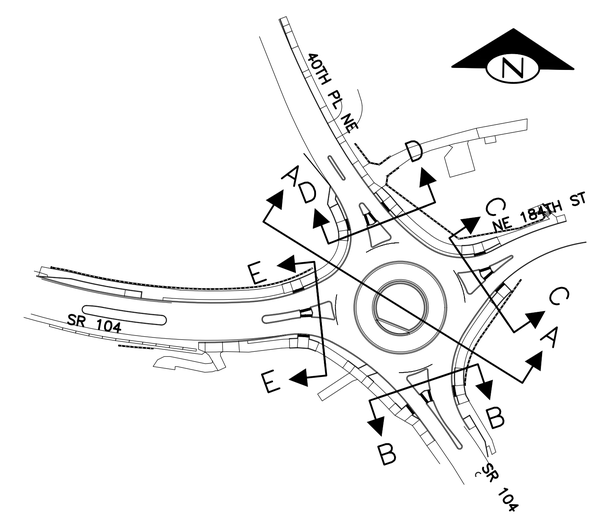
NOT TO SCALE

NOTE

1. EXISTING PCC PAVEMENT PANELS ARE PRESENT IN SOME ROAD SECTIONS. SEE SITE PREP SHEETS FOR APPROXIMATE LOCATIONS AND AREA OF REMOVAL.

CONSTRUCTION NOTES

1. HMA CL. 1/2" PG 58H–22 (2–INCH MAX LIFT)
2. NOT USED
3. TEXTURED AND PIGMENTED CONCRETE PAVEMENT WITH DOWEL BARS, SPLITTER ISLANDS AND TRUCK APRON. SEE PV SHEETS FOR DOWEL BAR JOINT SPACING.
4. CRUSHED SURFACING BASE COURSE
5. CRUSHED SURFACING TOP COURSE
6. NOT USED
7. ROUNDABOUT TRUCK APRON CEMENT CONCRETE CURB AND GUTTER #1 PER WSDOT STD. PLAN F–10.18–04.
8. ROUNDABOUT SPLITTER ISLAND CEMENT CONCRETE CURB AND GUTTER #2 PER WSDOT STD. PLAN F–10.18–04.
9. ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB #3 PER WSDOT STD. PLAN F–10.18–04.
10. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD. PLAN F–10.12–04.
11. CEMENT CONCRETE SIDEWALK PER WSDOT STD. PLAN F–30.10–04.
12. NOT USED
13. COMPACTED SUBGRADE, GRAVEL BORROW, UNDISTURBED NATIVE SOIL.



SR 104 & 40TH PL NE

NOT TO SCALE

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

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3204 SHOKEY POINT DR. #207
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ERIC J. SCOTT — STATE OF WASHINGTON — 36704 — REGISTERED PROFESSIONAL ENGINEER
5/25/25

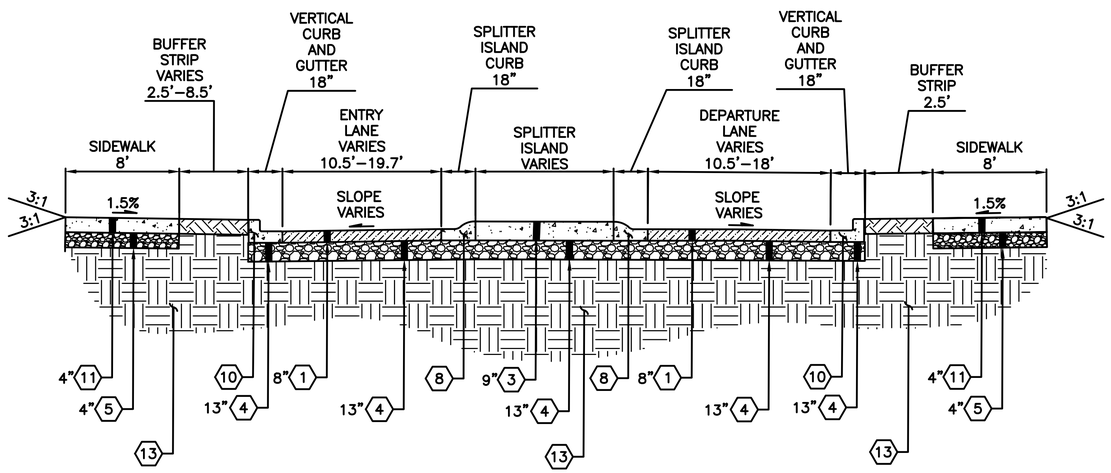
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ROADWAY SECTIONS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. RS02
SHEET 8 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:45:45pm

SEC 10, TWP 26 N, RGE 4 E

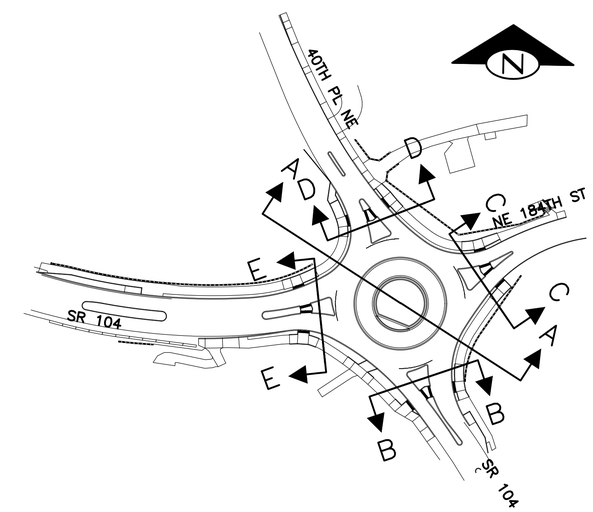


ROADWAY SECTION E–E

NOT TO SCALE

CONSTRUCTION NOTES

1. HMA CL. 1/2" PG 58H–22 (2–INCH MAX LIFT)
2. NOT USED
3. TEXTURED AND PIGMENTED CONCRETE PAVEMENT WITH DOWEL BARS, SPLITTER ISLANDS AND TRUCK APRON. SEE PV SHEETS FOR DOWEL BAR JOINT SPACING.
4. CRUSHED SURFACING BASE COURSE
5. CRUSHED SURFACING TOP COURSE
6. NOT USED
7. ROUNDABOUT TRUCK APRON CEMENT CONCRETE CURB AND GUTTER #1 PER WSDOT STD. PLAN F–10.18–04.
8. ROUNDABOUT SPLITTER ISLAND CEMENT CONCRETE CURB AND GUTTER #2 PER WSDOT STD. PLAN F–10.18–04.
9. ROUNDABOUT CENTRAL ISLAND CEMENT CONCRETE CURB #3 PER WSDOT STD. PLAN F–10.18–04.
10. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD. PLAN F–10.12–04.
11. CEMENT CONCRETE SIDEWALK PER WSDOT STD. PLAN F–30.10–04.
12. NOT USED
13. COMPACTED SUBGRADE, GRAVEL BORROW, UNDISTURBED NATIVE SOIL.



SR 104 & 40TH PL NE

NOT TO SCALE

NOTE

1. EXISTING PCC PAVEMENT PANELS ARE PRESENT IN SOME ROAD SECTIONS. SEE SITE PREP SHEETS FOR APPROXIMATE LOCATIONS AND AREA OF REMOVAL.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR, #207
ARLINGTON, WA 98223
360–691–9272
WWW.TERRAVISTANW.COM

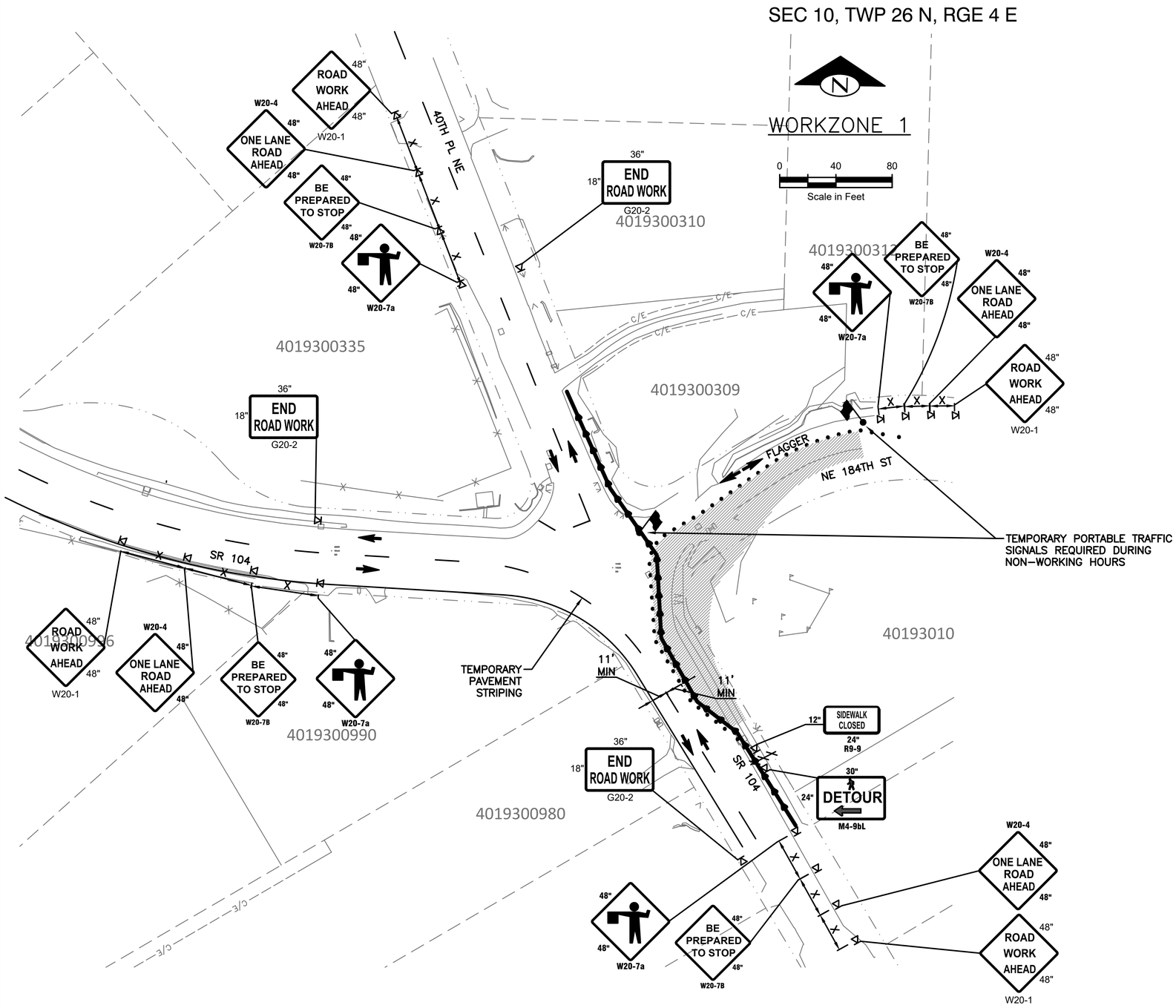
ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ROADWAY SECTIONS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. RS03
SHEET 9 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:45:55pm



CHANNELIZATION DEVICE SPACING (feet)

MPH	TAPER	TANGENT
35/45	30	60
25/30	20	40

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)

LANE WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	780	840

MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)

SHOULDER WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
8'	40	40	60	90	120	130	150	160	170	190
10'	40	60	90	90	150	170	190	200	220	240
USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.										

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R

HOST VEHICLE WEIGHT 9,900 TO 22,000 lbs.			HOST VEHICLE WEIGHT > 22,000 lbs.		
< 45 MPH	45-55 MPH	> 55 MPH	< 45 MPH	45-55 MPH	> 55 MPH
100'	123'	172'	74'	100'	150'

SIGN SPACING = X (1)

RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS & URBAN ARTERIALS RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' ± (2)
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

CONSTRUCTION NOTES

- SEE SHEET TC06 FOR DETOUR SIGNING PLAN

LEGEND

- PROPOSED WORKZONE AREA
- PROPOSED CHANNELIZATION DEVICES
- DIRECTION OF TRAVEL
- PEDESTRIAN ACCESS ROUTE
- TYPE III BARRICADE LOCATION
- FLAGGING STATION
- TEMPORARY PAVEMENT MARKING

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5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC01
SHEET 10 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIV\L.dwg, 06/03/25 12:32:52pm

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)

LANE WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	780	840

CHANNELIZATION DEVICE SPACING (feet)

MPH	TAPER	TANGENT
35/45	30	60
25/30	20	40

MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)

SHOULDER WIDTH (feet)	Posted Speed (mph)									
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USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R

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100'	123'	172'	74'	100'	150'

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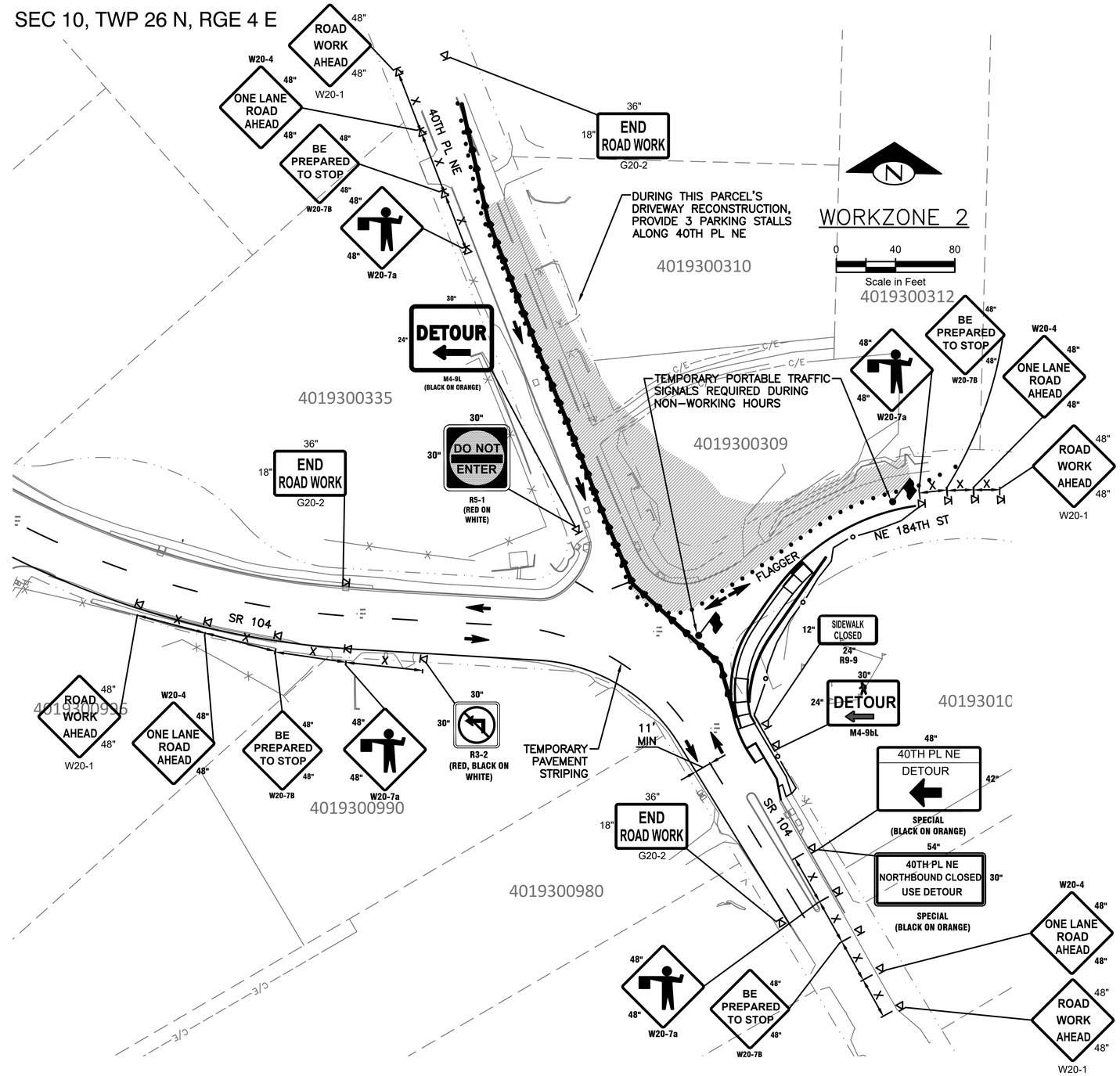
LEGEND

- PROPOSED WORKZONE AREA
- PROPOSED CHANNELIZATION DEVICES
- DIRECTION OF TRAVEL
- PEDESTRIAN ACCESS ROUTE
- TYPE III BARRICADE LOCATION
- FLAGGING STATION
- TEMPORARY PAVEMENT MARKING



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5/25/25

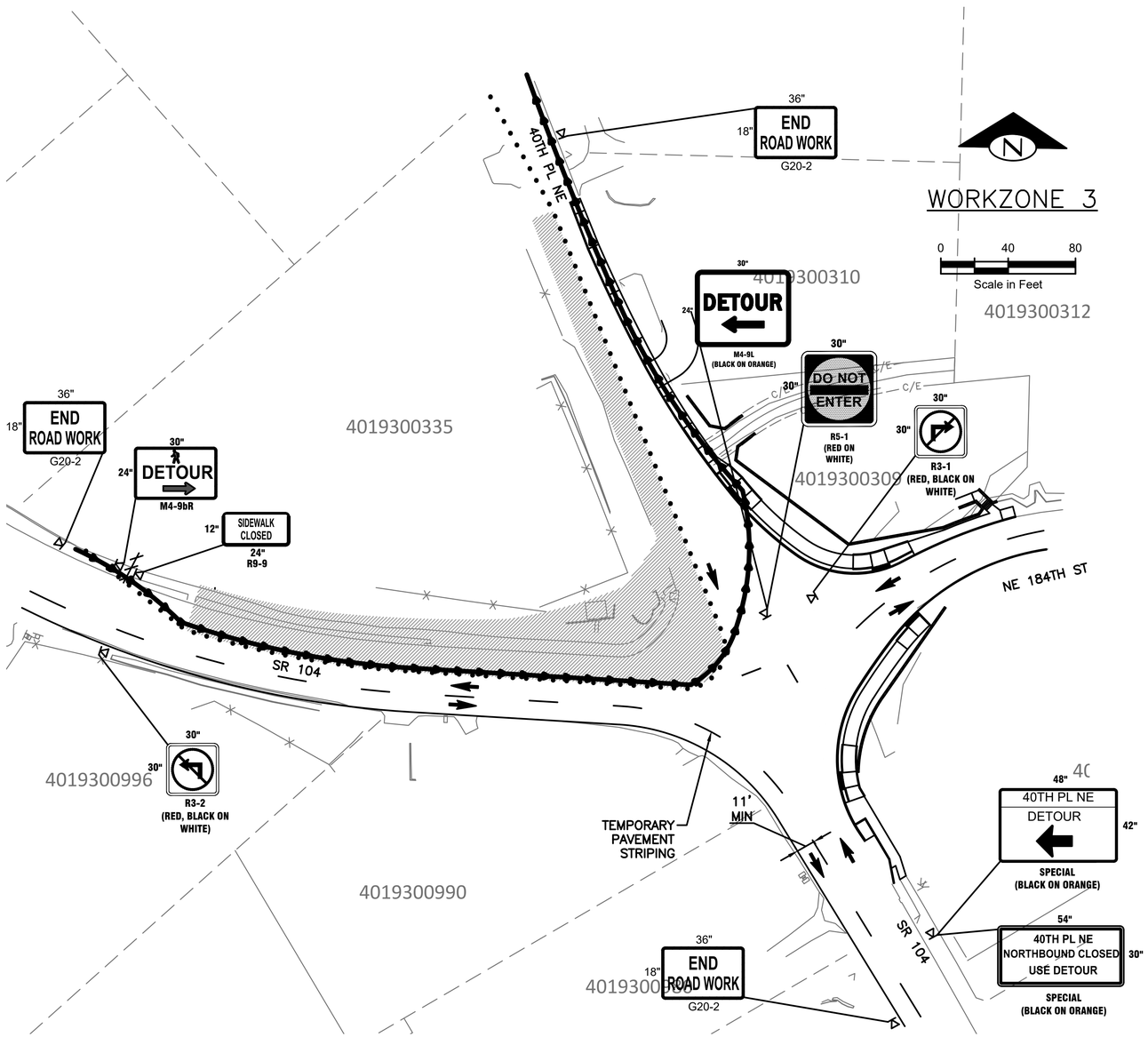
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC02
SHEET 11 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:33:02pm

SEC 10, TWP 26 N, RGE 4 E



CHANNELIZATION DEVICE SPACING (feet)

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35/45	30	60
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MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)

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MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)

SHOULDER WIDTH (feet)	Posted Speed (mph)									
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8'	40	40	60	90	120	130	150	160	170	190
10'	40	60	90	90	150	170	190	200	220	240
USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.										

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

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CONSTRUCTION NOTES

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LEGEND

- PROPOSED WORKZONE AREA
- PROPOSED CHANNELIZATION DEVICES
- DIRECTION OF TRAVEL
- PEDESTRIAN ACCESS ROUTE
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- FLAGGING STATION
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ERIC J SCOTT STATE OF WASHINGTON 36704 REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC03
SHEET 12 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:33:07pm

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)

LANE WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
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USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

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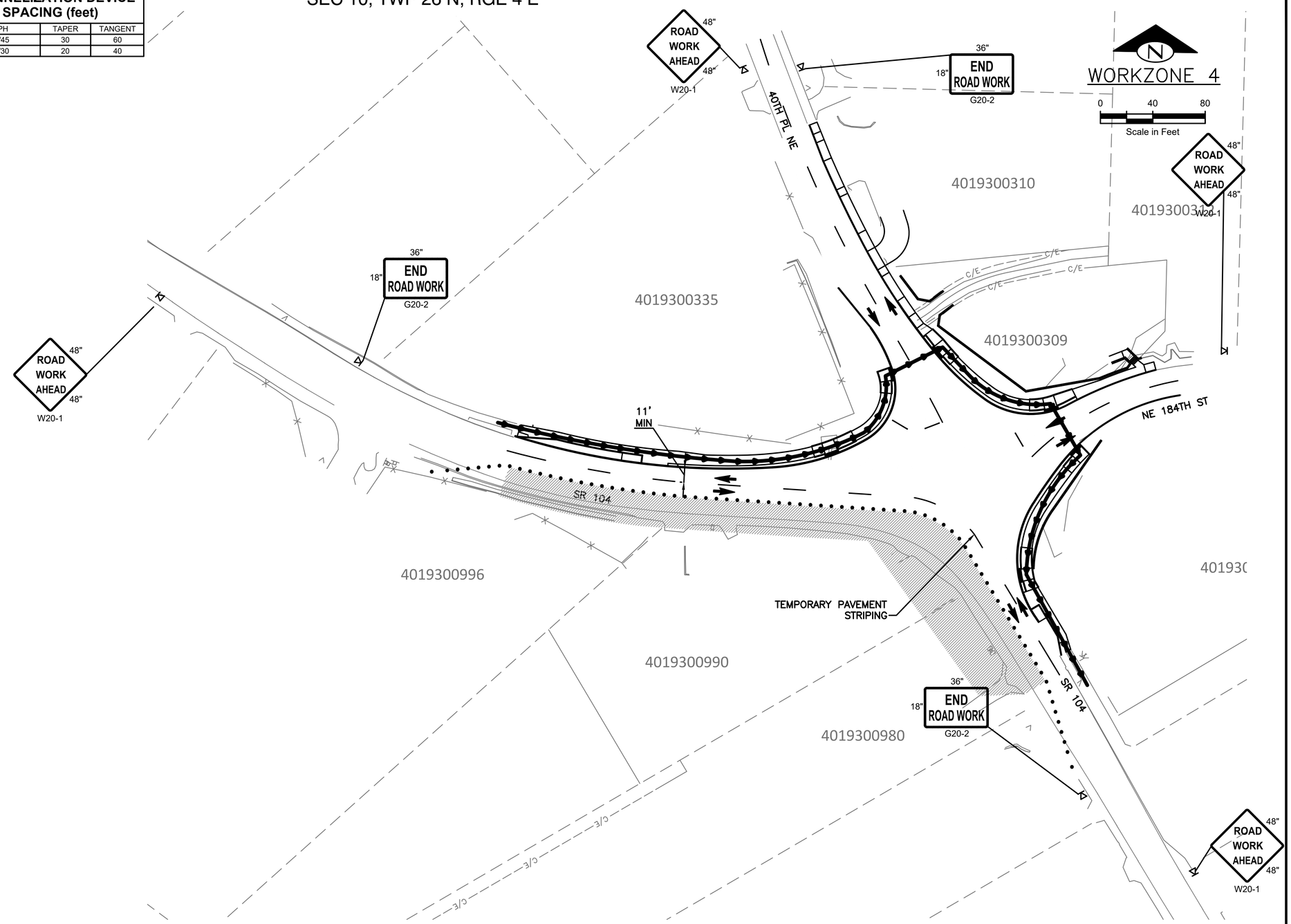
CONSTRUCTION NOTES

- SEE SHEET TC06 FOR DETOUR SIGNING PLAN

SEC 10, TWP 26 N, RGE 4 E



LEGEND

- PROPOSED WORKZONE AREA
- PROPOSED CHANNELIZATION DEVICES
- DIRECTION OF TRAVEL
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- TYPE III BARRICADE LOCATION
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ERIC J. SCOTT, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER, 36704
5/25/25

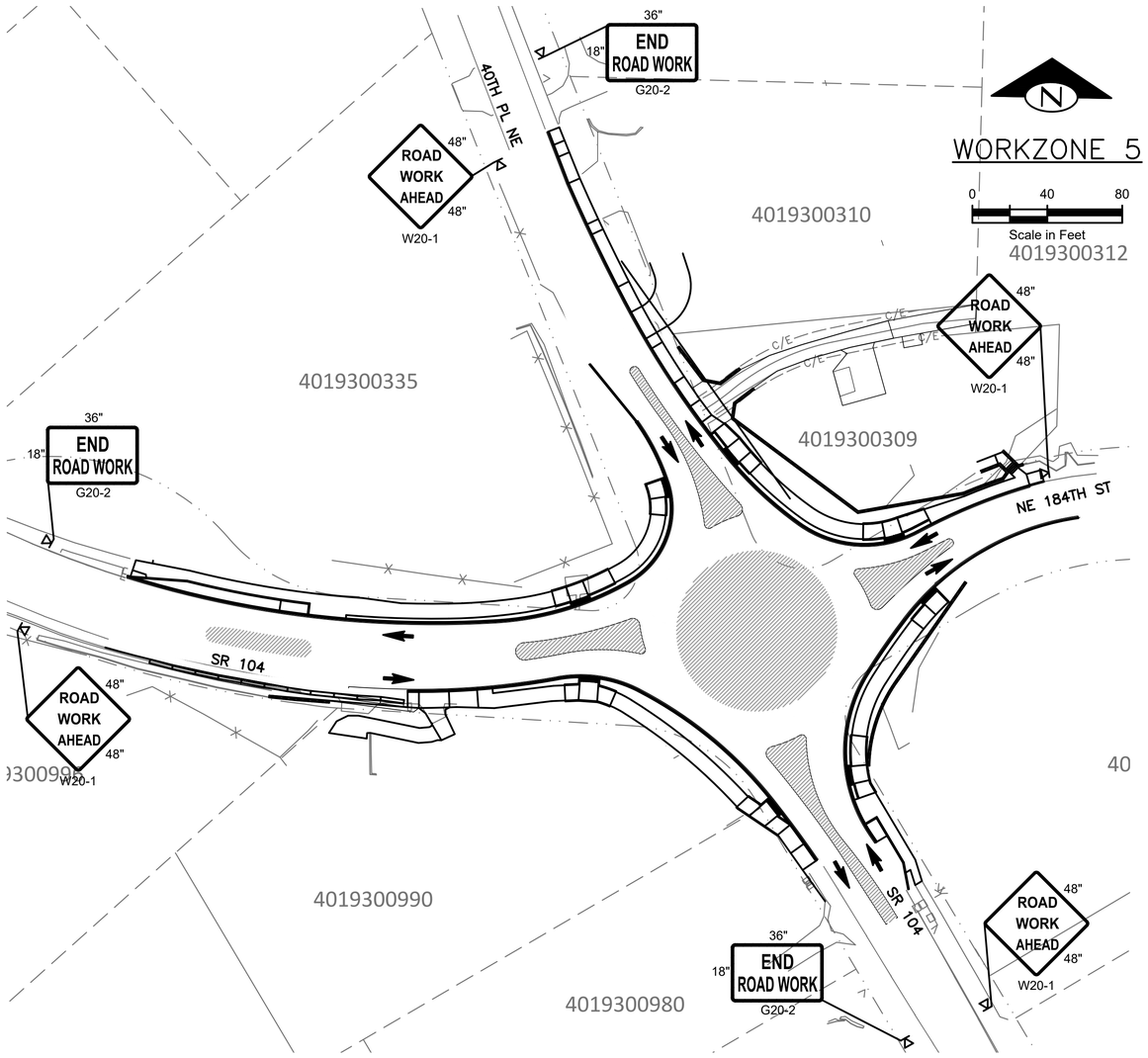
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC04
SHEET 13 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:33:12pm

SEC 10, TWP 26 N, RGE 4 E



CHANNELIZATION DEVICE SPACING (feet)

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CONSTRUCTION NOTES

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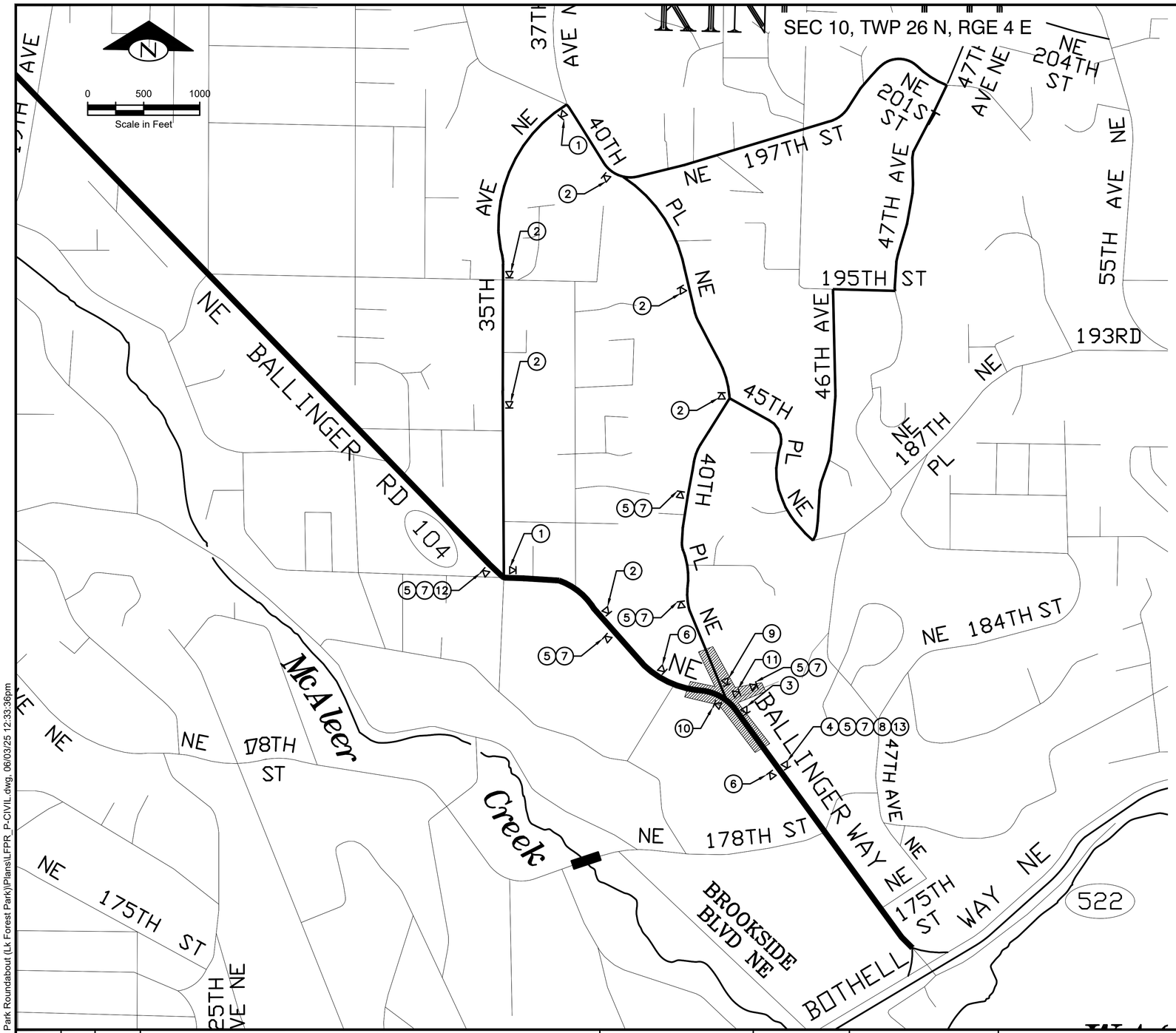
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC05
SHEET 14 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:33:17pm



GENERAL NOTES

1. CONTRACTOR SHALL MAINTAIN A PEDESTRIAN PATHWAY AT ALL TIMES.
2. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS AT ALL TIMES.
3. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL SUBMIT DETAILED SCHEDULE AND CONSTRUCTION STAGING PLAN AT PRECONSTRUCTION MEETING.
5. ADVANCED NOTIFICATION OF ROAD CLOSURE SHALL BE POSTED A MINIMUM OF SEVEN CALENDAR DAYS PRIOR TO ROAD CLOSURE.
6. CONFLICTING PERMANENT SIGNS SHALL BE COVERED DURING CLOSURE.
7. SIGN SPACING DISTANCES MAY VARY AS APPROVED BY THE ENGINEER.
8. ALTERNATE TEMPORARY TRAFFIC CONTROL PLANS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
9. REFER TO WSDOT STANDARD PLAN K–80.10–02 FOR CONSTRUCTION SIGN INSTALLATION.
10. THE CITY MAY REQUIRE CONTRACTOR TO DEPLOY PORTABLE VARIABLE MESSAGE SIGNS TEMPORARILY TO ADVISE ROAD USERS OF IMPENDING CONSTRUCTION AND DETOUR.

LEGEND

PROPOSED WORKZONE AREA

SIGN LOCATION – TEMPORARY MOUNT

(X) SIGN NUMBER

SIGN SPACING = X (1)		
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
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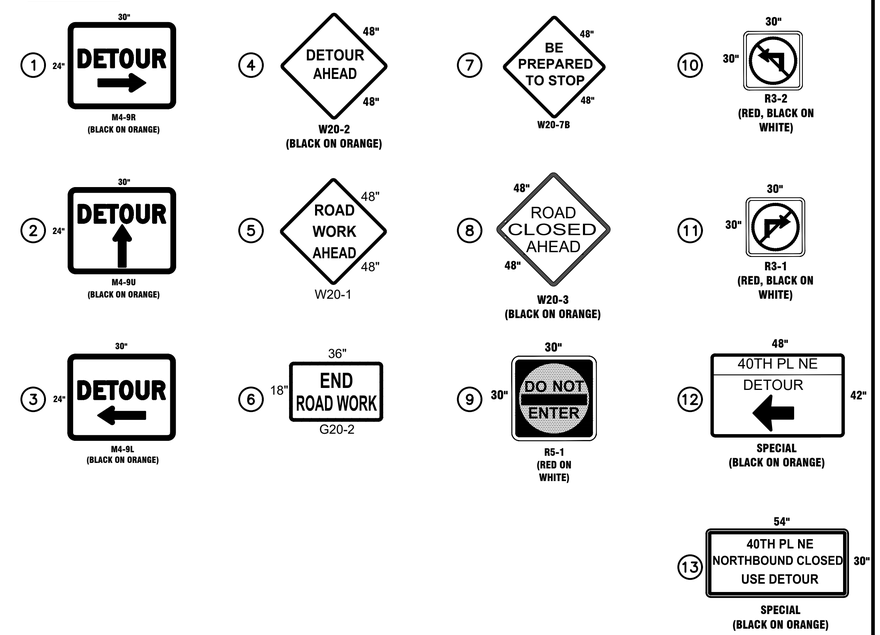

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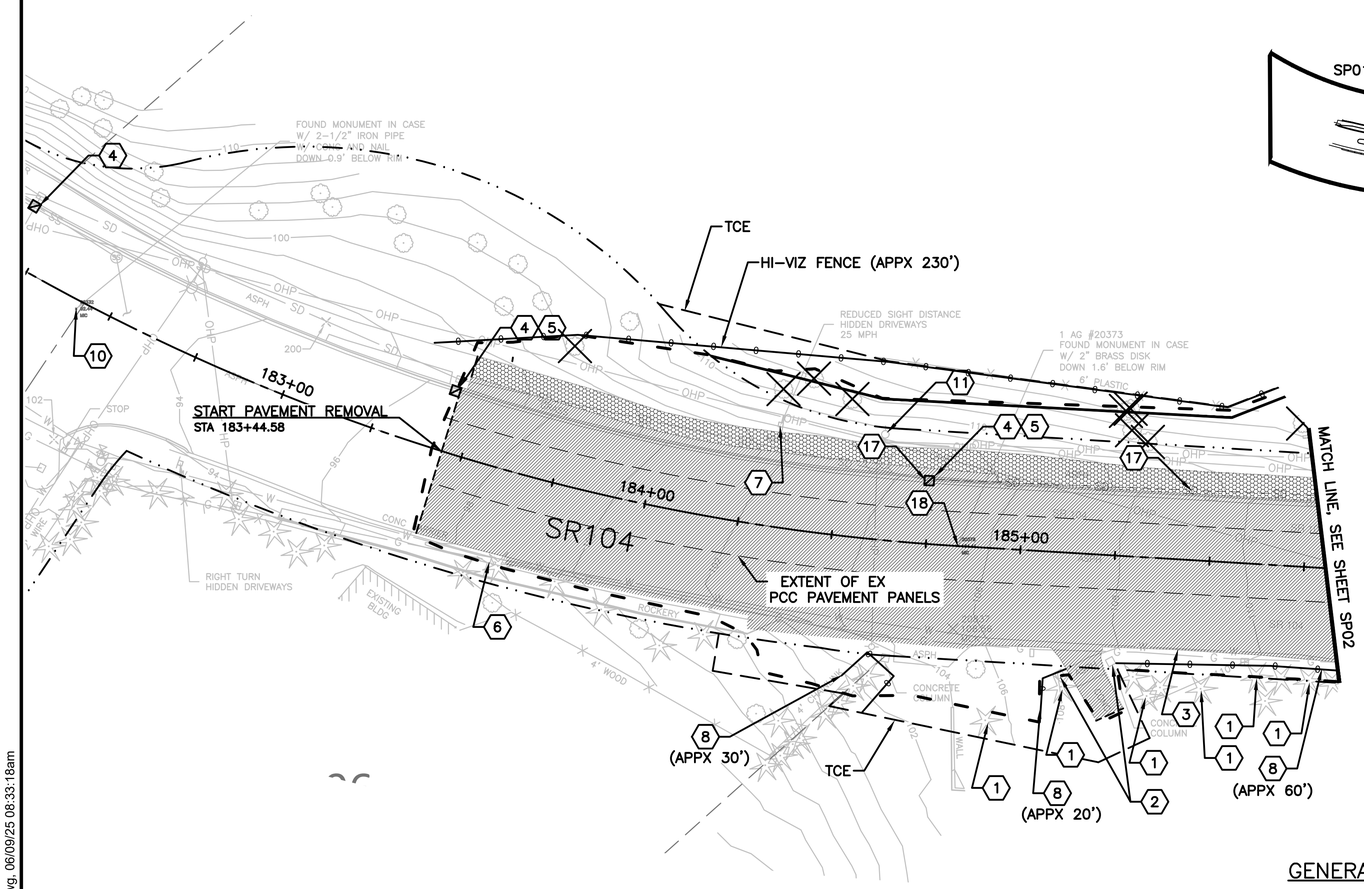
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

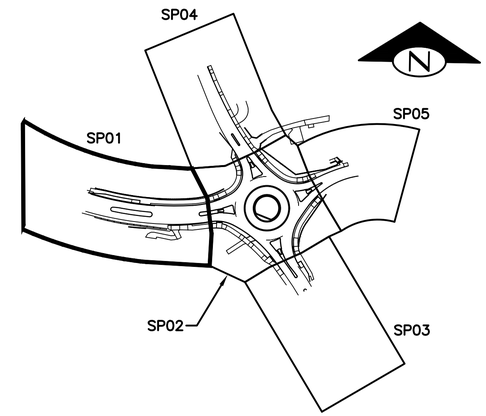
TRAFFIC CONTROL PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. TC06
SHEET 15 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:33:36pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

CONSTRUCTION NOTES

1. PROTECT EXISTING TREE.
2. REMOVE EXISTING BRICK COLUMN AND FOUNDATION
3. PROTECT EXISTING WATER MAIN AND VALVES.
4. INSTALL INLET PROTECTION PER WSDOT STD PLAN I-40.20-00.
5. PROTECT EXISTING CATCH BASIN.
6. PROTECT EXISTING CONCRETE TRAFFIC BARRIER.
7. REMOVE AND RELOCATE EXISTING SIGN AND FOUNDATION. SEE PV SHEETS FOR FINAL LOCATION.
8. TREE PROTECTION FENCE PER DETAIL ON SHEET SI03.
9. REMOVE/RELOCATE EXISTING MAILBOXES AS DIRECTED BY ENGINEER. SEE SPECIAL PROVISIONS AND MAILBOX RELOCATION PLAN.
10. ADJUST MONUMENT CASE AND COVER.
11. REMOVE EXISTING STREET LIGHT POLE, FOUNDATION, LUMINAIRE ARM, AND FIXTURE BY OTHERS (SCL).
12. REMOVE EXISTING TRAFFIC CURB.
13. EXISTING UTILITY POLE TO BE RELOCATED BY OTHERS.
14. PROTECT EXISTING LUMINAIRE AND FOUNDATION.
15. EXISTING LUMINAIRE TO REMAIN.
16. EXISTING KING COUNTY METRO PROPERTY TO BE REMOVED AND RELOCATED. CONTRACTOR TO COORDINATE WITH KING COUNTY METRO.
17. REMOVE EXISTING DRAINAGE STRUCTURE AND FEATURE.
18. MONUMENT, AND MONUMENT CASE AND COVER.

LEGEND

- ROADWAY EXCAVATION INCL HAUL
- REMOVE EX PCC PAVEMENT PANELS
- REMOVING CEMENT CONC. SIDEWALK
- SAWCUT FULL DEPTH
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- RIGHT-OF-WAY

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N

0 20 40
Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
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ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

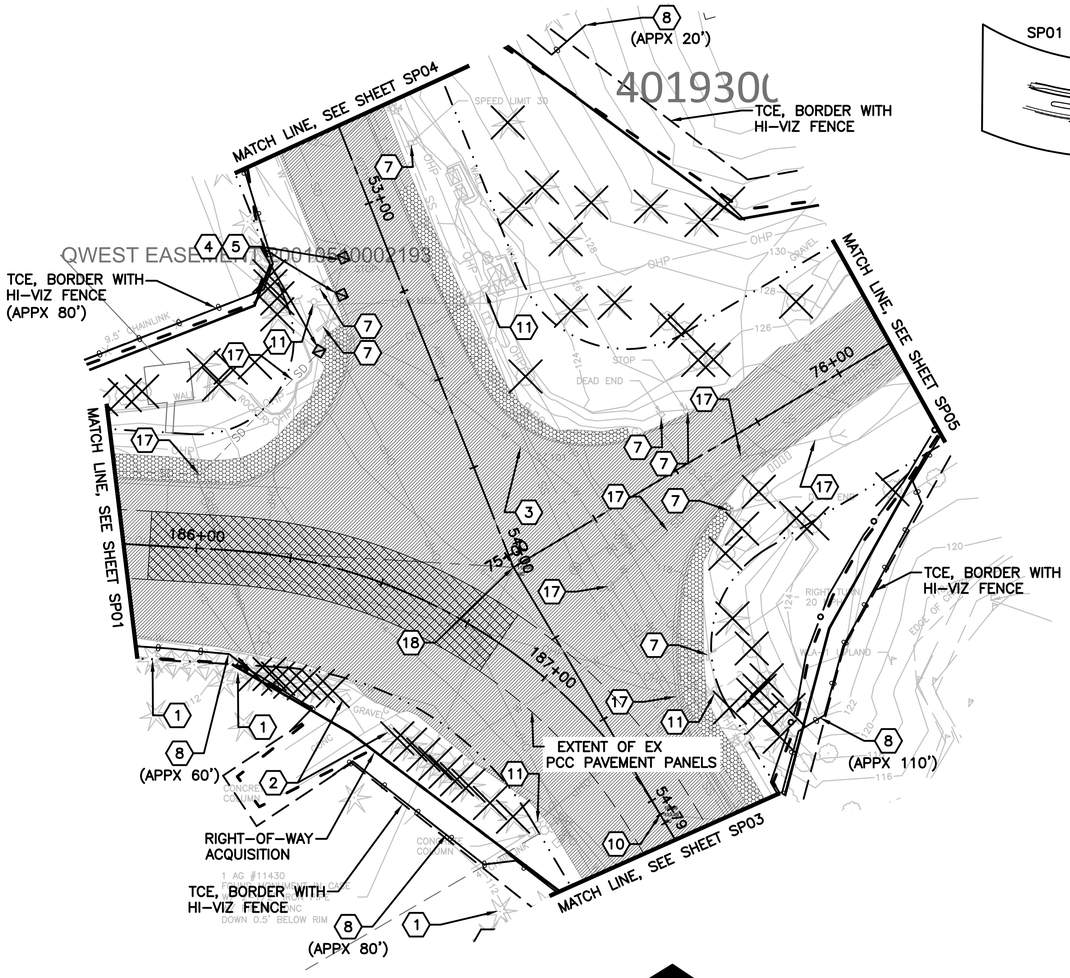
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

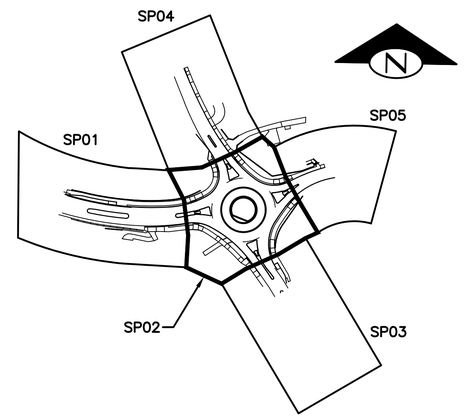
SITE PREPARATION AND EROSION CONTROL

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SP01
SHEET 16 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/09/25 08:33:18am

SEC 10, TWP 26 N, RGE 4 E





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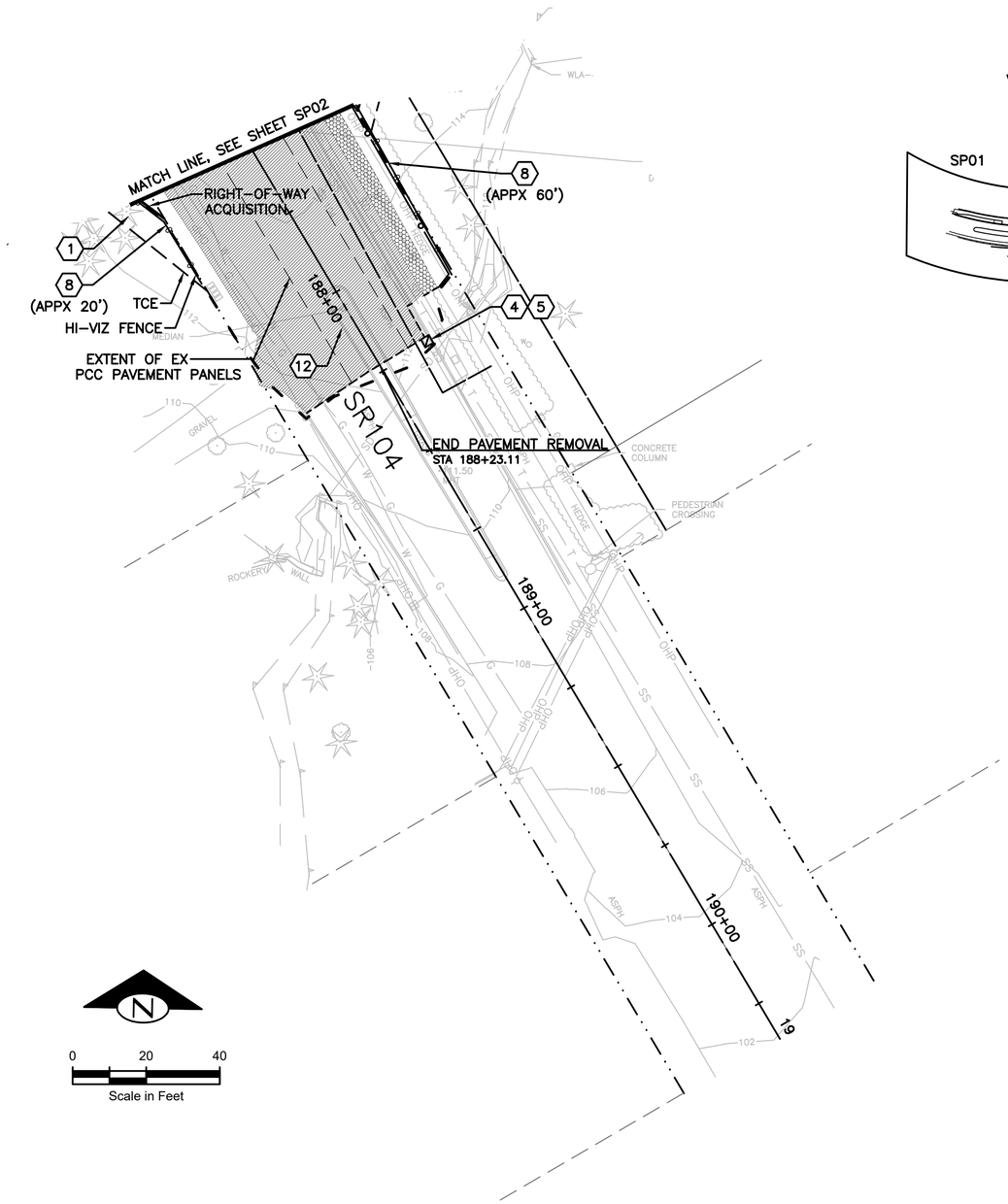
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

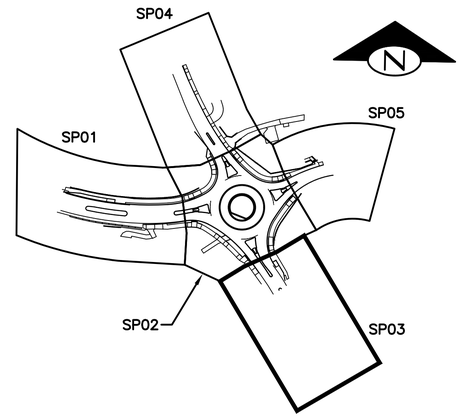
SITE PREPARATION AND EROSION CONTROL

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SP02
SHEET 17 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIV\L.dwg, 06/09/25 08:33:33am

SEC 10, TWP 26 N, RGE 4 E





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5/25/25

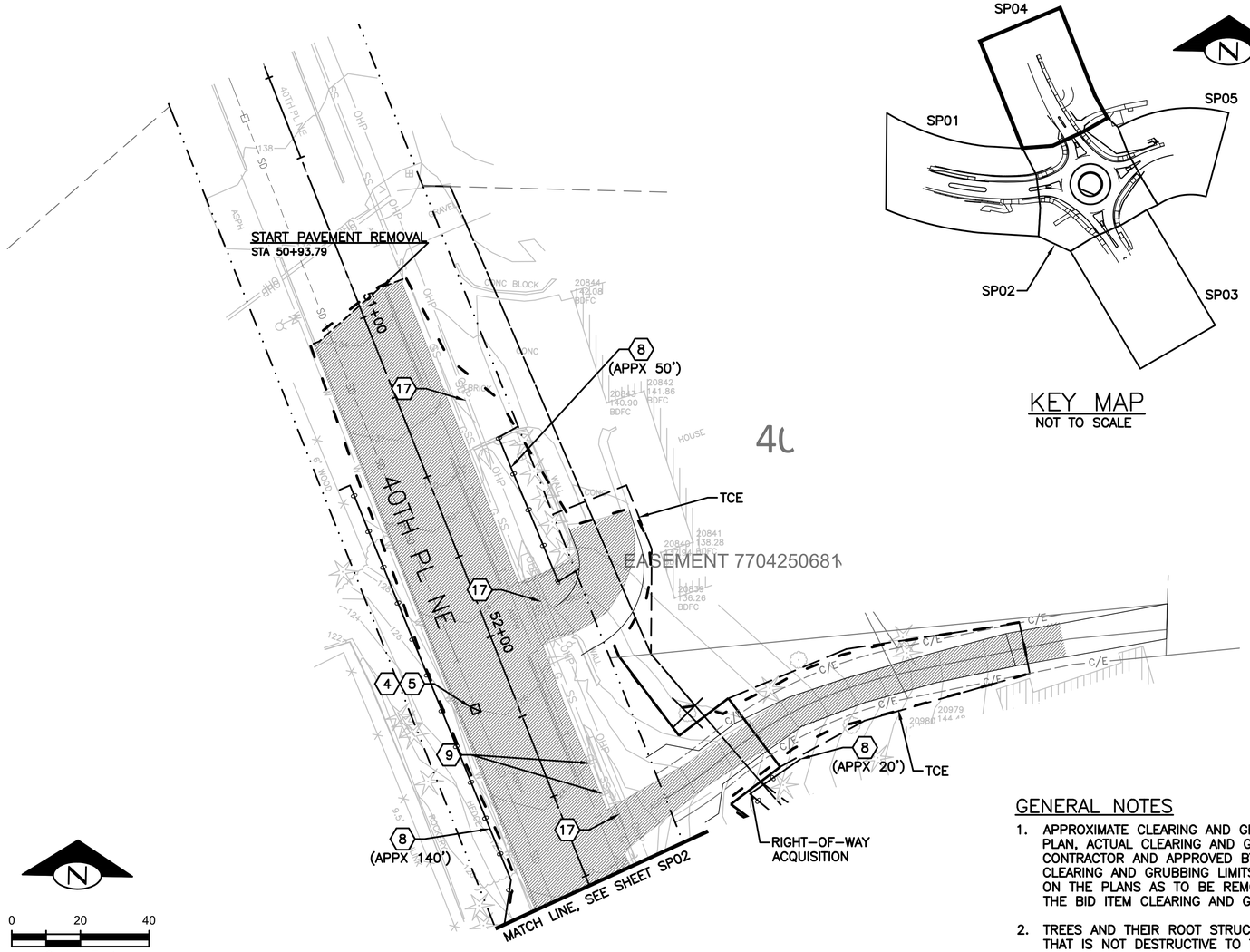
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

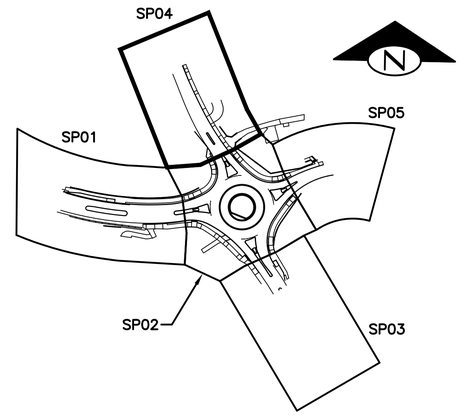
SITE PREPARATION AND EROSION CONTROL

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SP03
SHEET 18 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/09/25 08:33:43am

SEC 10, TWP 26 N, RGE 4 E





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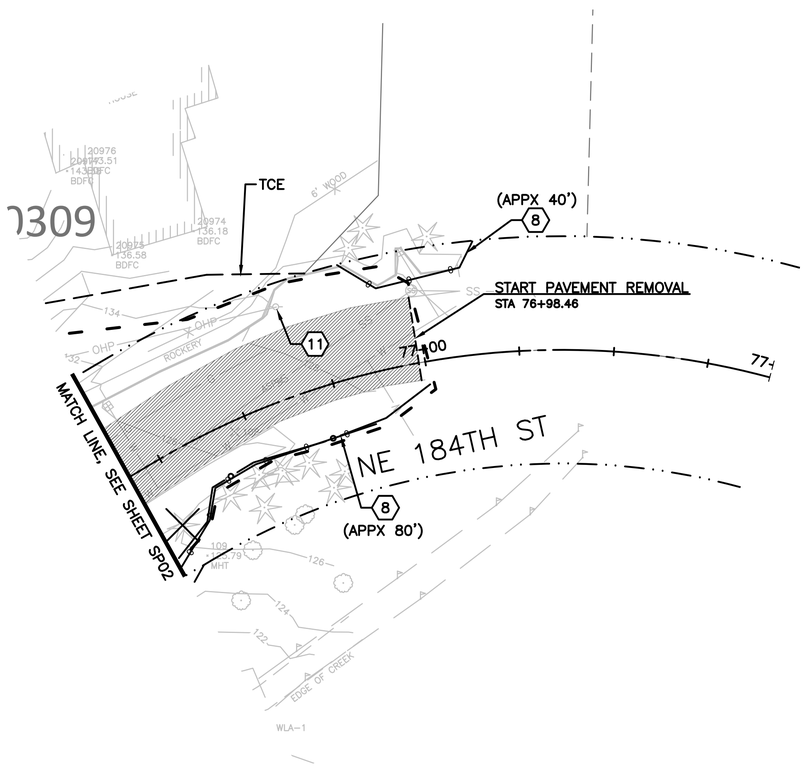
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

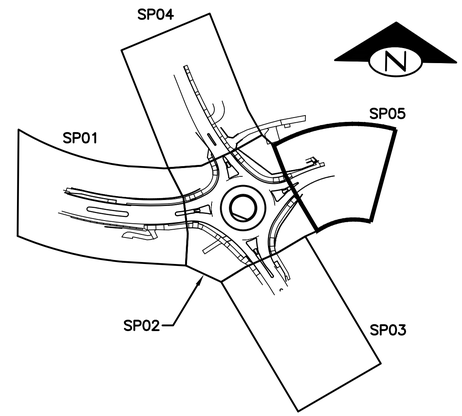
SITE PREPARATION AND EROSION CONTROL

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SP04
SHEET 19 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/09/25 08:33:58am

SEC 10, TWP 26 N, RGE 4 E





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0 20 40
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SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

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PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SP05
SHEET 20 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/09/25 08:34:08am

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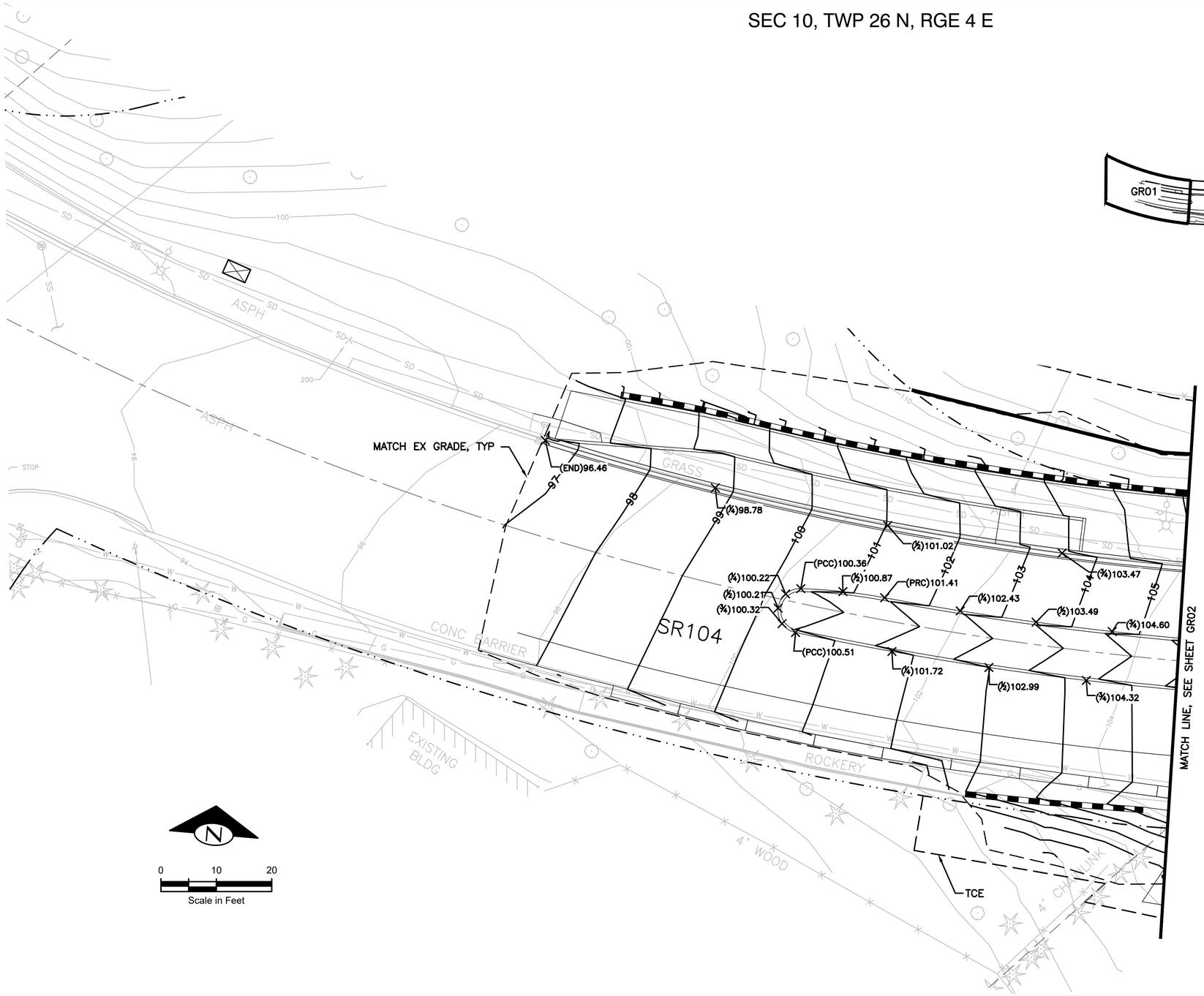
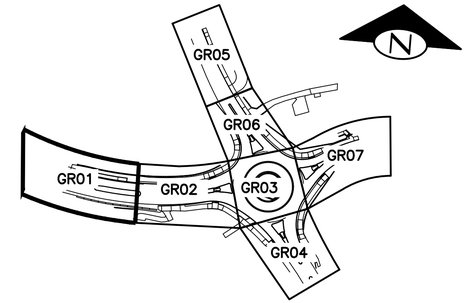




KEY MAP
NOT TO SCALE

NOTE

1. SEE CURB RAMP DETAIL SHEETS FOR CURB RAMP GRADING.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

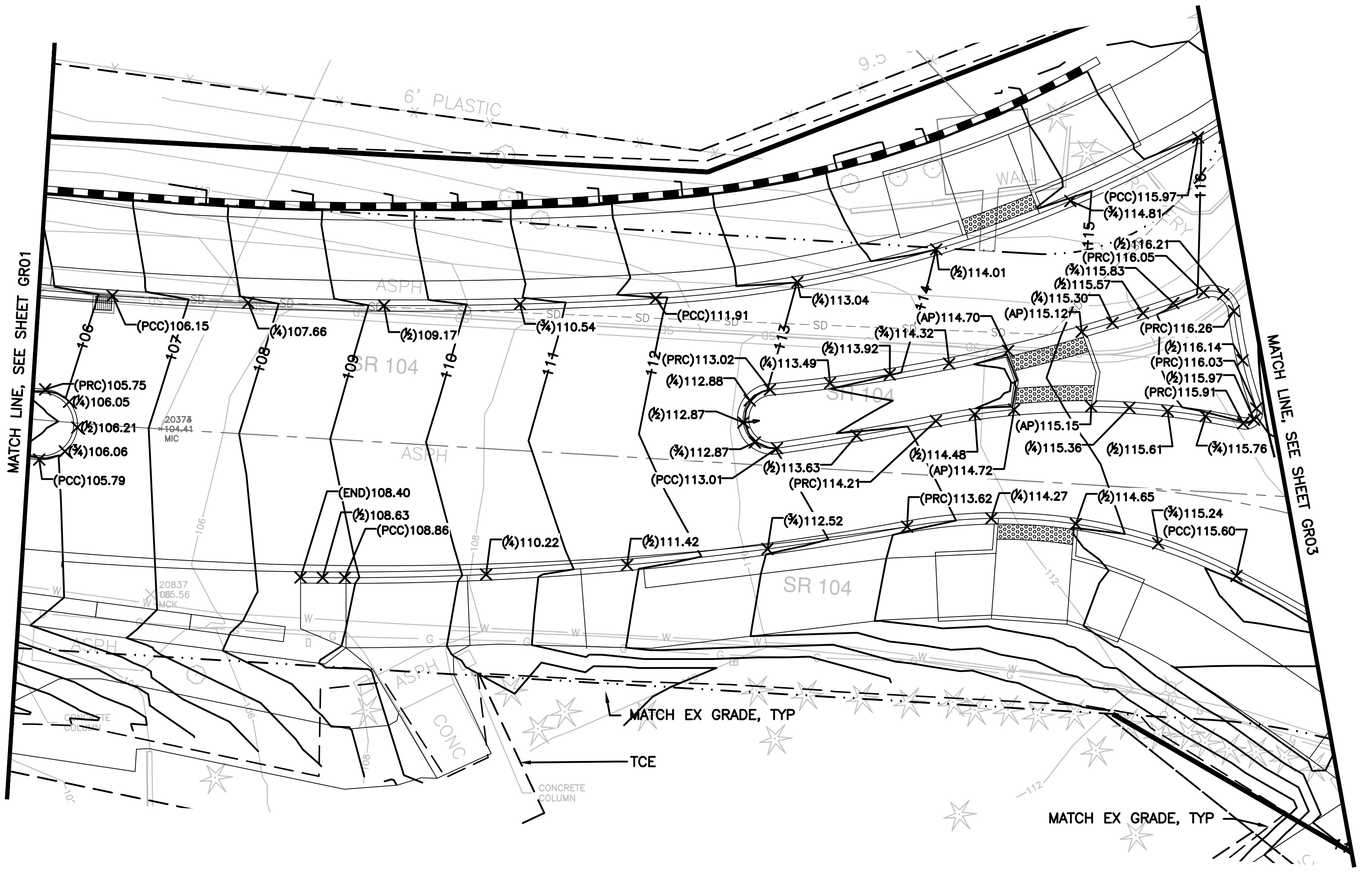
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

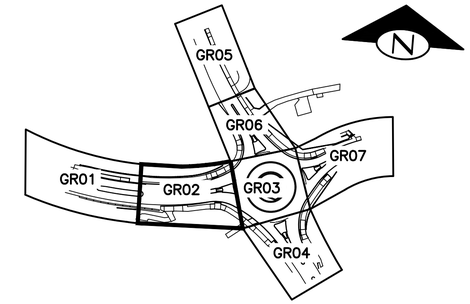
GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR01
SHEET 21 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:48:14pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

N

0 10 20
Scale in Feet

NOTE

1. SEE CURB RAMP DETAIL SHEETS FOR CURB RAMP GRADING.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
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Approved	E. SCOTT	5/25/2025

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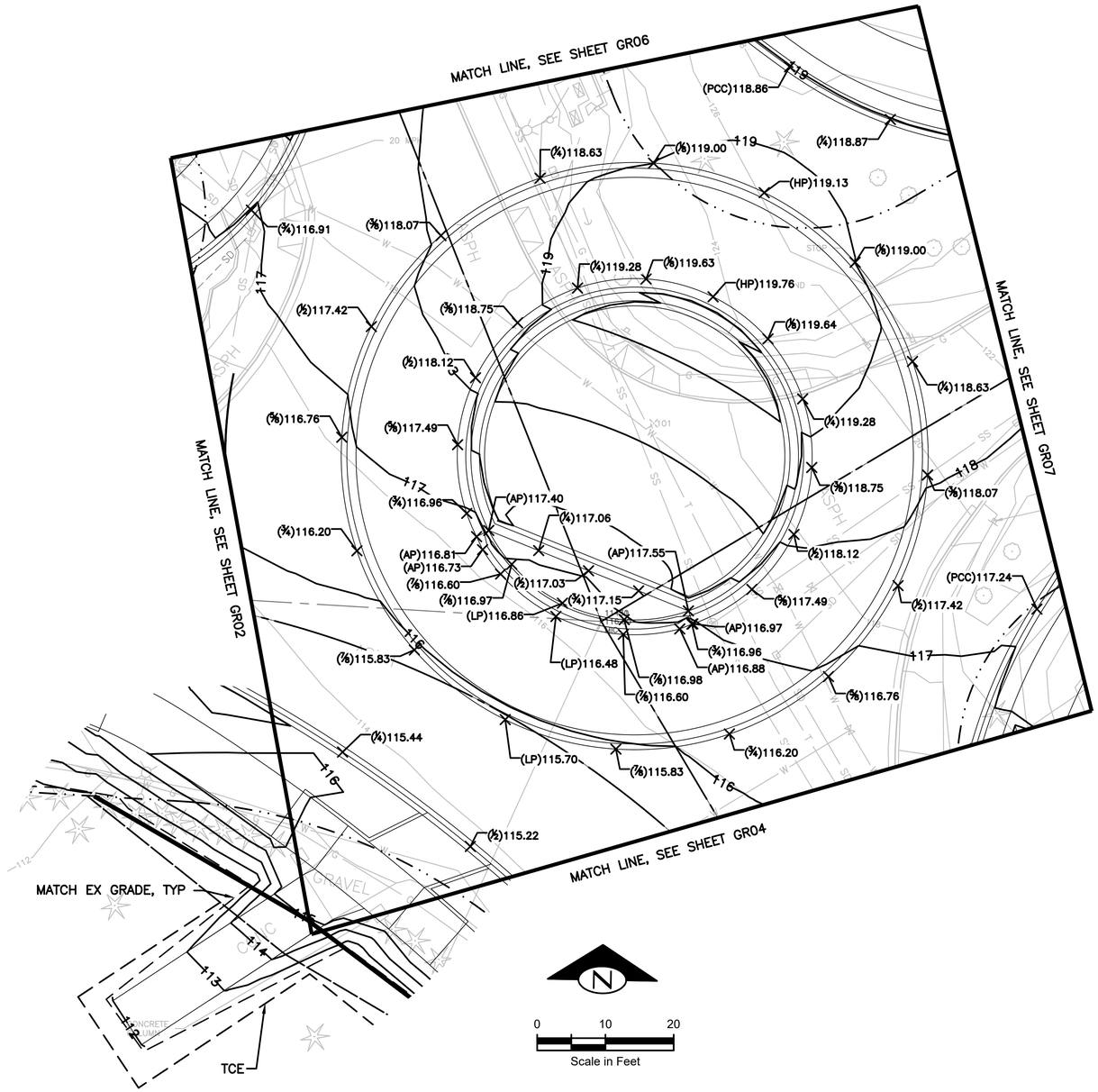
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

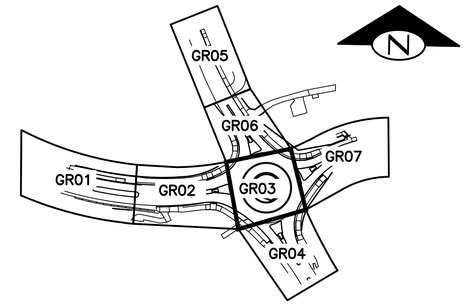
GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR02
SHEET 22 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:48:25pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTE

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Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR, #207
ARLINGTON, WA 98223
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STATE OF WASHINGTON
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5/25/25

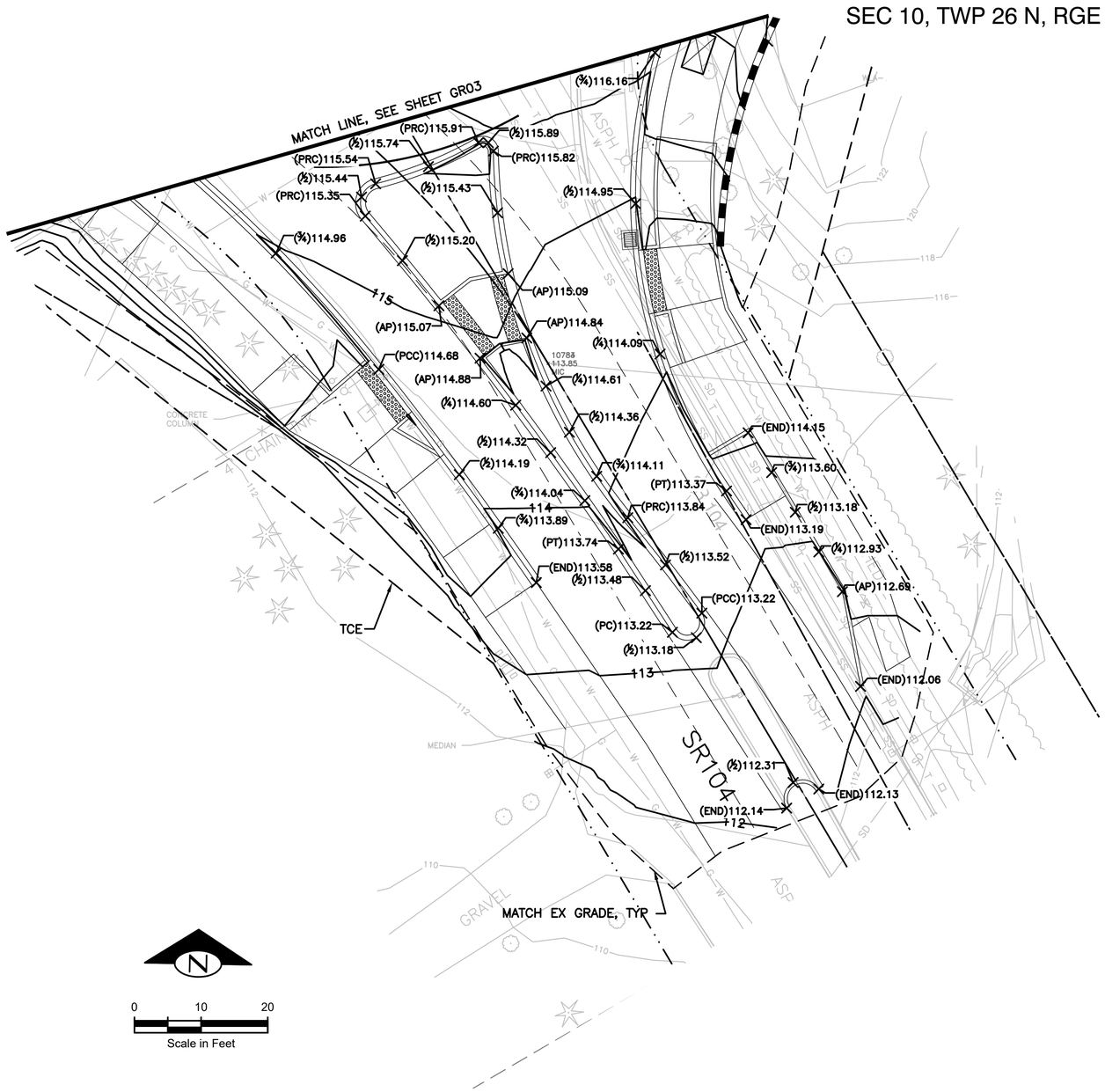
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

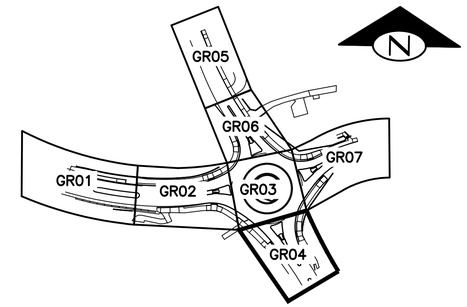
GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR03
SHEET 23 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:48:38pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

N

0 10 20
Scale in Feet

NOTE

1. SEE CURB RAMP DETAIL SHEETS FOR CURB RAMP GRADING.

NO.	BY	DATE	REVISION

	BY:	DATE:
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Approved	E. SCOTT	5/25/2025

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5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR04
SHEET 24 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:48:48pm

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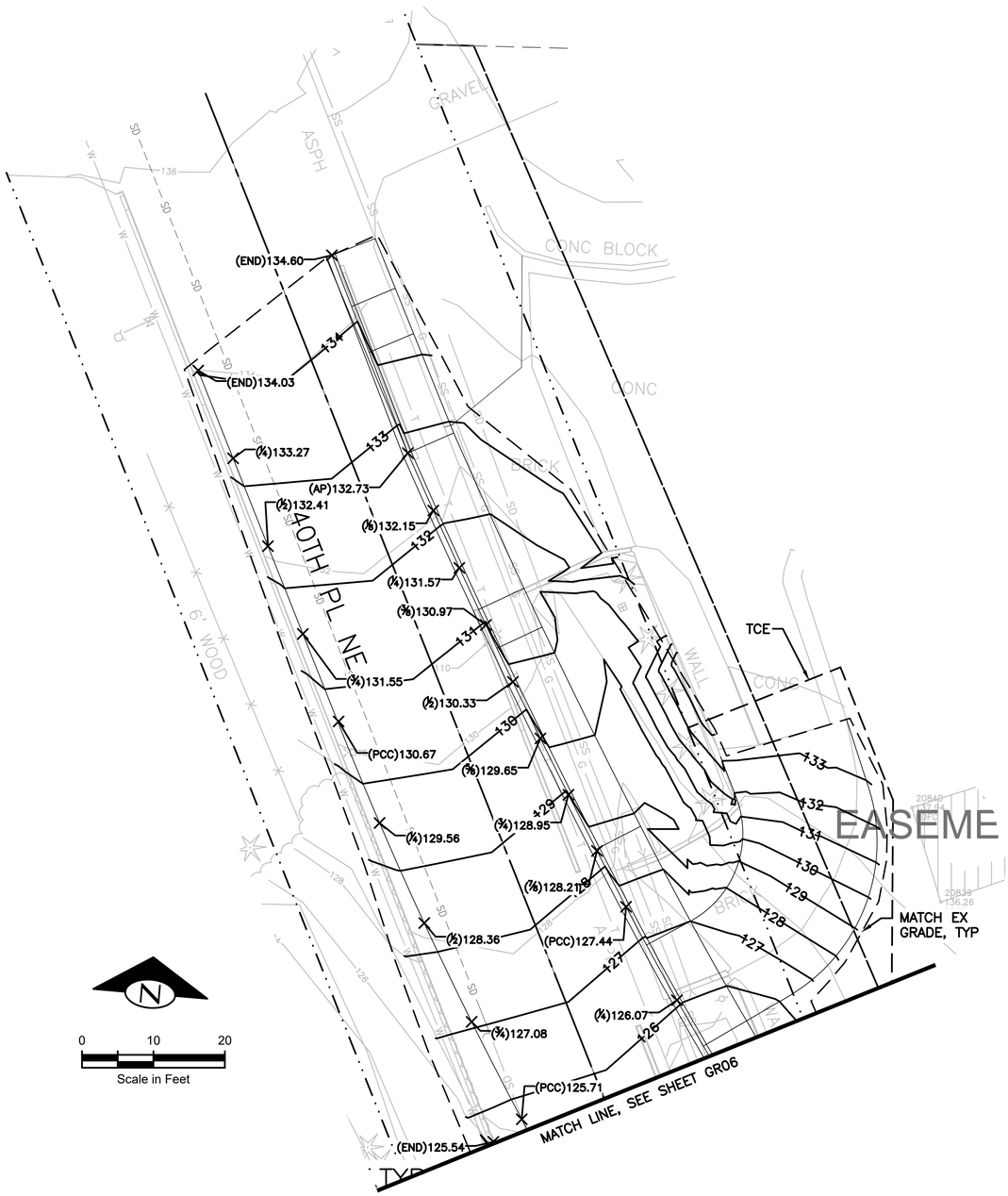

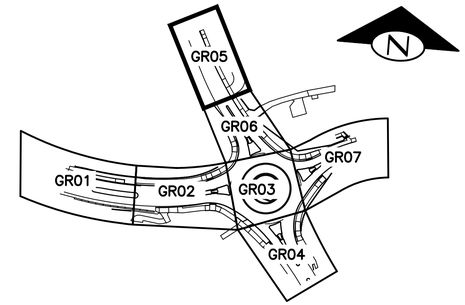

KEY MAP
NOT TO SCALE

NOTE

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NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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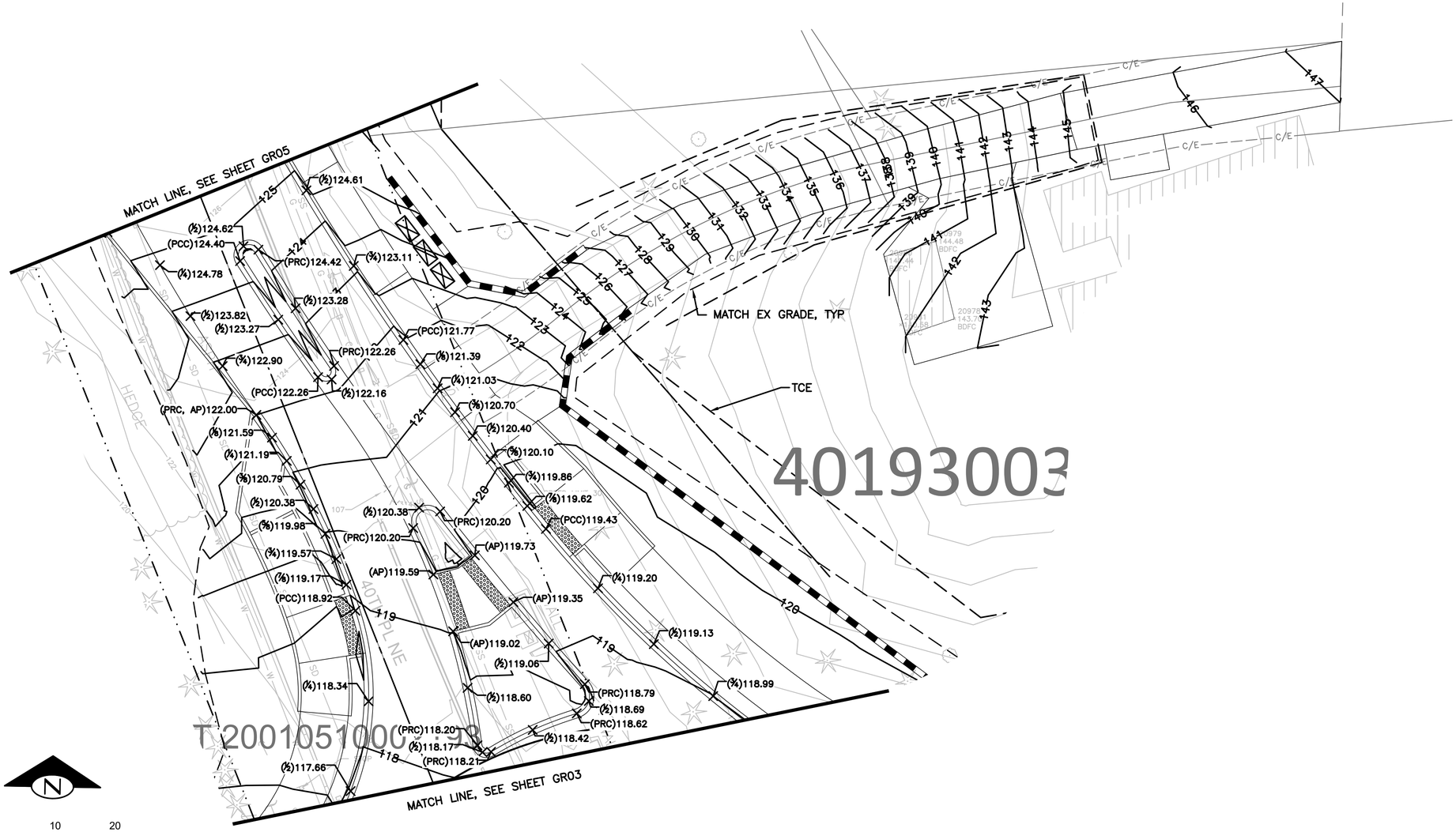
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

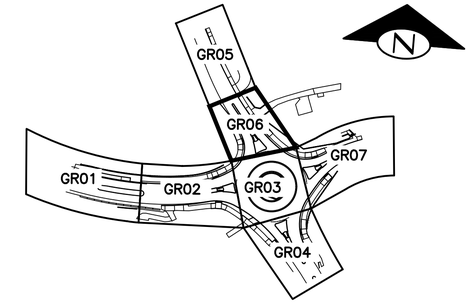
GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR05
SHEET 25 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIV\L.dwg, 05/14/25 02:48:55pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

N

0 10 20
Scale in Feet

NOTE

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Approved	E. SCOTT	5/25/2025

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PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

GRADING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **GR06**
SHEET 26 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:07pm

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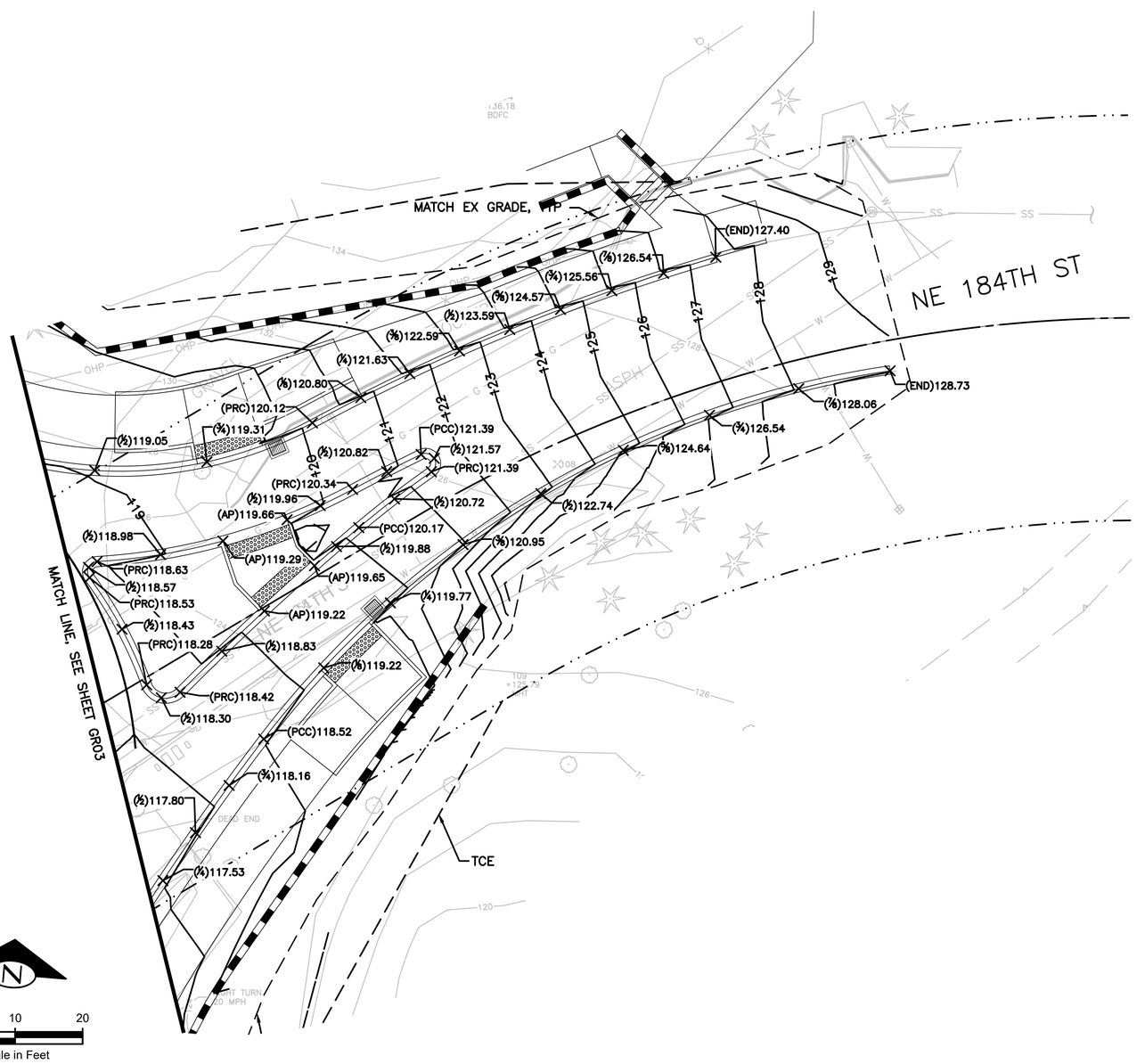

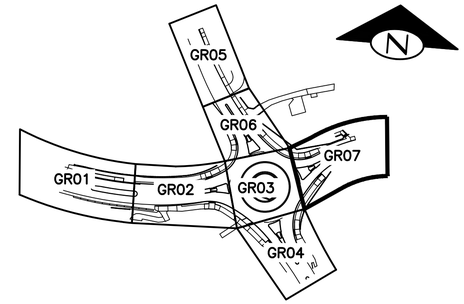

KEY MAP
NOT TO SCALE

NOTE

1. SEE CURB RAMP DETAIL SHEETS FOR CURB RAMP GRADING.

NO.	BY	DATE	REVISION

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Drawn	R. PFIEFLE	5/25/2025
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Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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5/25/25

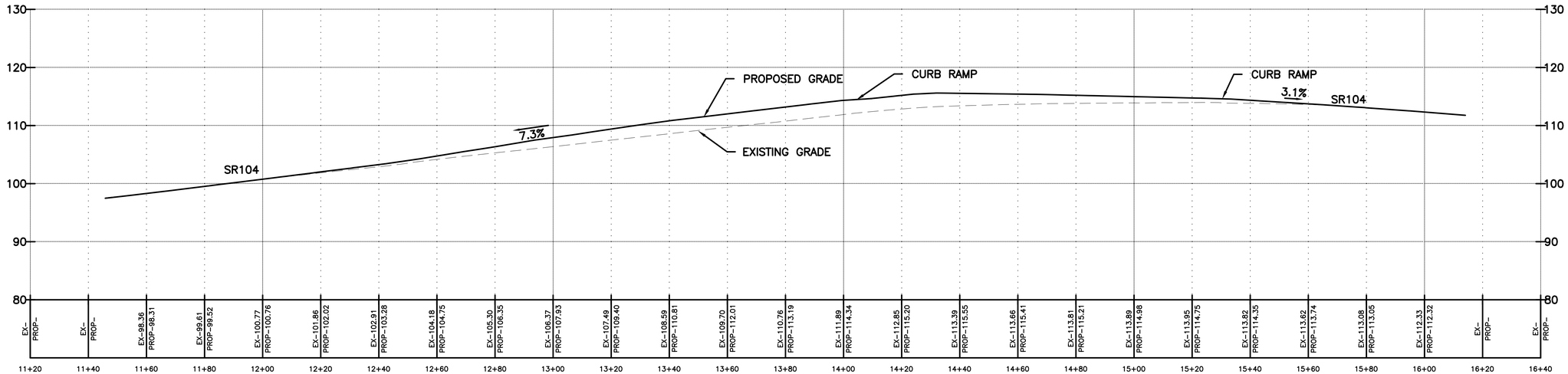
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

GRADING PLAN

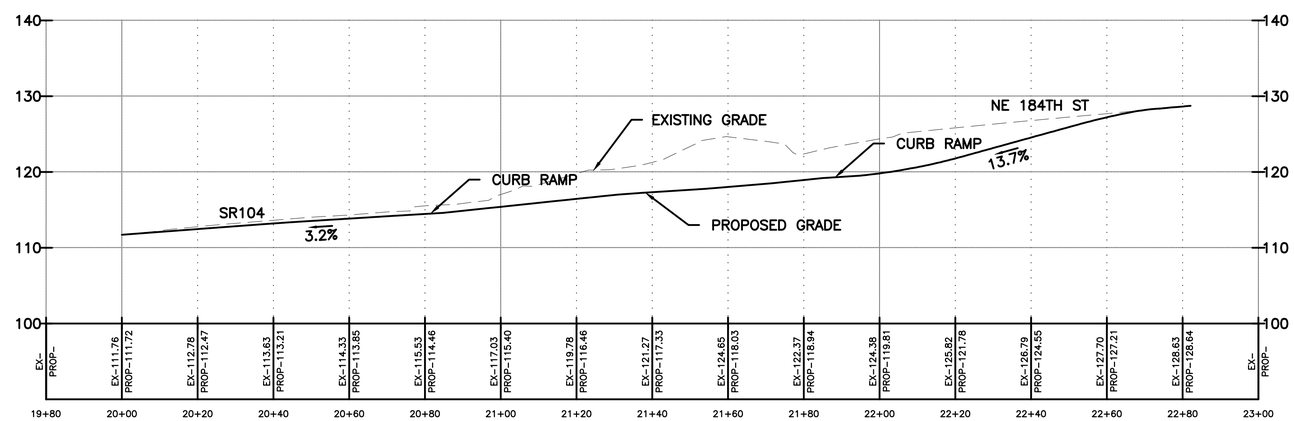
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GR07
SHEET 27 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:15pm

SEC 10, TWP 26 N, RGE 4 E



SOUTHWEST CURB RETURN



SOUTHEAST CURB RETURN

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
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Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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ERIC J. SCOTT
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REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CURB FLOWLINE PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GP01
SHEET 28 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:22pm

SEC 10, TWP 26 N, RGE 4 E

HORIZONTAL SCALE

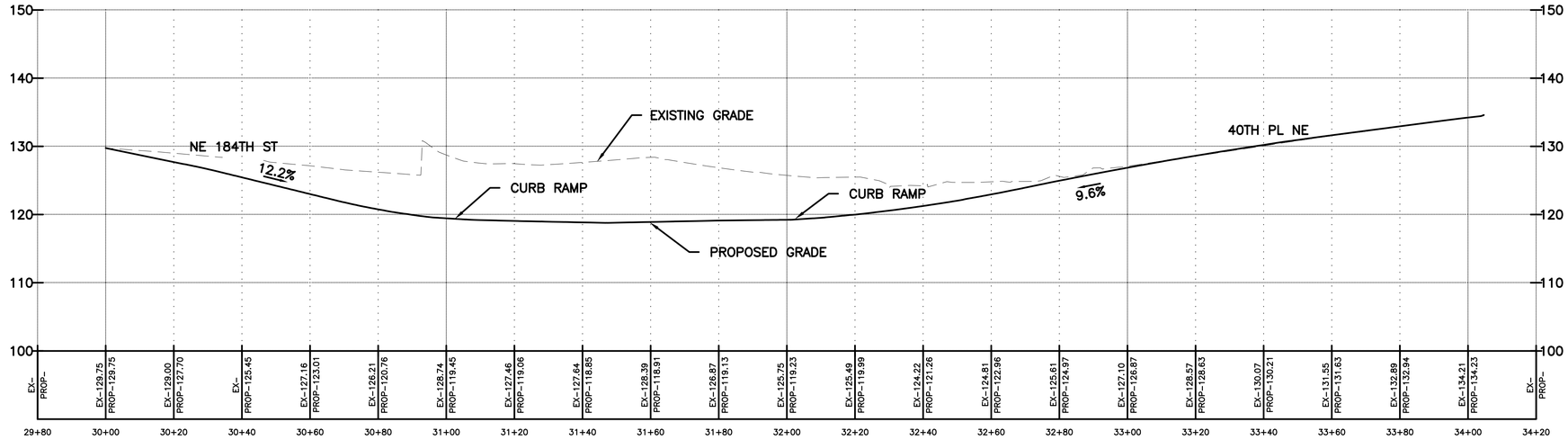
0 20 40

Scale in Feet

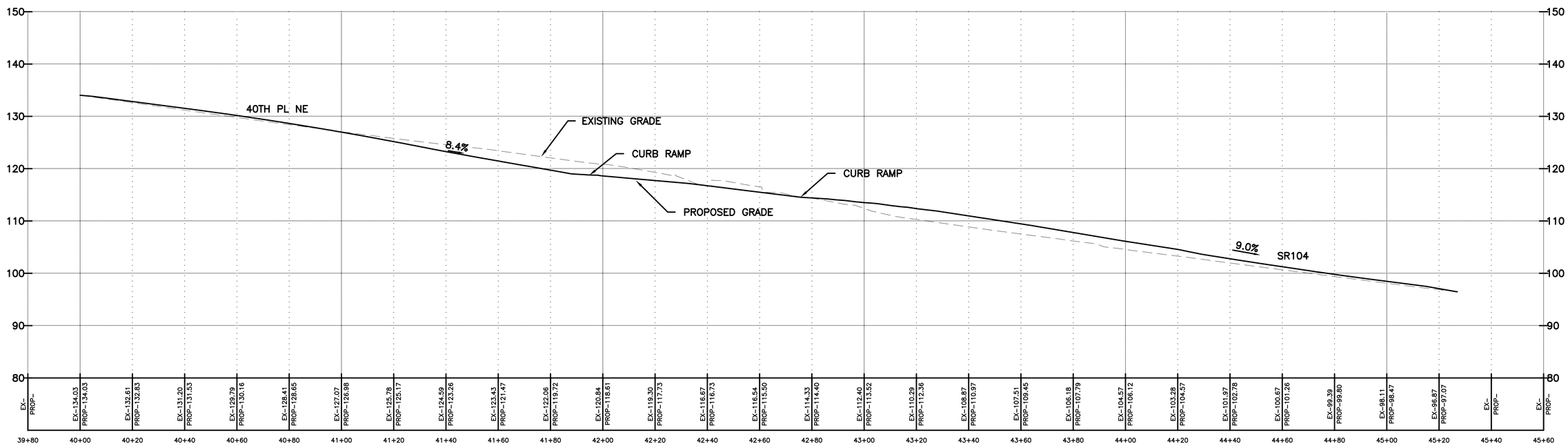
VERTICAL SCALE

0 10 20

Scale in Feet



NORTHEAST CURB RETURN



NORTHWEST CURB RETURN

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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ERIC J. SCOTT
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REGISTERED PROFESSIONAL ENGINEER
5/25/25

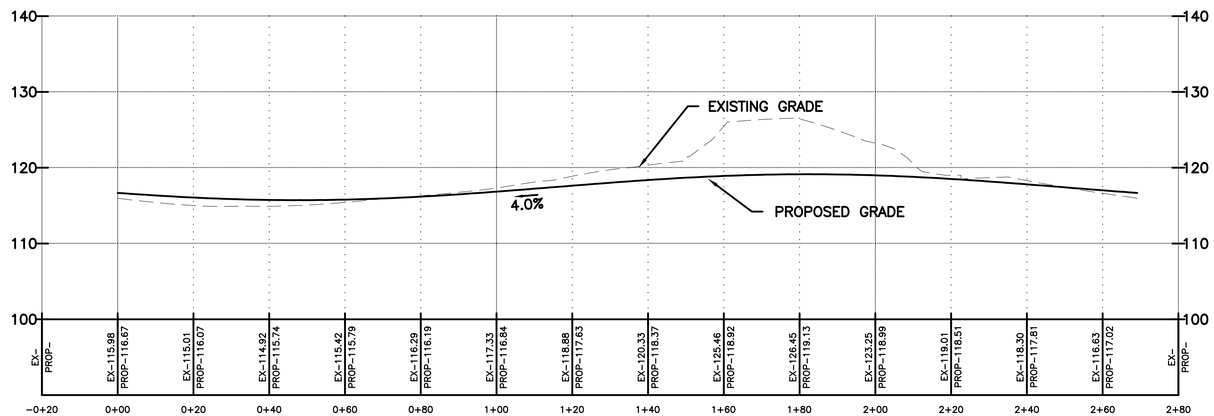
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CURB FLOWLINE PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GP02
SHEET 29 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:29pm

SEC 10, TWP 26 N, RGE 4 E



CIRCULATORY ROADWAY PROFILE @ CENTER OF TRAVEL LANE

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:38pm

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360-691-9272
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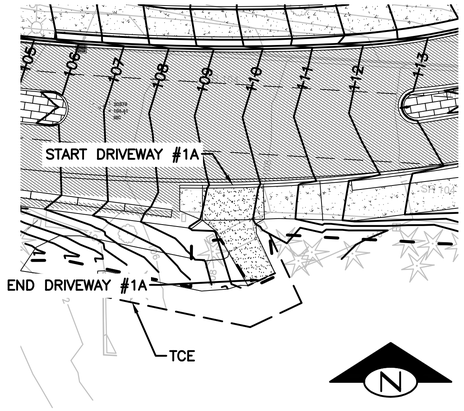
ERIC J. SCOTT STATE OF WASHINGTON 36704 REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

GRADING PROFILES

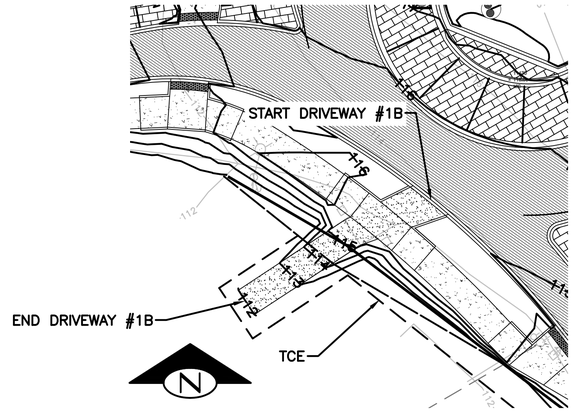
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. GP03
SHEET 30 OF 89

SEC 10, TWP 26 N, RGE 4 E



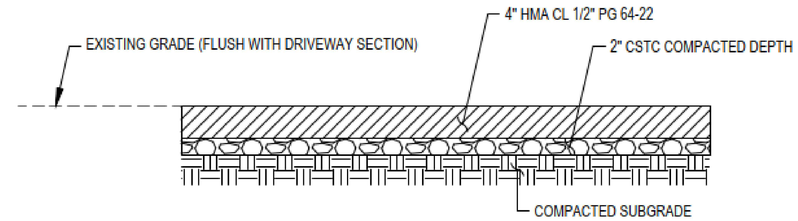
SR 104 DRIVEWAY #1A PLAN VIEW

HOR: 1"=20', VERT: 1"=20'



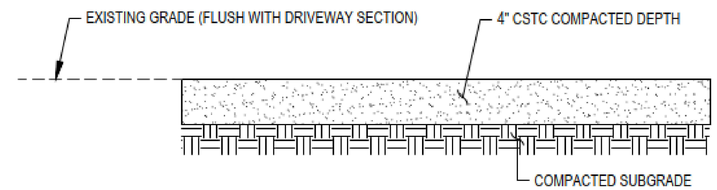
SR 104 DRIVEWAY #1B PLAN VIEW

HOR: 1"=20', VERT: 1"=20'



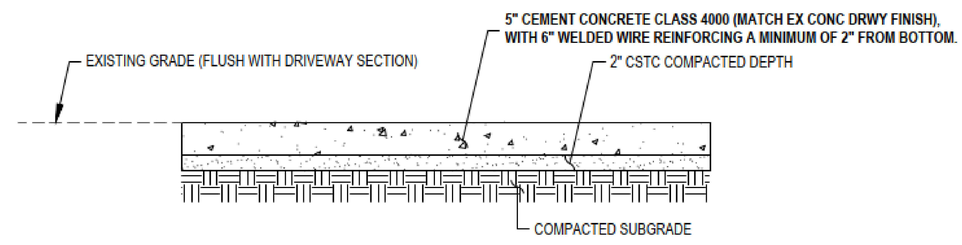
PAVED DRIVEWAY SECTION

NTS



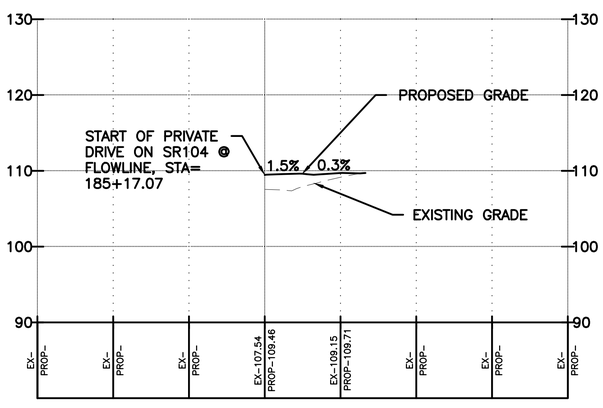
CRUSHED ROCK DRIVEWAY SECTION

NTS

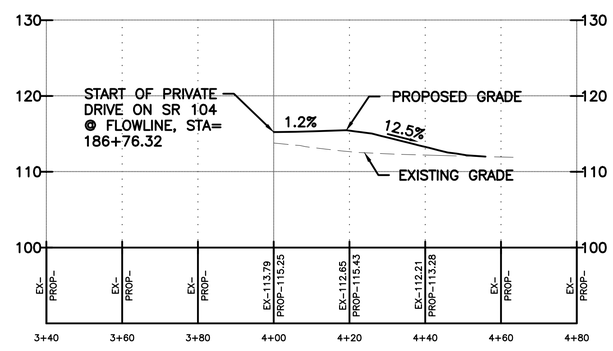


CONCRETE DRIVEWAY SECTION

NTS



SR 104 DRIVEWAY #1A PROFILE



SR 104 DRIVEWAY #1B PROFILE

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

CONSTRUCTION NOTES

1. SEE PV SHEETS FOR DRIVEWAY MATERIALS LEGEND

NO.	BY	DATE	REVISION

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BID SET

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ERIC J. SCOTT
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36704
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5/25/25

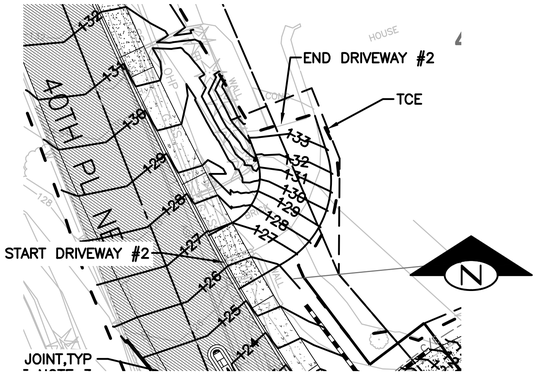
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRIVEWAY PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DRP01
SHEET 31 OF 89

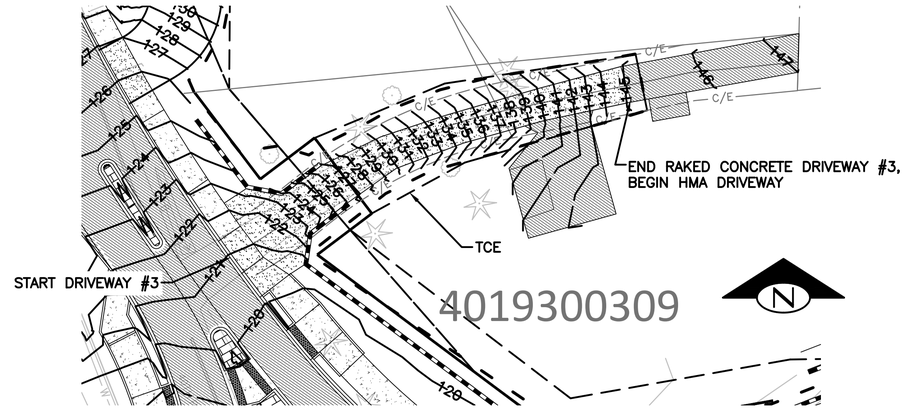
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:48pm

SEC 10, TWP 26 N, RGE 4 E



40TH PL NE DRIVEWAY #2 PLAN VIEW

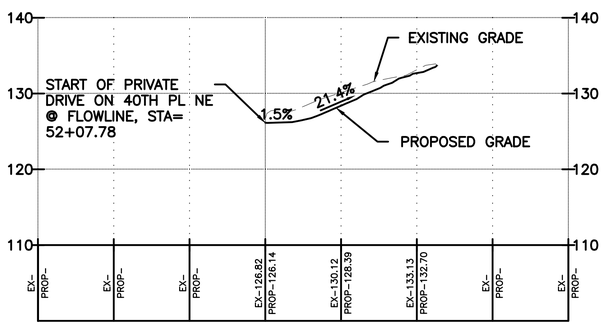
HOR: 1"=20', VERT: 1"=20'



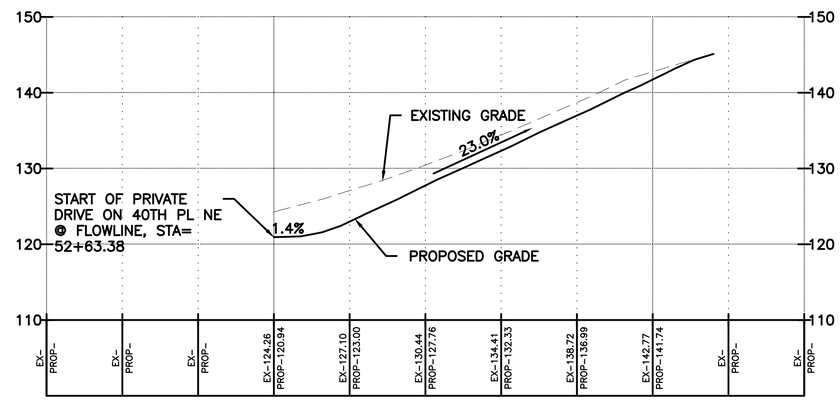
4019300309

40TH PL NE DRIVEWAY #3 PLAN VIEW

HOR: 1"=20', VERT: 1"=20'



40TH PL NE DRIVEWAY #2 PROFILE



40TH PL NE DRIVEWAY #3 PROFILE

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 10 20

Scale in Feet

CONSTRUCTION NOTES

1. CONSTRUCT DRIVEWAY #3 WITH A GRADE OF OVER 20% OUT OF CEMENT CONCRETE WITH A ROUGH RAKED FINISH AND IN A CHEVRON PATTERN WITH BOTTOM OF "V" UPGRADE. THE RAKE SHALL PRODUCE STRIATIONS APPROXIMATELY 1/8" TO 1/4" IN DEPTH. RANDOMLY SPACE THE STRIATIONS FROM 1/2" TO 1-1/4".
2. SEE PV SHEETS FOR DRIVEWAY MATERIALS LEGEND.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

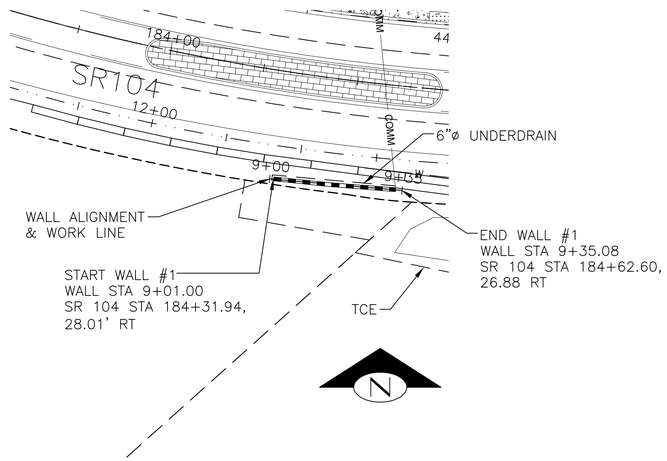
ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

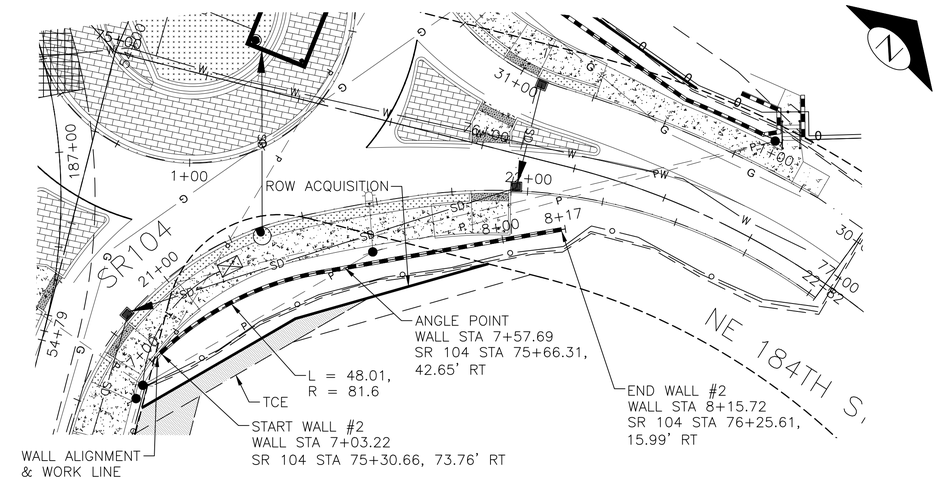
DRIVEWAY PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DRP02
SHEET 32 OF 89

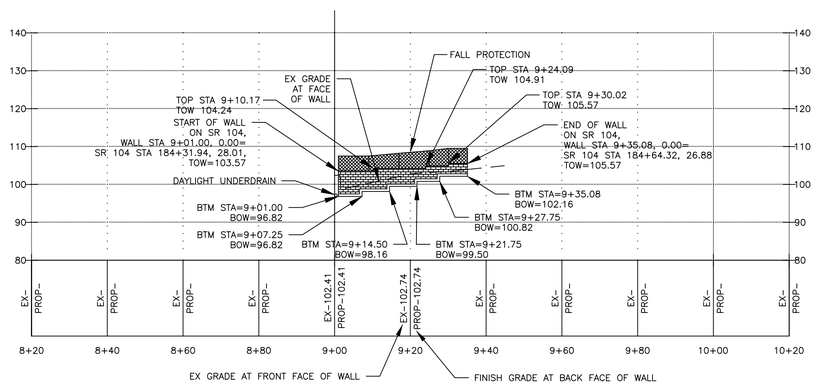
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:49:58pm



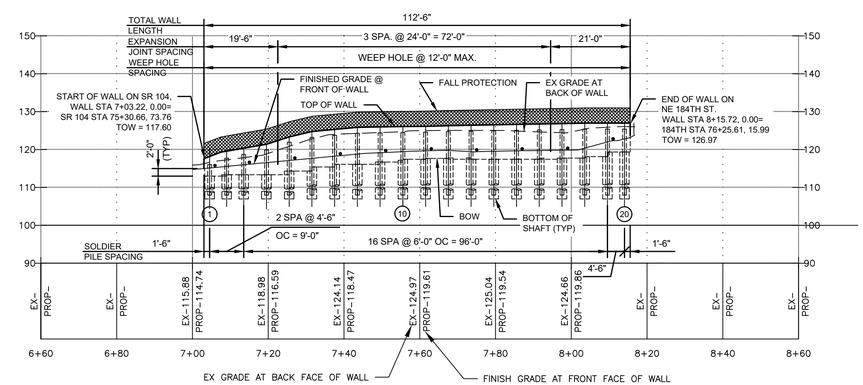
SR 104 WEST FILL WALL PLAN



SR 104/NE 184TH ST CUT WALL PLAN



SR 104 WEST FILL WALL PROFILE
REFLECTED WALL ELEVATION – GRAVITY BLOCK WALL #1



SR 104/NE 184TH ST CUT WALL PROFILE
REFLECTED WALL ELEVATION – SOLDIER PILE WALL #2

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 20 40

Scale in Feet

LEGEND

(1) PILE NUMBER

TOW = TOP OF WALL

BOW = BOTTOM OF WALL

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTGOMERY, STATE OF WASHINGTON, 49239, REGISTERED PROFESSIONAL ENGINEER
6/5/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

WALLS 1 AND 2 PLANS AND PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **WD-01**
SHEET 33 OF 84

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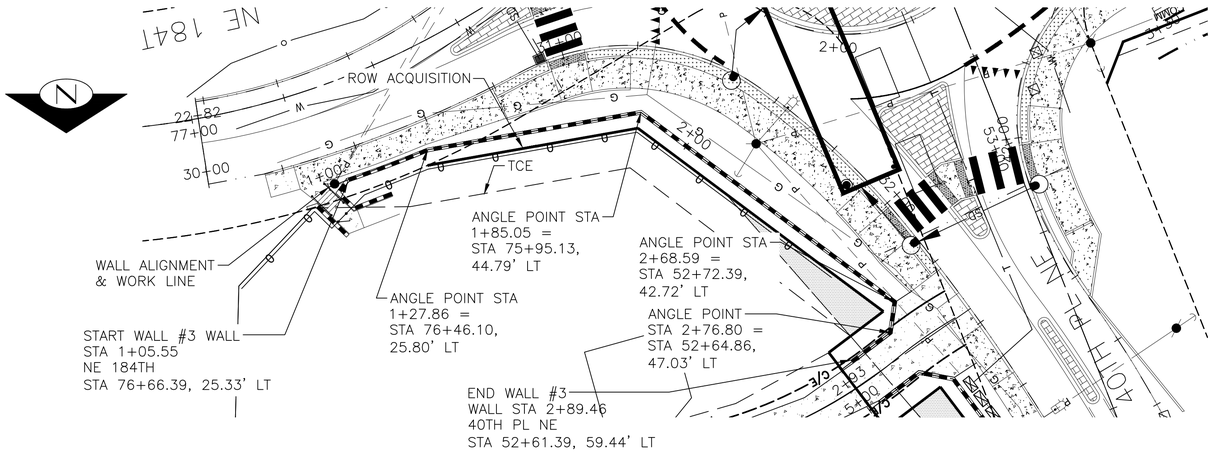
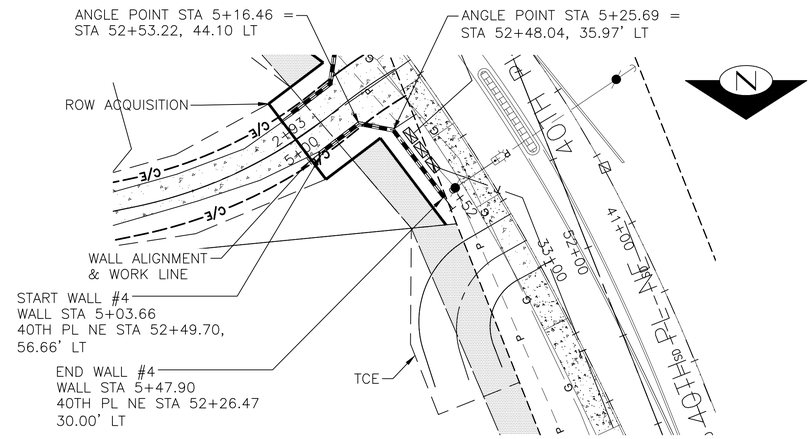
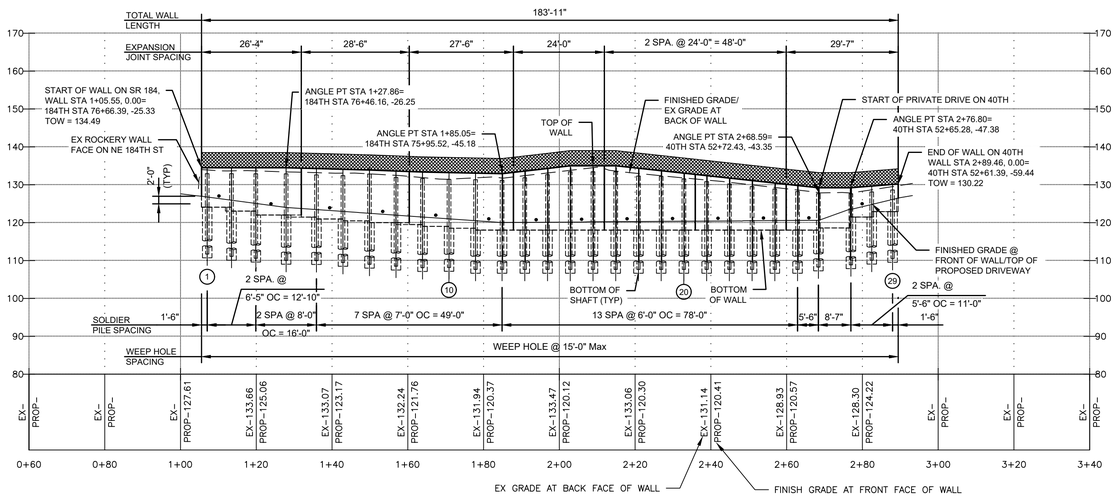


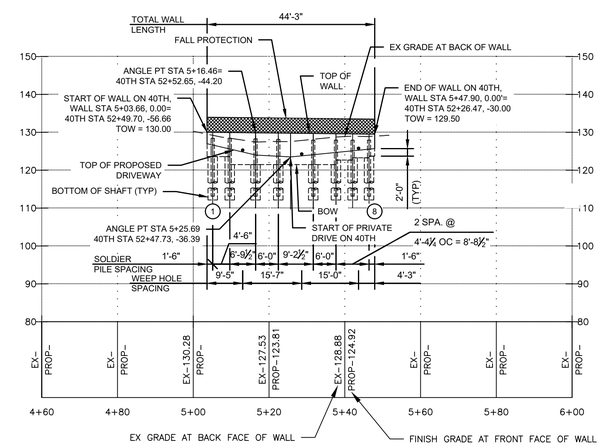
40TH PL NE/NE 184TH ST CUT WALL PLAN



40TH PL NE NORTH CUT WALL PLAN



40TH PL NE/NE 184TH ST CUT WALL PROFILE
REFLECTED WALL ELEVATION – SOLDIER PILE WALL #3



40TH PL NE NORTH CUT WALL PROFILE
REFLECTED WALL ELEVATION – SOLDIER PILE WALL #4

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 20 40

Scale in Feet

LEGEND

(1) PILE NUMBER

TOW = TOP OF WALL

BOW = BOTTOM OF WALL

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

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CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTEBELLO
STATE OF WASHINGTON
19239
REGISTERED PROFESSIONAL ENGINEER
6/5/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

WALLS 3 AND 4 PLANS AND PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **WD-02**
SHEET 34 OF 84

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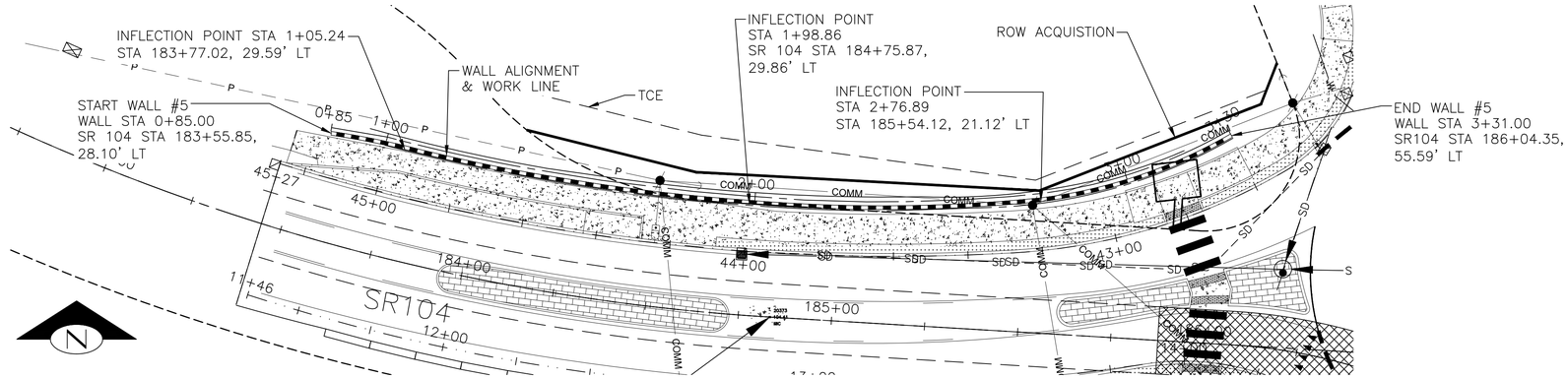
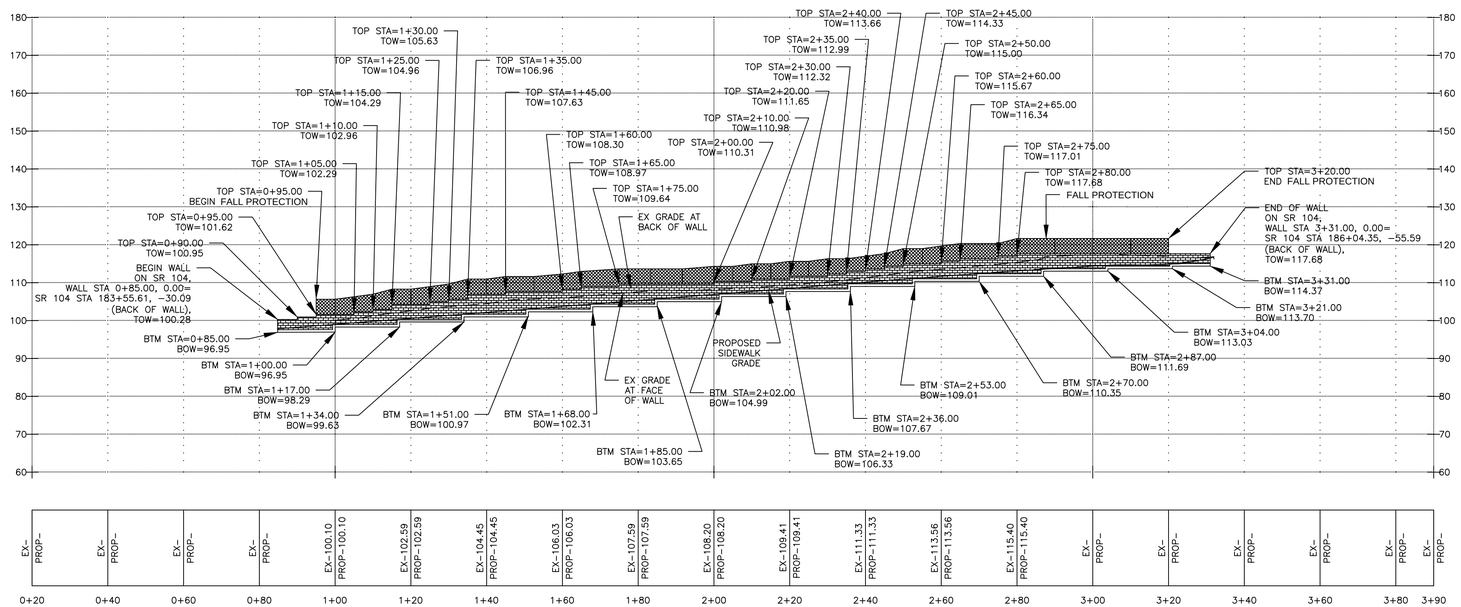


SR 104 NORTHWEST CUT WALL PLAN



SR 104 NORTHWEST CUT WALL PROFILE
REFLECTED WALL ELEVATION – GRAVITY BLOCK WALL #5

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 20 40

Scale in Feet

LEGEND

(1) PILE NUMBER

TOW = TOP OF WALL

BOW = BOTTOM OF WALL

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

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CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTEREOLO
STATE OF WASHINGTON
49239
REGISTERED PROFESSIONAL ENGINEER
6/5/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

WALL 5 PLAN AND PROFILE

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **WD-03**
SHEET 35 OF 84

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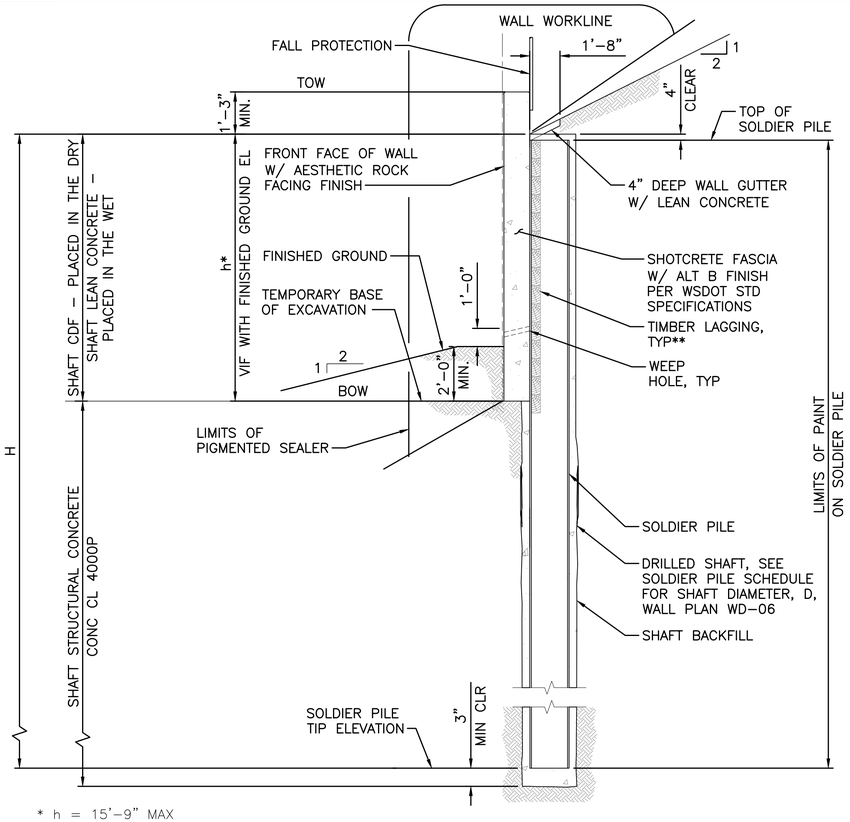
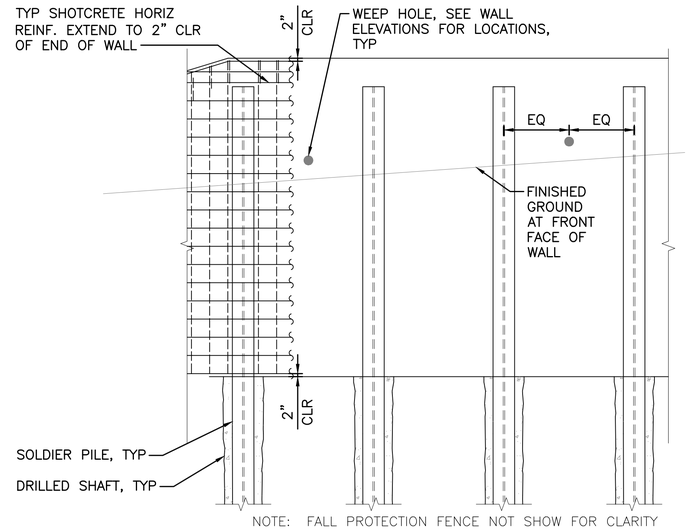


* h = 15'-9" MAX
** LAGGING SHALL CONFORM TO WSDOT STANDARD SPECIFICATION SECTION 6-16.3(6)

TYPICAL SECTION

N.T.S.

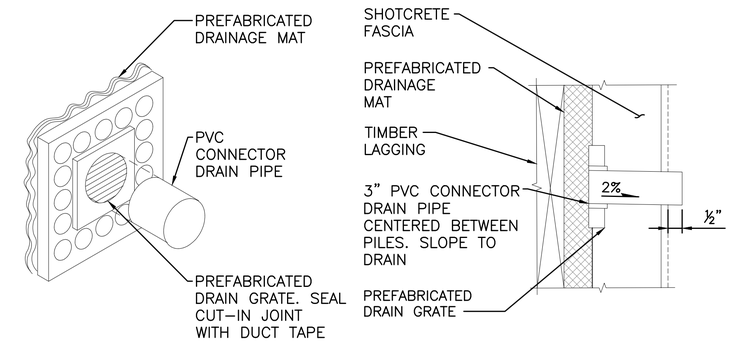


ELEVATION - SOLDIER PILE WALL

N.T.S.

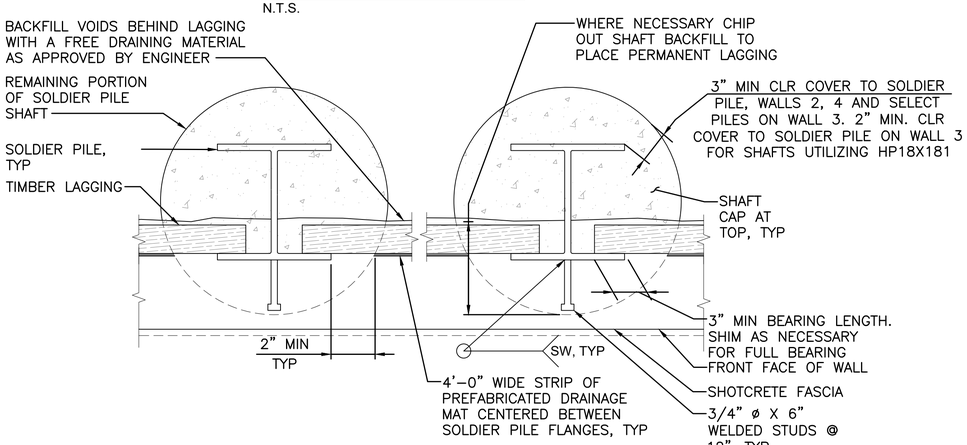
GENERAL NOTES:

1. EXCAVATION IN FRONT OF WALL SHALL NOT EXTEND BELOW BOTTOM OF LAGGING OR FASCIA.
2. ALL WELDING SHALL BE PERFORMED TO MINIMIZE DISTORTION. WELDING SEQUENCE AND PROCEDURE USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WELDING.
3. SHAFTS SHALL BE BACKFILLED WITH STRUCTURAL CONCRETE WITH f'c = 4000 PSI AS SHOWN.
4. ANY OVERSPRAY OBSERVED AFTER COMPLETION OF THE WALL SHALL BE REMOVED BY THE CONTRACTOR AT ITS OWN EXPENSE.
5. SHOTCRETE FASCIA SHALL HAVE AN AESTHETIC ROCK FINISH, SEE THE SPECIAL PROVISION 6-16.2
6. NO LIVE LOAD SURCHARGE DURING CONSTRUCTION/TRAFFIC SURCHARGE SHALL BE PLACED ON BACKSIDE OF WALL.



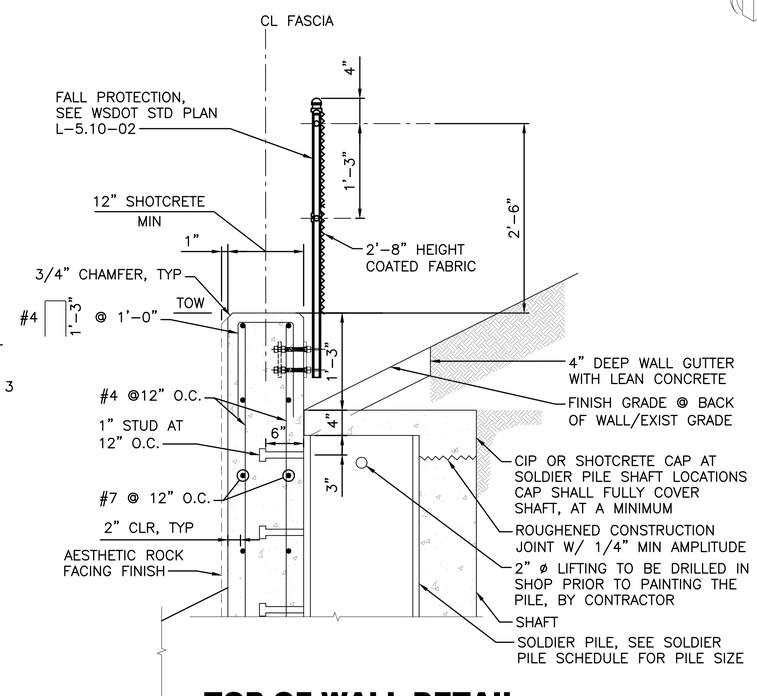
WEEP HOLE DETAIL

N.T.S.



PLAN - SOILDIER PILE WALL

N.T.S.



TOP OF WALL DETAIL

N.T.S.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

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CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTEBELLO, STATE OF WASHINGTON, 49239, REGISTERED PROFESSIONAL ENGINEER 6/5/05

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SOLDIER PILE WALL DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. WD-04
SHEET 36 OF 84

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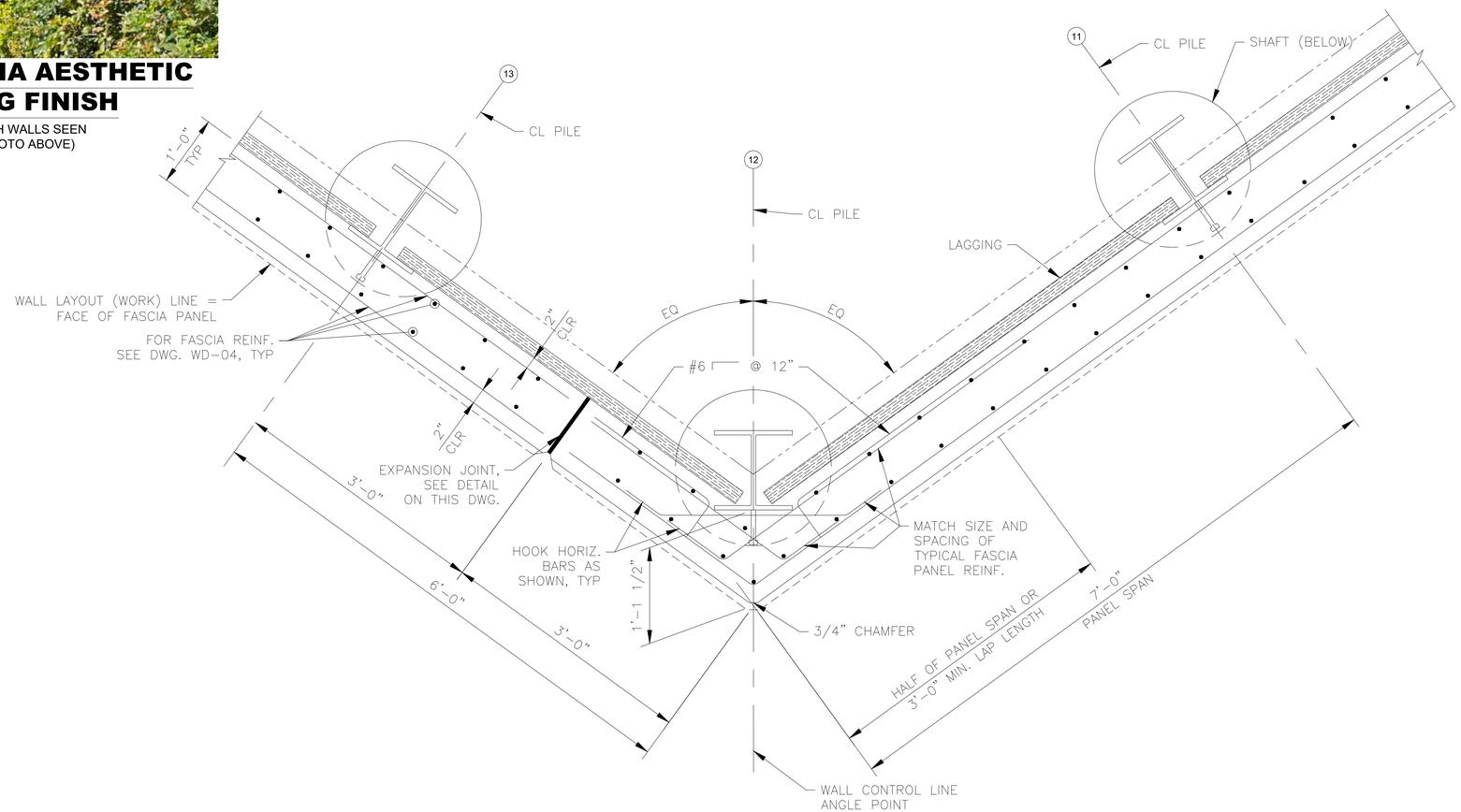
NOTES FOR CONCRETE FASCIA PANEL:

1. ALL CAST-IN-PLACE CONCRETE SHALL BE 4000 PSI, UNLESS OTHERWISE NOTED.
2. CONCRETE WALL PANEL FINISH SHALL BE AESTHETIC ROCK FACING FINISH WITH SHOTCRETE FASCIA IN ACCORDANCE WITH SPECIAL PROVISIONS.

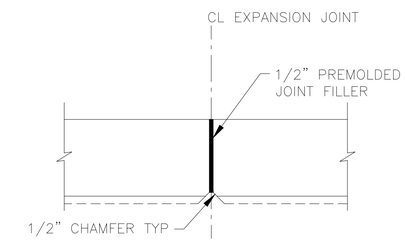
SHOTCRETE FASCIA AESTHETIC ROCK FACING FINISH

(WALL AESTHETIC TO MATCH WALLS SEEN ON SR 522, SIMILAR TO PHOTO ABOVE)



TYPICAL WALL DETAIL AT ANGLE POINT

SCALE: 1"=10'
WALL #3, ANGLE POINT AT STA 1+85.05 SHOWN, OTHERS SIMILAR



EXPANSION JOINT DETAIL

SCALE: 1"=10'

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

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CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTGOMERY
STATE OF WASHINGTON
49230
REGISTERED PROFESSIONAL ENGINEER
6/5/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SOLDIER PILE WALL DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. WD-05
SHEET 37 OF 84

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WALL NO.	PILE STATION	SOLDIER PILE SIZE	SHAFT DIAMETER	TOW EL.	TOP OF PILE EL.	BOT. OF LAGGING		FINISHED GRADE @ BACK OF WALL EL.	ESTIMATED PILE TIP EL.	TOTAL PILE LENGTH
						BACKWARD	FORWARD			
SOLDIER PILE WALL #2	7+04.72	HP12X53	2'-6"	118.15	116.56	112.98	112.98	116.90	100.78	15.78
	7+09.22	HP12X53	2'-6"	119.56	117.98	112.98	113.35	118.31	101.15	16.83
	7+13.72	HP12X53	2'-6"	120.38	118.79	113.35	113.35	119.13	101.15	17.64
	7+19.72	HP12X53	2'-6"	121.40	119.81	113.35	113.35	121.38	101.15	18.66
	7+25.72	HP12X53	2'-6"	123.31	121.73	113.35	114.31	122.06	102.11	19.62
	7+31.72	HP12X53	2'-6"	124.75	123.17	114.31	115.40	123.50	102.11	21.06
	7+37.72	HP12X53	2'-6"	125.29	123.71	115.40	116.10	124.04	103.20	20.51
	7+43.72	HP12X53	2'-6"	125.85	124.27	116.10	116.10	124.60	103.90	20.37
	7+49.72	HP12X53	2'-6"	125.96	124.38	116.10	116.71	124.71	104.51	19.87
	7+55.72	HP12X53	2'-6"	126.06	124.48	116.71	117.44	124.81	104.51	19.97
	7+61.72	HP12X53	2'-6"	126.13	124.54	117.44	117.65	124.88	105.45	19.10
	7+67.72	HP12X53	2'-6"	126.29	124.71	117.65	117.79	125.04	105.59	19.12
	7+73.72	HP12X53	2'-6"	126.40	124.81	117.79	117.79	125.15	105.59	19.22
	7+79.72	HP12X53	2'-6"	126.50	124.92	117.79	117.44	125.25	105.24	19.68
	7+85.72	HP12X53	2'-6"	126.63	125.04	117.44	117.44	125.38	105.24	19.80
	7+91.72	HP12X53	2'-6"	126.75	125.17	117.44	117.44	125.50	105.24	19.93
	7+97.72	HP12X53	2'-6"	126.81	125.23	117.44	117.73	125.56	105.53	19.70
	8+03.72	HP12X53	2'-6"	126.96	125.38	117.73	117.73	125.71	105.53	19.85
	8+09.72	HP12X53	2'-6"	126.98	125.40	117.73	119.35	125.73	107.15	18.24
	8+14.22	HP12X53	2'-6"	126.94	125.35	119.35	119.35	125.69	107.15	18.20

WALL NO.	PILE NO.	PILE STATION	SOLDIER PILE SIZE	SHAFT DIAMETER	TOW EL.	TOP OF PILE EL.	BOT. OF LAGGING		FINISHED GRADE @ BACK OF WALL EL.	ESTIMATED PILE TIP EL.	TOTAL PILE LENGTH
							BACKWARD	FORWARD			
SOLDIER PILE WALL #3	1	1+07.05	HP16x121	2'-6"	134.49	132.91	124.10	124.10	133.24	106.25	26.65
	2	1+13.46	HP16x121	2'-6"	134.49	132.91	124.10	123.04	133.24	105.19	27.72
	3	1+19.88	HP16x121	2'-6"	134.49	132.91	123.04	122.00	133.24	104.00	28.91
	4	1+27.88	HP16x121	2'-6"	134.49	132.91	122.00	121.46	133.24	103.46	29.45
	5	1+35.88	HP16x121	2'-6"	134.27	132.69	121.46	120.94	133.02	102.94	29.75
	6	1+42.88	HP16x121	2'-6"	134.08	132.50	120.94	120.48	132.83	102.63	29.87
	7	1+49.88	HP16x121	2'-6"	133.92	132.33	120.48	120.00	132.67	102.15	30.18
	8	1+56.88	HP18x181	2'-6"	133.63	132.04	120.00	119.50	132.38	100.40	31.64
	9	1+63.88	HP18x181	2'-6"	133.35	131.77	119.50	119.02	132.10	99.92	31.85
	10	1+70.88	HP18x181	2'-6"	133.23	131.65	119.02	118.54	131.98	99.44	32.20
	11	1+77.88	HP18x181	2'-6"	133.06	131.48	118.54	118.02	131.81	98.92	32.56
	12	1+84.88	HP18x181	2'-6"	132.94	131.35	118.02	118.02	131.69	98.92	32.43
	13	1+90.88	HP18x181	2'-6"	133.65	132.06	118.02	118.02	132.40	97.52	34.54
	14	1+96.88	HP18x181	2'-6"	134.31	132.73	118.02	118.02	133.06	97.52	35.21
	15	2+02.88	HP18x181	2'-6"	135.00	133.42	118.02	118.02	133.75	97.52	35.90
	16	2+08.88	HP18x181	2'-6"	135.00	133.42	118.02	118.02	133.75	97.52	35.90
	17	2+14.88	HP18x181	2'-6"	135.00	133.42	118.02	118.02	133.75	97.52	35.90
	18	2+20.88	HP18x181	2'-6"	134.35	132.77	118.02	118.02	133.10	97.52	35.25
	19	2+26.88	HP18x181	2'-6"	133.69	132.10	118.02	118.02	132.44	97.52	34.58
	20	2+32.88	HP18x181	2'-6"	133.04	131.46	118.02	118.02	131.79	97.52	33.94
	21	2+38.88	HP16x121	2'-6"	132.40	130.81	118.02	118.02	131.15	99.92	30.89
	22	2+44.88	HP16x121	2'-6"	131.75	130.17	118.02	118.02	130.50	99.92	30.25
	23	2+50.88	HP16x121	2'-6"	131.08	129.50	118.02	118.02	129.83	99.92	29.58
	24	2+56.88	HP16x121	2'-6"	130.46	128.88	118.02	118.02	129.21	99.92	28.95
	25	2+62.88	HP16x121	2'-6"	129.79	128.21	118.02	118.02	128.54	99.92	28.29
	26	2+68.38	HP16x121	2'-6"	129.21	127.63	118.02	118.60	127.96	100.50	27.12
	27	2+76.96	HP16x121	2'-6"	129.21	127.63	118.60	121.48	127.96	103.63	24.00
	28	2+82.46	HP16x121	2'-6"	129.67	128.08	121.48	122.92	128.42	105.07	23.02
	29	2+87.96	HP16x121	2'-6"	130.10	128.52	122.92	122.92	128.85	104.82	23.70

WALL NO.	PILE NO.	PILE STATION	SOLDIER PILE SIZE	SHAFT DIAMETER	TOW EL.	TOP OF PILE EL.	BOT. OF LAGGING PANEL/		FINISHED GRADE @ BACK OF WALL EL.	ESTIMATED PILE TIP EL.	TOTAL PILE LENGTH
							BACKWARD	FORWARD			
SOLDIER PILE WALL #4	1	5+05.16	HP10X42	2'-6"	130.00	128.42	123.60	123.60	128.75	112.98	15.43
	2	5+09.66	HP10X42	2'-6"	129.94	128.35	123.60	121.48	128.69	110.86	17.50
	3	5+16.45	HP10X42	2'-6"	129.85	128.27	121.48	121.48	128.60	110.86	17.41
	4	5+22.45	HP10X42	2'-6"	129.77	128.19	121.48	121.48	128.52	110.86	17.33
	5	5+31.66	HP10X42	2'-6"	129.69	128.10	121.48	121.48	128.44	110.86	17.25
	6	5+37.66	HP10X42	2'-6"	129.60	128.02	121.48	122.67	128.35	112.05	15.97
	7	5+42.01	HP10X42	2'-6"	129.56	127.98	122.67	123.27	128.31	112.65	15.33
	8	5+46.36	HP10X42	2'-6"	129.50	127.92	123.27	123.27	128.25	112.65	15.27

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NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	CDS	6/25
Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

DAVID EVANS AND ASSOCIATES INC.
14432 SE Eastgate Way
Suite 400
Bellevue, WA 98007
425.519.6500

PATRICK DOUGLAS MONTGOMERY, STATE OF WASHINGTON, 49239, REGISTERED PROFESSIONAL ENGINEER
6/5/25

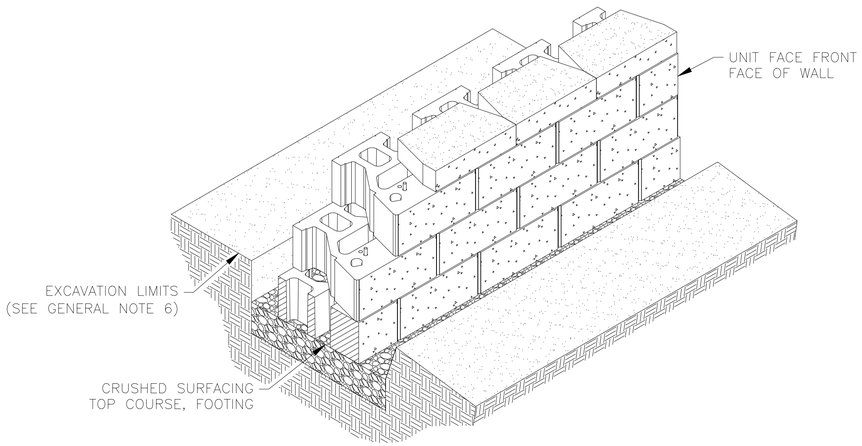
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SOLDIER PILE WALL PILE SCHEDULES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **WD-06**
SHEET 38 OF 84

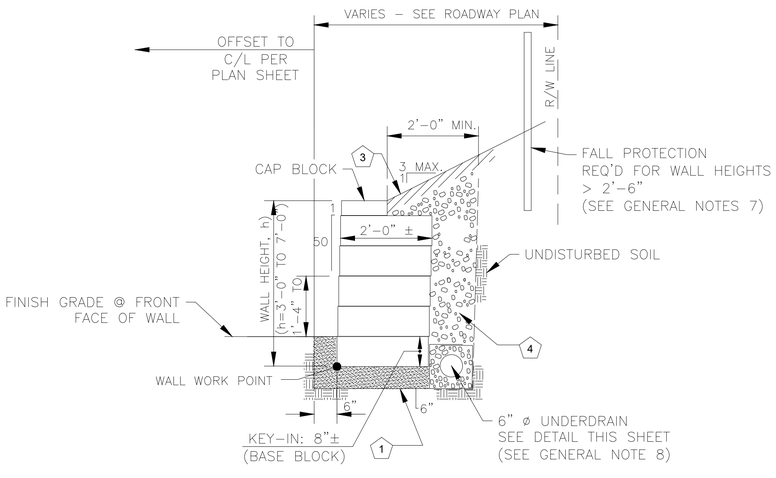
BASE LEVELING PAD NOTES:

1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CSTC.
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE LEVELING PAD.
3. MINIMUM RADIUS FOR CURVED WALLS = WALL HEIGHT x 2.



STANDARD UNIT/BASE PAD ISOMETRIC SECTION VIEW

NTS



CONCRETE MODULAR RETAINING WALL - CUT CONDITION

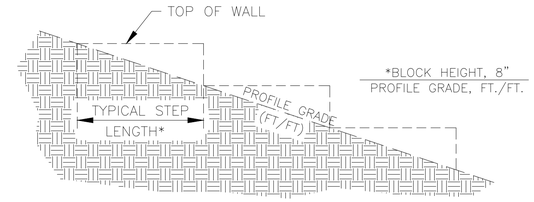
(NEAR VERTICAL)
NTS

GENERAL NOTES

1. WALLS SHALL BE CONSTRUCTED PER WALL MANUFACTURER'S SPECIFICATIONS.
2. MAXIMUM EXPOSED WALL HEIGHTS SHOWN ON PROFILES.
3. ALL CAP BLOCKS SHALL HAVE A SOLID TOP SURFACE.
4. THE TOP ROW OF GRAVITY BLOCK WALLS SHALL BE INTERLOCKED WITH FULL SIDES ADJACENT TO ONE ANOTHER TO THE MAXIMUM EXTENT PRACTICAL.
5. PAYMENT FOR WALLS INCLUDES ALL COMPONENTS IN THE DETAILS ON WD–07. LABOR AND MATERIAL COSTS FOR GEOGRID, REBAR, SLEEVES OVER UTILITIES AND OTHER COMPONENTS ARE CONSIDERED INCIDENTAL TO THE COST OF THE WALL, UNLESS NOTED OTHERWISE.
6. EXCAVATION FOR ALL WALLS IS PAID FOR AS "STRUCTURAL EXCAVATION CLASS A". EXCAVATION LIMITS ARE TO THE BACK OF GRAVEL BACKFILL FOR WALLS AS SHOWN IN THIS SHEET.
7. FALL PROTECTION SHALL BE REQUIRED FOR THE WALL HEIGHTS GREATER THAN 2'–6".
8. WALL UNDERDRAIN AND GEOTEXTILE FABRIC IS NOT REQUIRED FOR WALLS WITH EXPOSED HEIGHT LESS THAN 2'–6".
9. ALL WALLS WITH HEIGHT, MEASURED FROM BOTTOM OF BASE BLOCK(S), OF 4' OR GREATER REQUIRE TYPE 3E SHOP DRAWINGS SUBMITTED BY THE CONTRACTOR.

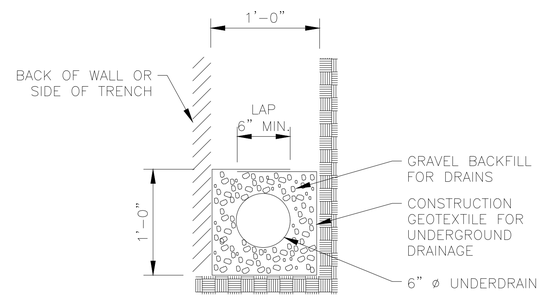
CONSTRUCTION NOTES:

1. CSTC, CRUSHED SURFACING TOP COURSE(COMPACTED DEPTH)
2. GRAVEL BORROW
3. PREPARE SOIL PER LANDSCAPE AND RESTORATION DETAILS
4. GRAVEL BACKFILL FOR WALLS



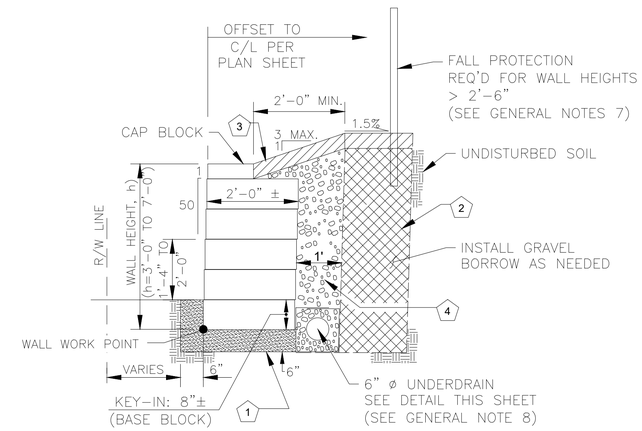
WALL STEPS - FILL CONDITION

NTS



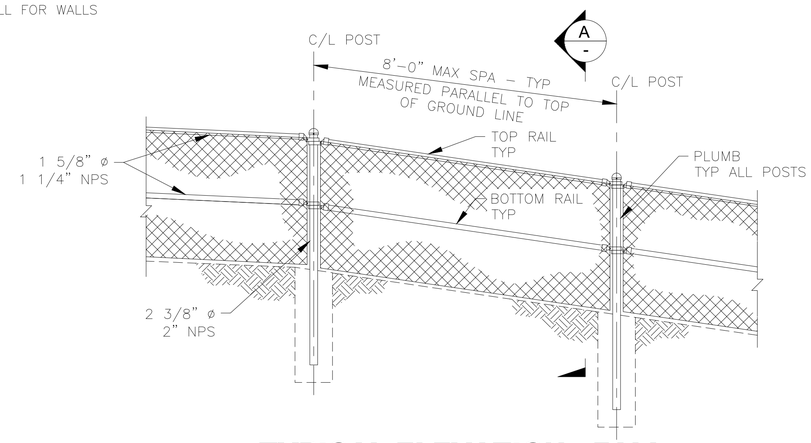
UNDERDRAIN DETAIL

NTS



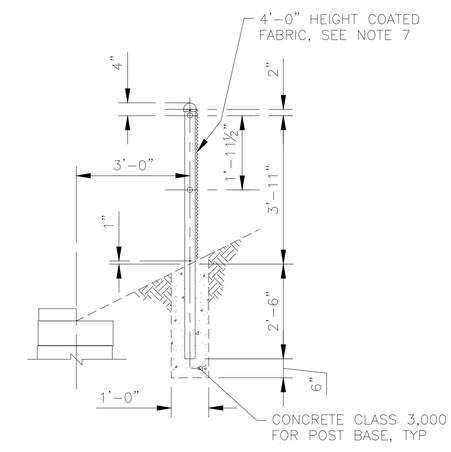
CONCRETE MODULAR RETAINING WALL - FILL CONDITION

(NEAR VERTICAL)
NTS



TYPICAL ELEVATION - FALL PROTECTION FENCE AT BLOCK WALL

SCALE: 1/2" = 1'–0"
INSTALLED IN GROUND BEHIND BLOCK WALL



SECTION A

SCALE: 1/2" = 1'–0"

NO.	BY	DATE	REVISION

	BY:	DATE:
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Designed	PBSH	6/25
Reviewed	PDMO	6/25
Approved	PDMO	6/25

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425.519.6500

PATRICK DOUGLAS MONTEBELLO, STATE OF WASHINGTON, 49239, REGISTERED PROFESSIONAL ENGINEER, 6/5/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

MODULAR BLOCK WALL DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. WD-07
SHEET 39 OF 84

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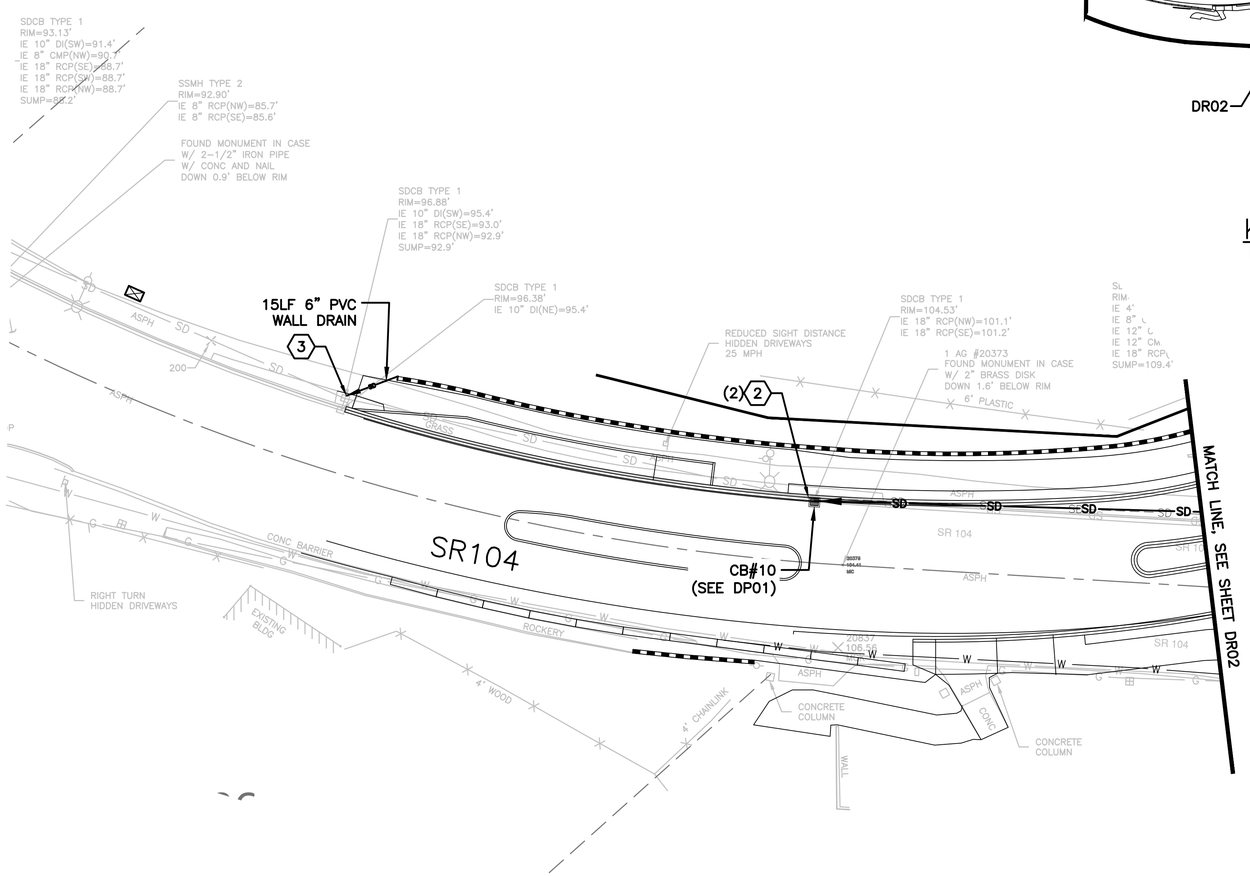
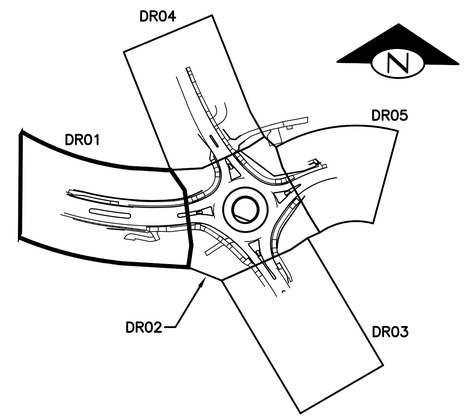
SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

CONSTRUCTION NOTES

1. ADJUST CATCH BASIN TO FINISHED GRADE.
2. CONNECT TO EXISTING PIPE.
3. CONNECT TO EXISTING DRAINAGE STRUCTURE.
4. INSTALL SOLID LOCKING LID PER WSDOT STD PLAN B-30.20-04.
5. NOT USED
6. CONNECT NEW PIPE TO EXISTING PIPE WITH PIPE COUPLER.
7. STORMWATER DETENTION VAULT (INTERNAL DIMS: 15'Wx82'Lx7.79'H), SEE VAULT DETAILS ON SHEET SD01.
8. TYPE 2 72" CONTROL STRUCTURE, SEE DETAILS ON SHEET SD02.
9. BAYFILTER STORMWATER TREATMENT MANHOLE, SEE DETAIL ON SHEET SD
10. OIL/WATER SEPARATOR (OWS) VAULT, SEE DETAIL ON SHEET SD03.
11. BIOPOD BIOFILTER VAULT, SEE DETAIL ON SHEET SD04.
12. NOT USED.

LEGEND

SD — SD — PROPOSED STORM DRAIN

PROPOSED CATCH BASIN TYPE 1

PROPOSED CATCH BASIN TYPE 2

PROPOSED CATCH BASIN TYPE 2 W/SM94 FRAME & GRATE (SEE SHEET SD04)

(X) NUMBER OF DRAINAGE CONNECTIONS

DRAINAGE GENERAL NOTES

1. ALL NEW CATCH BASINS, STORM MANHOLES, AND CONCRETE INLETS TO HAVE VANED GRATES PER WSDOT STD PLAN B-30.30-03, UNLESS OTHERWISE NOTED.
2. THE DIMENSIONAL LOCATION OF ALL NEW CATCH BASINS, STORM MANHOLES, AND CONCRETE INLETS ARE MEASURED TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED. SEE SHEET DWG DP01 & DP02 FOR STATION AND OFFSETS.
3. EXISTING UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY PRIOR TO INSTALLATIONS.
4. ALL EXISTING STORM PIPE AND EXISTING CATCH BASINS SHOWN IN THESE PLANS ARE TO BE PROTECTED, UNLESS OTHERWISE NOTED.
5. THE LOCATION SPECIFIED IS SHOWN TO THE CENTER OF STORM DRAINAGE STRUCTURE. INSTALL FRAME AND GRATE TO PROPOSED FLOWLINE FOR STORM DRAINAGE STRUCTURES WITHIN THE ROADWAY. REFER TO WSDOT STANDARD PLAN F-10.16-00. CATCH BASIN COVER SHALL BE ADA COMPLIANT IF LOCATED IN SIDEWALK OR CURB RAMP.
6. TYPE 2 CATCH BASINS USING SM94 FRAME AND GRATE TO USE CIRCULAR ADJUSTMENT RISERS.

0 20 40
Scale in Feet

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/09/25 08:36:33am

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

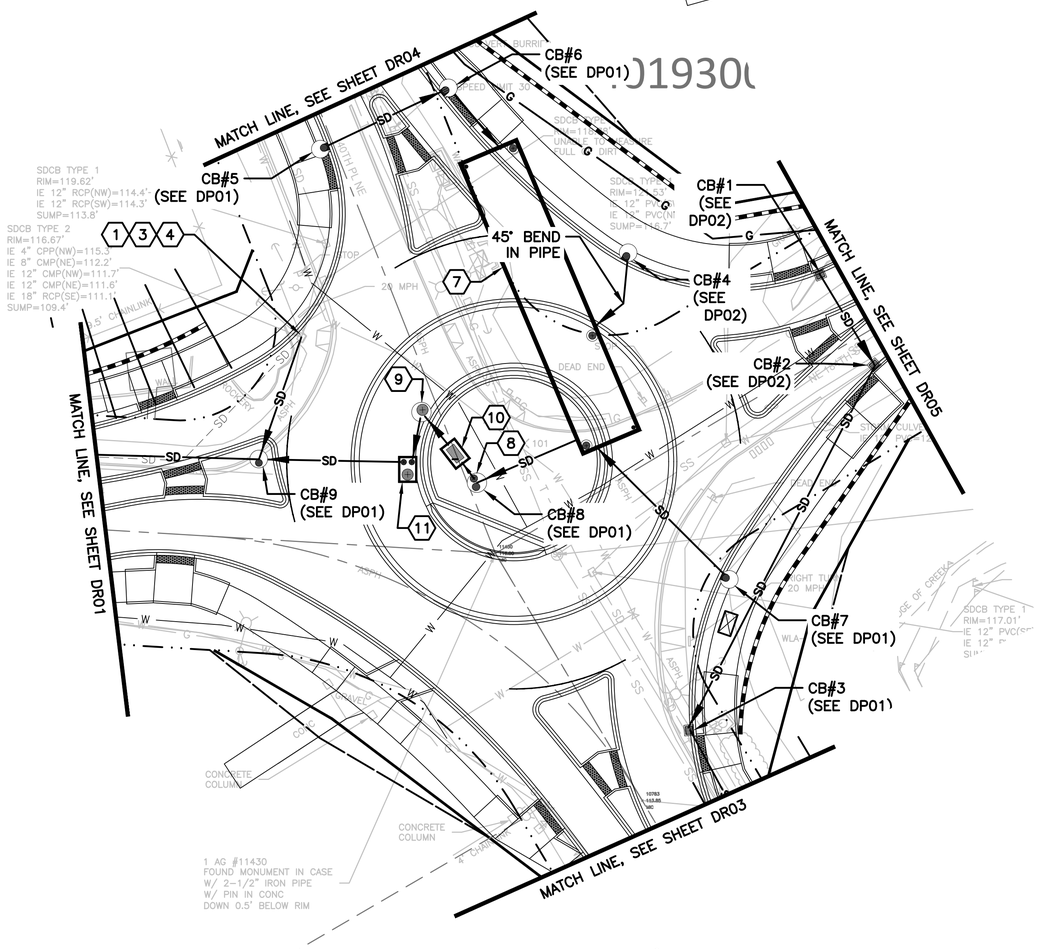
ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

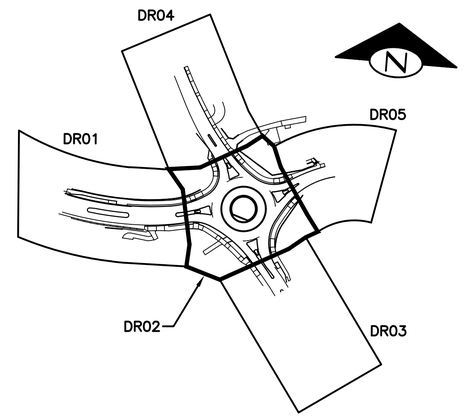
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DR01
SHEET 40 OF 89

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

CONSTRUCTION NOTES

1. ADJUST CATCH BASIN TO FINISHED GRADE.
2. CONNECT TO EXISTING PIPE.
3. CONNECT TO EXISTING DRAINAGE STRUCTURE.
4. INSTALL SOLID LOCKING LID PER WSDOT STD PLAN B-30.20-04.
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7. STORMWATER DETENTION VAULT (INTERNAL DIMS: 15'Wx82'Lx7.79'H), SEE VAULT DETAILS ON SHEET SD01.
8. TYPE 2 72" CONTROL STRUCTURE, SEE DETAILS ON SHEET SD02.
9. BAYFILTER STORMWATER TREATMENT MANHOLE, SEE DETAIL ON SHEET SD
10. OIL/WATER SEPARATOR (OWS) VAULT, SEE DETAIL ON SHEET SD03.
11. BIOPOD BIOFILTER VAULT, SEE DETAIL ON SHEET SD04.
12. NOT USED.

LEGEND

SD SD — PROPOSED STORM DRAIN

PROPOSED CATCH BASIN TYPE 1

PROPOSED CATCH BASIN TYPE 2

PROPOSED CATCH BASIN TYPE 2 W/SM94 FRAME & GRATE (SEE SHEET SD04)

(X) NUMBER OF DRAINAGE CONNECTIONS

DRAINAGE GENERAL NOTES

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6. TYPE 2 CATCH BASINS USING SM94 FRAME AND GRATE TO USE CIRCULAR ADJUSTMENT RISERS.

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:50:16pm

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

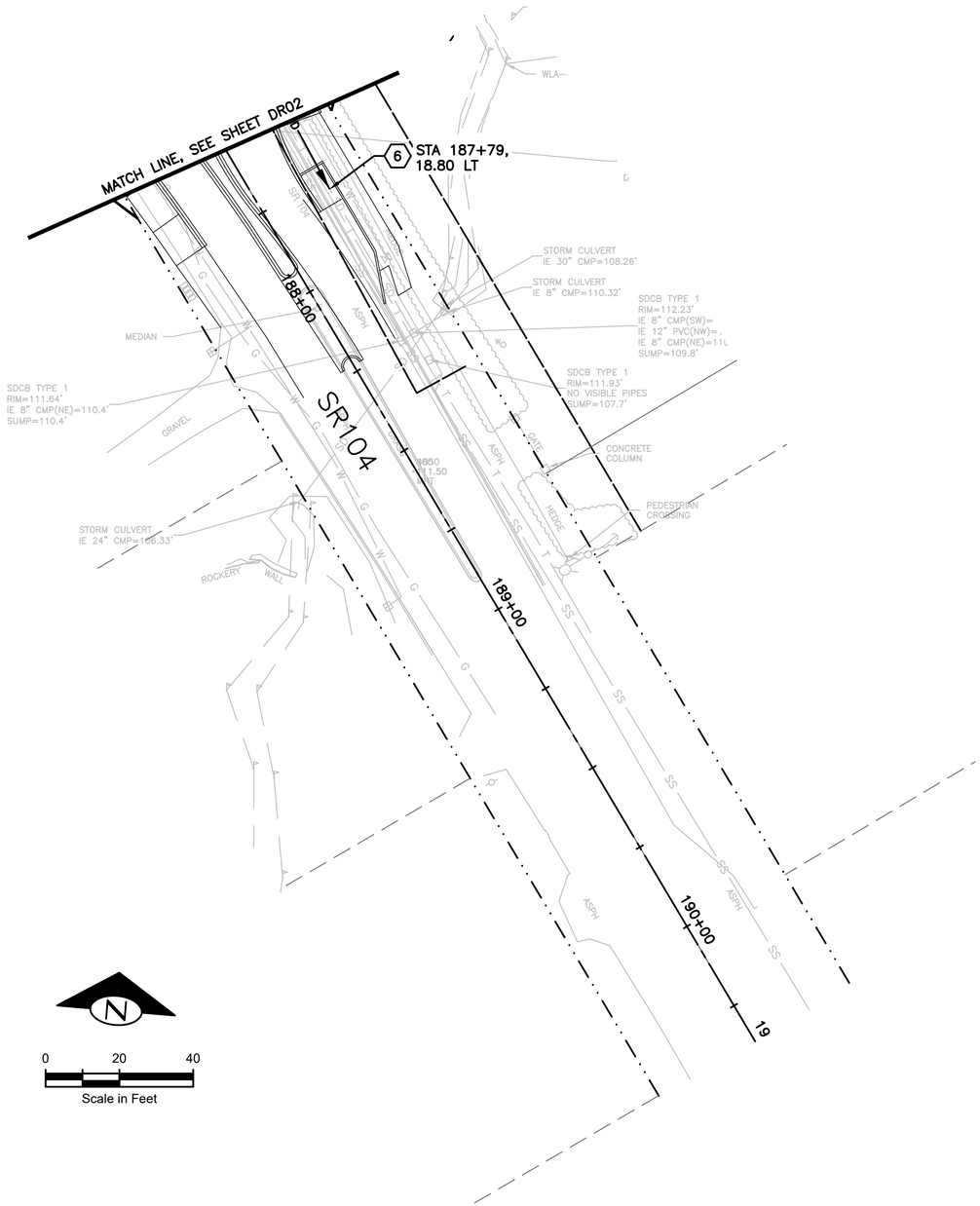
ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

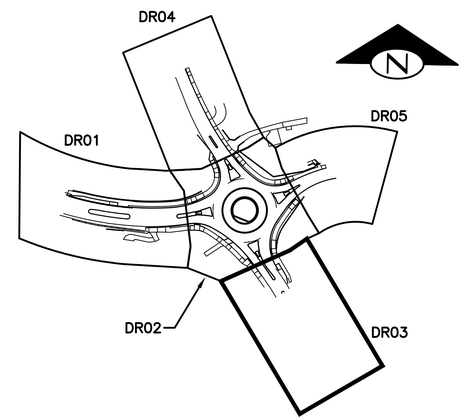
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DR02
SHEET 41 OF 89

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

CONSTRUCTION NOTES

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9. BAYFILTER STORMWATER TREATMENT MANHOLE, SEE DETAIL ON SHEET SDC
10. OIL/WATER SEPARATOR (OWS) VAULT, SEE DETAIL ON SHEET SD03.
11. BIOPOD BIOFILTER VAULT, SEE DETAIL ON SHEET SD04.
12. NOT USED.

LEGEND

SD SD — PROPOSED STORM DRAIN

PROPOSED CATCH BASIN TYPE 1

PROPOSED CATCH BASIN TYPE 2

PROPOSED CATCH BASIN TYPE 2 W/SM94 FRAME & GRATE (SEE SHEET SD04)

(X) NUMBER OF DRAINAGE CONNECTIONS

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ERIC J. SCOTT STATE OF WASHINGTON 36704 REGISTERED PROFESSIONAL ENGINEER
5/25/25

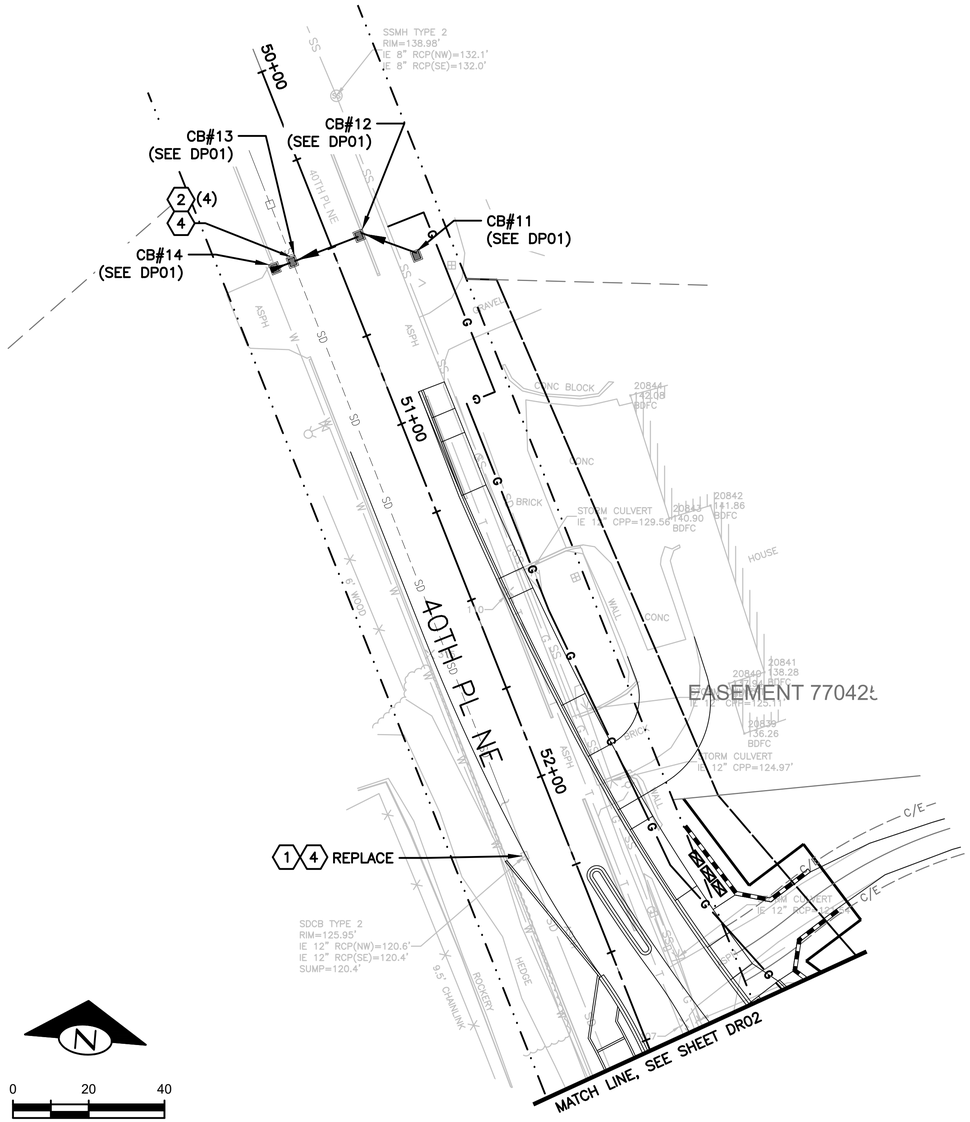
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

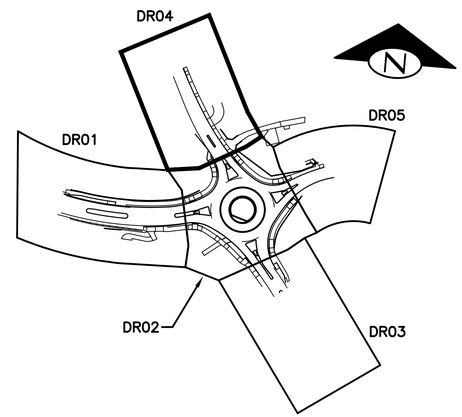
DRAINAGE PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DR03
SHEET 42 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:50:28pm

SEC 10, TWP 26 N, RGE 4 E





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LEGEND

SD SD — PROPOSED STORM DRAIN

PROPOSED CATCH BASIN TYPE 1

PROPOSED CATCH BASIN TYPE 2

PROPOSED CATCH BASIN TYPE 2 W/SM94 FRAME & GRATE (SEE SHEET SD04)

(X) NUMBER OF DRAINAGE CONNECTIONS

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Approved	E. SCOTT	5/25/2025

BID SET

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ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED
PROFESSIONAL ENGINEER
5/25/25

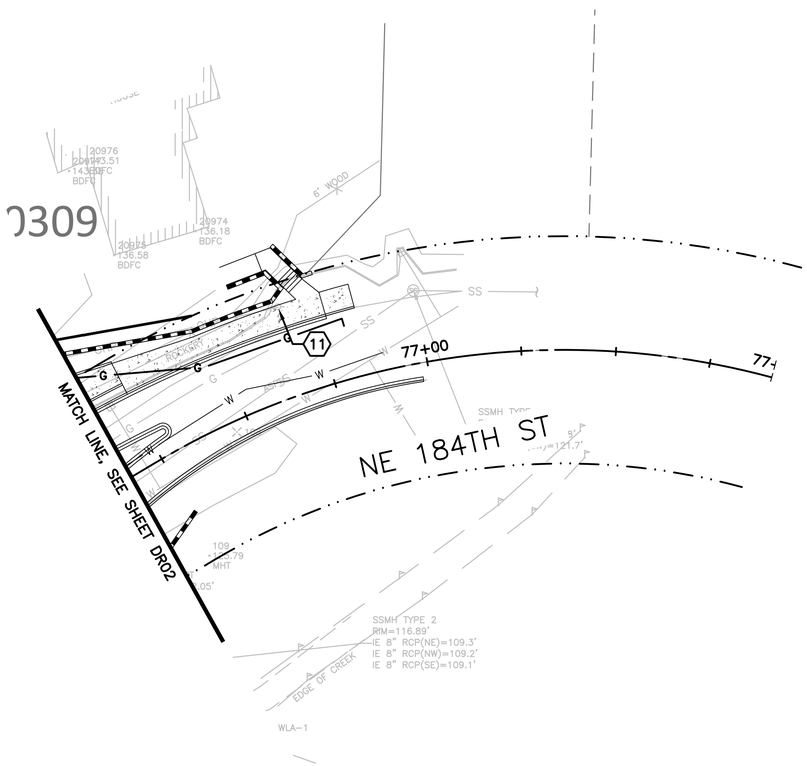
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

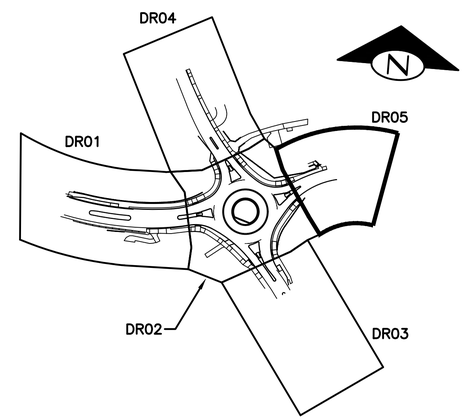
DRAINAGE PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DR04
SHEET 43 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:50:36pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

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LEGEND

SD SD — PROPOSED STORM DRAIN

PROPOSED CATCH BASIN TYPE 1

PROPOSED CATCH BASIN TYPE 2

PROPOSED CATCH BASIN TYPE 2 W/SM94 FRAME & GRATE (SEE SHEET SD04)

(X) NUMBER OF DRAINAGE CONNECTIONS

NOTE:

1. NO DRAINAGE IMPROVEMENTS ON THIS SHEET.

DRAINAGE GENERAL NOTES

1. ALL NEW CATCH BASINS, STORM MANHOLES, AND CONCRETE INLETS TO HAVE VANED GRATES PER WSDOT STD PLAN B-30.30-03, UNLESS OTHERWISE NOTED.
2. THE DIMENSIONAL LOCATION OF ALL NEW CATCH BASINS, STORM MANHOLES, AND CONCRETE INLETS ARE MEASURED TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED. SEE SHEET DWG DP01 & DP02 FOR STATION AND OFFSETS.
3. EXISTING UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY PRIOR TO INSTALLATIONS.
4. ALL EXISTING STORM PIPE AND EXISTING CATCH BASINS SHOWN IN THESE PLANS ARE TO BE PROTECTED, UNLESS OTHERWISE NOTED.
5. THE LOCATION SPECIFIED IS SHOWN TO THE CENTER OF STORM DRAINAGE STRUCTURE. INSTALL FRAME AND GRATE TO PROPOSED FLOWLINE FOR STORM DRAINAGE STRUCTURES WITHIN THE ROADWAY. REFER TO WSDOT STANDARD PLAN F-10.16-00. CATCH BASIN COVER SHALL BE ADA COMPLIANT IF LOCATED IN SIDEWALK OR CURB RAMP.
6. TYPE 2 CATCH BASINS USING SM94 FRAME AND GRATE TO USE CIRCULAR ADJUSTMENT RISERS.

N

0 20 40
Scale in Feet

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:50:46pm

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

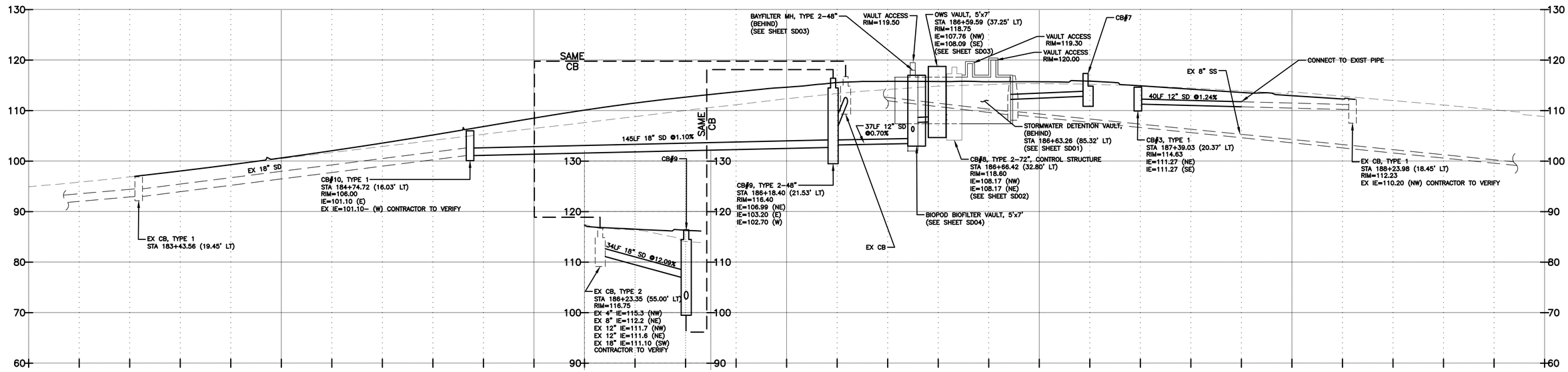
ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DR05
SHEET 44 OF 89

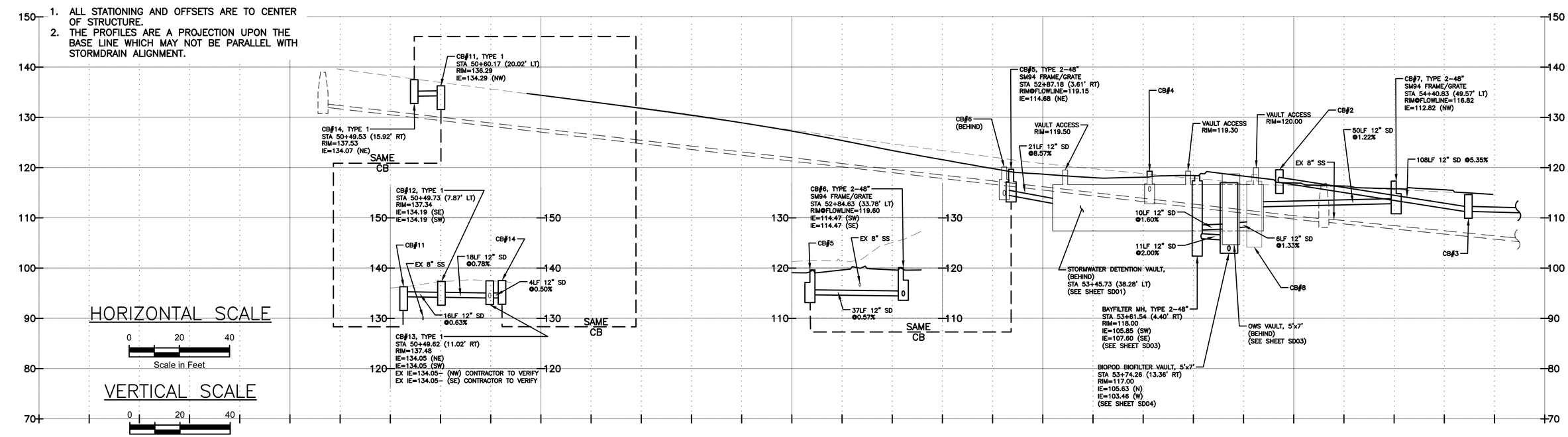
SEC 10, TWP 26 N, RGE 4 E



SR 104

NOTES

1. ALL STATIONING AND OFFSETS ARE TO CENTER OF STRUCTURE.
2. THE PROFILES ARE A PROJECTION UPON THE BASE LINE WHICH MAY NOT BE PARALLEL WITH STORMDRAIN ALIGNMENT.



40TH PL NE

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
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ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

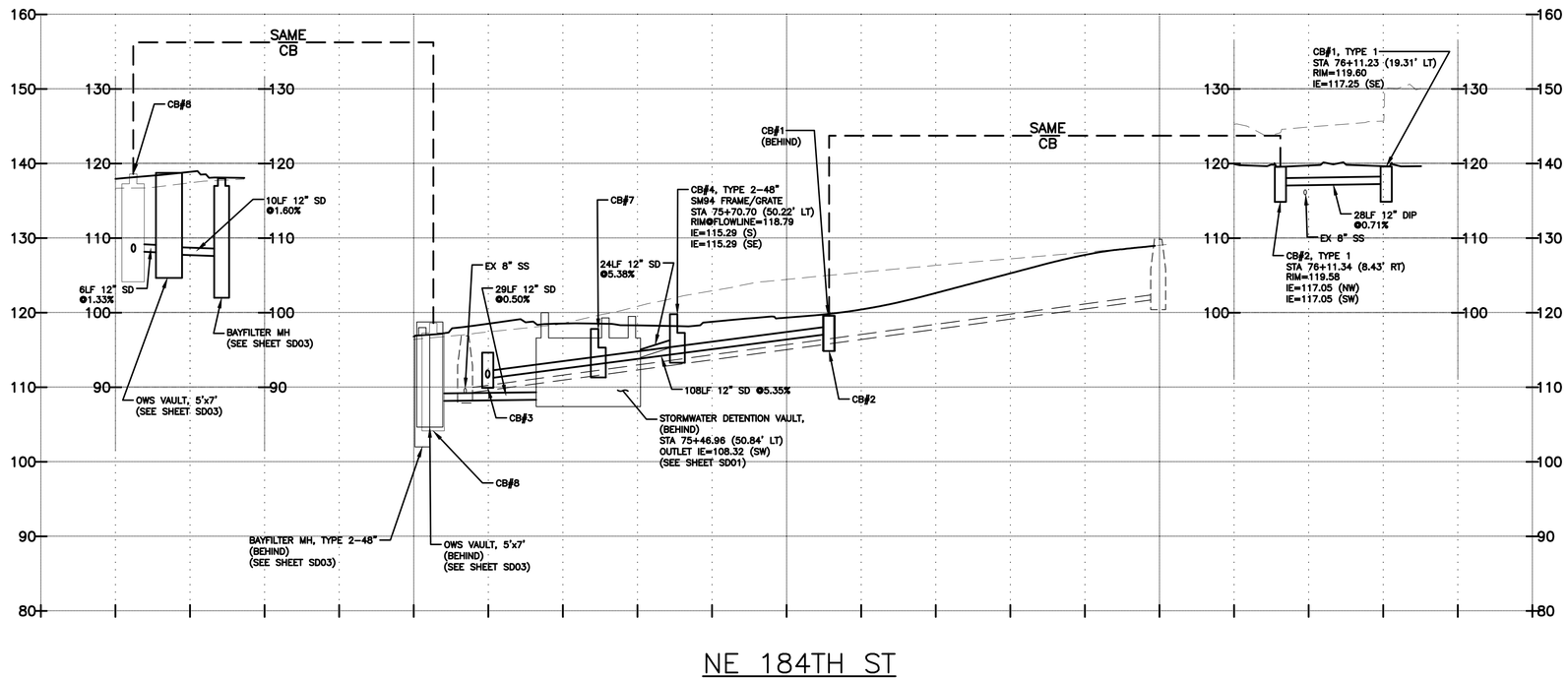
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DP01
SHEET 45 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:50:59pm

SEC 10, TWP 26 N, RGE 4 E



NOTES

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2. THE PROFILES ARE A PROJECTION UPON THE BASE LINE WHICH MAY NOT BE PARALLEL WITH STORMDRAIN ALIGNMENT.

HORIZONTAL SCALE

0 20 40

Scale in Feet

VERTICAL SCALE

0 20 40

Scale in Feet

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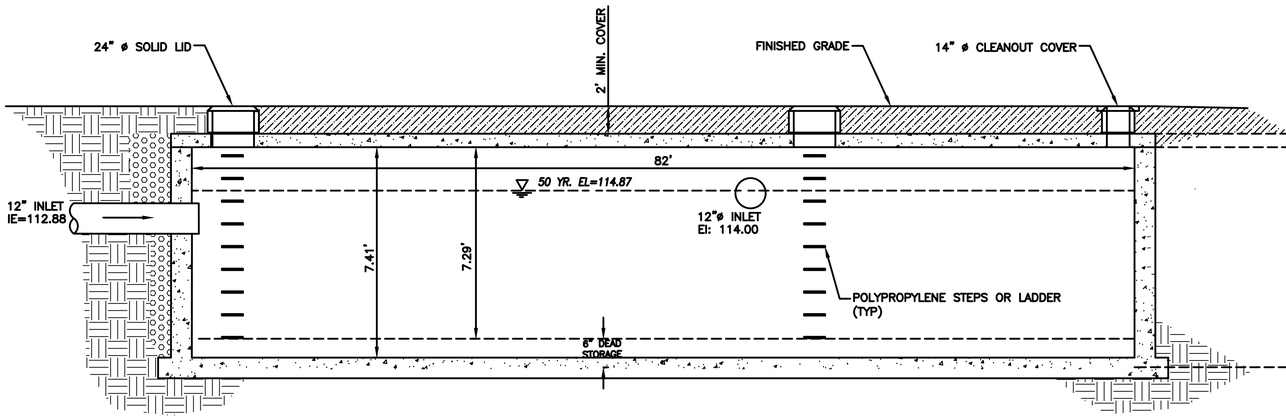
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE PROFILES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. DP02
SHEET 46 OF 89

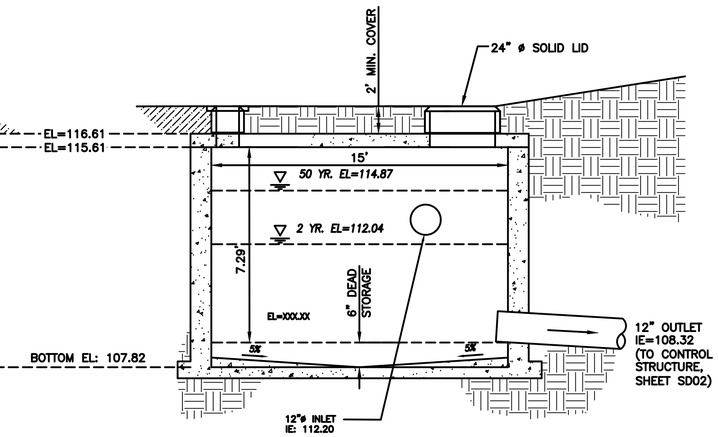
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:51:09pm

SEC 10, TWP 26 N, RGE 4 E



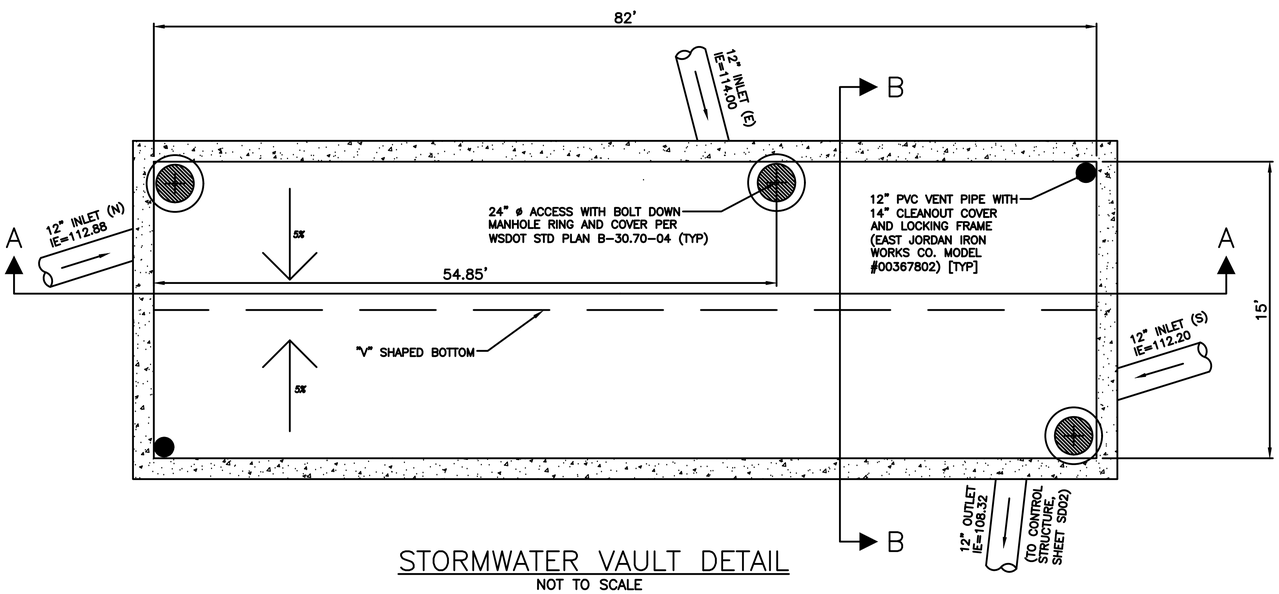
VAULT SECTION A–A

NOT TO SCALE



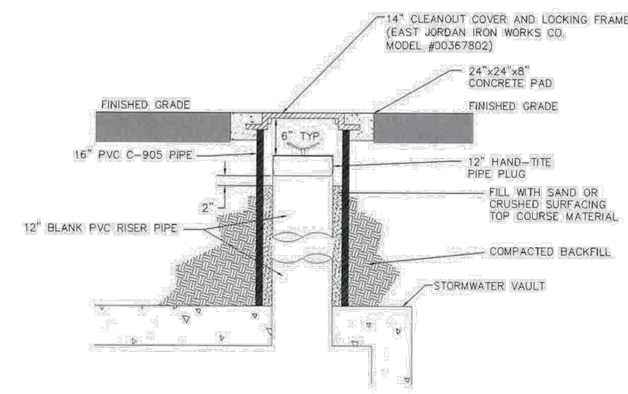
VAULT SECTION B–B

NOT TO SCALE



STORMWATER VAULT DETAIL

NOT TO SCALE



VENT PIPE DETAIL

NOT TO SCALE

STORMWATER VAULT NOTES:

1. ALL METAL PARTS SHALL BE CORROSION RESISTANT. STAINLESS STEEL OR ALUMINUM PARTS ARE ACCEPTABLE. NO GALVANIZED PARTS.
2. PROVIDE WATER STOP AT ALL CAST–IN–PLACE CONSTRUCTION JOINTS. PRECAST VAULTS SHALL HAVE AN APPROVED RUBBER GASKET SYSTEM.
3. MINIMUM 4000 PSI STRUCTURAL REINFORCED CONCRETE MUST BE USED FOR PRECAST VAULT. VAULT, LID. RISERS, AND ACCESS LIDS SHALL MEET HS–25 LOADING STANDARDS.
4. VAULTS MUST COMPLY WITH THE OSHA CONFINED SPACE REQUIREMENTS WHICH INCLUDES CLEARLY MARKING ENTRANCES TO CONFINED SPACE AREAS. THIS MAY BE ACCOMRLISHED BY HANGING A REMOVABLE SIGN IN THE ACCESS RISERS JUST UNDER THE ACCESS LID.
5. VENTILATION PIPES (MIN. 12" DIA. OR EQUIVALENT) SHALL BE PROVIDED IN ALL FOUR CORNERS OF THE VAULT (UNLESS ACCESS LIDS ARE PROVIDED) TO ALLOW FOR ARTIFICIAL VENTILATION PRIOR TO ENTRY OF MAINTENANCE PERSONNEL INTO THE VAULT.
6. ALL ACCESS OPENINGS SHALL HAVE ROUND, SOLID LOCKING LIDS MARKED "DRAIN".
7. EXCAVATE 12" MIN BELOW BASE OF VAULT, COMPACT SUBGRADE, AND PLACE PERMEABLE BALLAST.
8. STORMWATER VAULT SHALL BE PRECAST CONCRETE. INSIDE DIMENSIONS SHOWN ARE FOR MINIMUM STORAGE VOLUME REQUIRED. SUBMIT SHOP DRAWINGS FOR PROPOSED DIMENSIONS.
9. SHOP DRAWINGS AND PROFESSIONALLY SEALED CALCULATIONS FOR THE PRECAST STORMWATER VAULT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO FABRICATION OF VAULT COMPONENTS.
10. VAULT SHALL BE DESIGNED IN ACCORDANCE WITH ACI 350_06 FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES, INCLUDING DESIGN TO PREVENT BUOYANCY.
11. MANUFACTURER/SUPPLIER TO PROVIDE INSTALLATION RECOMMENDATIONS TO THE ENGINEER. CONTRACTOR SHALL INSTALL ACCORDING TO THE MANUFACTURER/SUPPLIER RECOMMENDATIONS.

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5/25/25

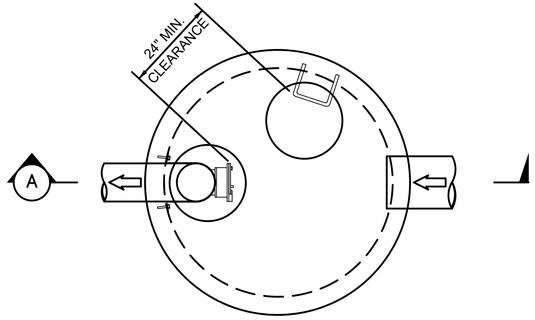
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

DRAINAGE DETAILS

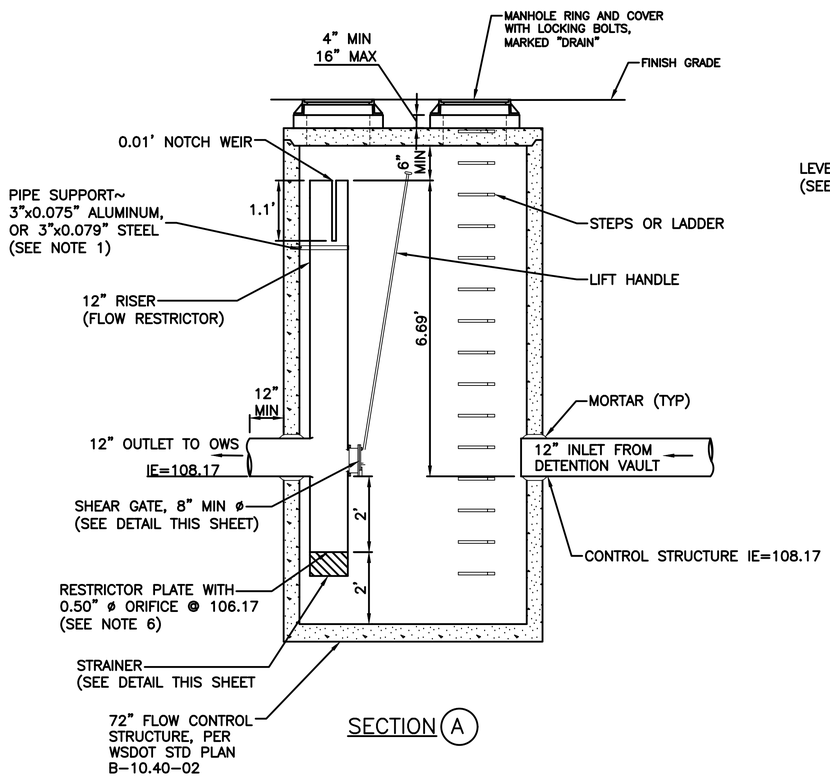
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SD01
SHEET 47 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:51:09pm

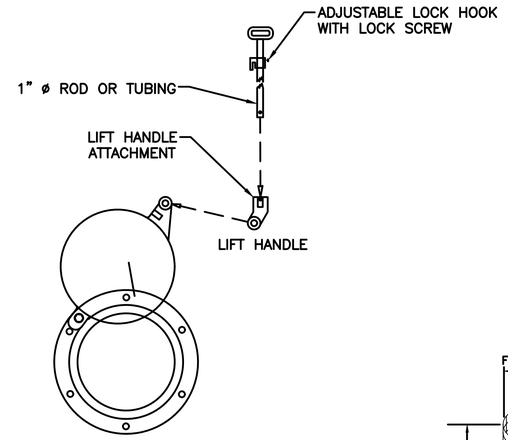
SEC 10, TWP 26 N, RGE 4 E



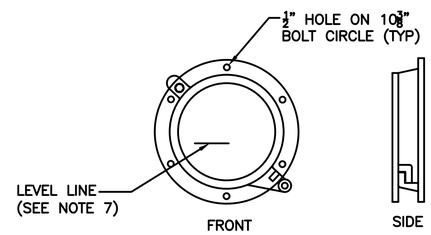
PLAN VIEW



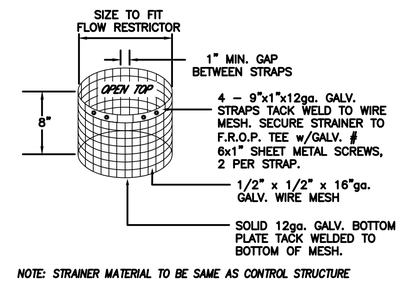
SECTION A



MAXIMUM OPENING

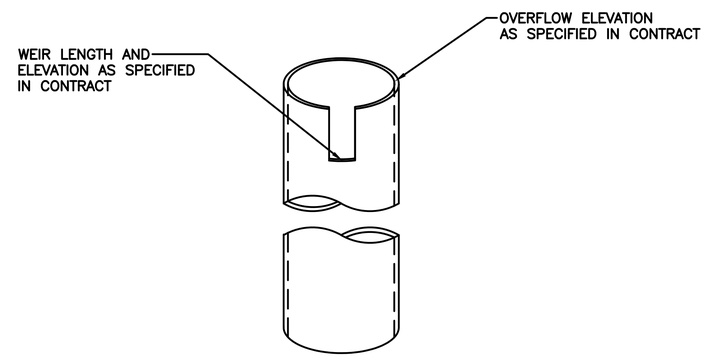


SHEAR GATE DETAILS



NOTE: STRAINER MATERIAL TO BE SAME AS CONTROL STRUCTURE

STRAINER DETAIL



NOTCH WEIR DETAIL

NOTES:

1. THE PIPE SUPPORTS AND THE FLOW RESTRICTOR SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND BE ANCHORED AT A MAXIMUM SPACING OF 36" (IN). ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" (IN) STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE WALL 2" (IN).
2. THE VERTICAL RISER STEM OF THE FLOW RESTRICTOR SHALL BE THE SAME DIAMETER AS THE HORIZONTAL OUTLET PIPE WITH A MINIMUM DIAMETER OF 12" (IN).
3. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:

   0.060" (IN) CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" (IN) CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" (IN) CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" (IN) ALUMINUM ALLOY FLAT SHEET, IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
4. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT: THE SHEAR GATE IS VISIBLE FROM THE TOP; THE CLIMB–DOWN SPACE IS CLEAR OF THE RISER AND GATE; THE FRAME IS CLEAR OF THE CURB.
5. THE MULTI–ORIFICE ELBOWS MAY BE LOCATED AS SHOWN, OR ALL PLACED ON ONE SIDE OF THE RISER TO ASSURE LADDER CLEARANCE. THE SIZE OF THE ELBOWS AND THEIR PLACEMENT SHALL BE SPECIFIED IN THE CONTRACT.
6. RESTRICTOR PLATE WITH ORIFICE AS SPECIFIED IN THE CONTRACT. THE OPENING IS TO BE CUT ROUND AND SMOOTH.
7. THE SHEAR GATE SHALL BE MADE OF ALUMINUM ALLOY IN ACCORDANCE WITH ASTM B 26 AND ASTM B 275, DESIGNATION ZG32A; OR CAST IRON IN ACCORDANCE WITH ASTM A 48, CLASS 30B.

   THE LIFT HANDLE SHALL BE MADE OF A SIMILAR METAL TO THE GATE (TO PREVENT GALVANIC CORROSION), IT MAY BE OF SOLID ROD OR HOLLOW TUBING, WITH ADJUSTABLE HOOK AS REQUIRED.

   A NEOPRENE RUBBER GASKET IS REQUIRED BETWEEN THE RISER MOUNTING FLANGE AND THE GATE FLANGE.

   INSTALL THE GATE SO THAT THE LEVEL–LINE MARK IS LEVEL WHEN THE GATE IS CLOSED.

   THE MATING SURFACES OF THE LID AND THE BODY SHALL BE MACHINED FOR PROPER FIT.

   ALL SHEAR GATE BOLTS SHALL BE STAINLESS STEEL.
8. THE SHEAR GATE MAXIMUM OPENING SHALL BE CONTROLLED BY LIMITED HINGE MOVEMENT, A STOP TAB, OR SOME OTHER DEVICE.
9. ALTERNATIVE SHEAR GATE DESIGNS ARE ACCEPTABLE IF MATERIAL SPECIFICATIONS ARE MET.

CATCH BASIN TYPE 2 WITH FLOW RESTRICTOR

NOT TO SCALE

NO.	BY	DATE	REVISION

	BY:	DATE:
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BID SET

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ERIC J. SCOTT — STATE OF WASHINGTON — 36704 — REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SD02
SHEET 48 OF 89

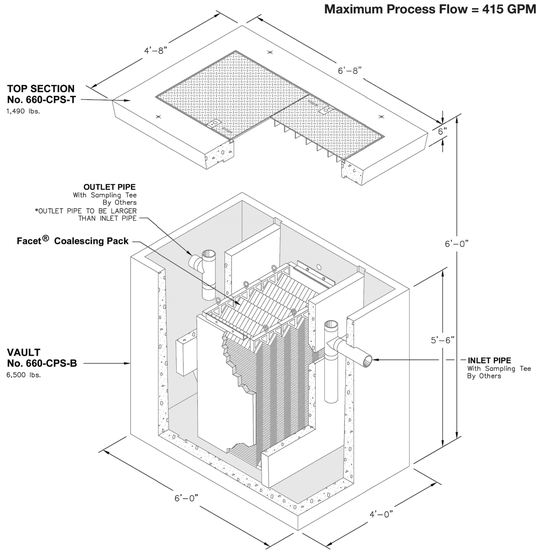
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIV\L.dwg, 05/14/25 02:51:14pm

SEC 10, TWP 26 N, RGE 4 E

Oldcastle Precast® *Delivering Reliability*

660-CPS OIL WATER SEPARATOR

Projected Plate Area = 444 Sq/ft
Maximum Process Flow = 415 GPM



FOR DETAILS, SEE REVERSE >>

Items Shown Are Subject To Change Without Notice
Issue Date: August 2012

127

Mailing Address
PO Box 388
Auburn, WA 98071

Phone: 800-892-1538
Fax: 253-735-4201
Email: opauburn@oldcastle.com

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660-CPS

Projected Plate Area = 444 Sq/ft
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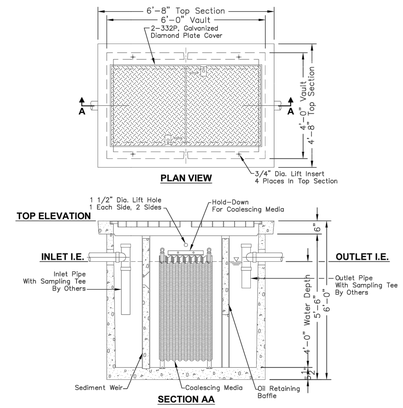


STRUCTURAL NOTES:
1. Concrete: 28 Day Compressive Strength f'c= 7000 psi
2. Rebar: ASTM A-615 Grade 60
3. Mesh: ASTM A-185 Grade 65
4. Design: ACI-318-05 Building Code
   ASTM C-890 "Minimum Structural Design
   Loading For Underground Precast Concrete
   Water and Wastewater Structures"
5. Loads: HS-20 Truck Wheel w/ 30% Impact Per AASHTO

GENERAL NOTES:
1. All Baffles and Weirs To Be Precast Concrete
2. Static Water Depth = 4'-0"
3. Contractor to:
   Supply and Install All Piping & Sampling Tees
   Grout In All Pipes
   Fill With Clean Water Prior To "Start-Up" Of System
   Verify All Blockout Sizes and Locations

INFORMATION NEEDED:
Top Of Separator Elevation: _____
Inlet Pipe Size: _____
Inlet Pipe Elevation: _____
Outlet Pipe Size: _____
Outlet Pipe Elevation: _____

BASIC DESIGN INFORMATION:
INFLUENT CHARACTERISTICS:
Oil Specific Gravity: 0.88
Operating Temperature: 50°
Influent Oil Concentration: 100 ppm
Mean Oil Droplet Size: 130 Microns
0.33 ft/min. Rise Rate
Designed Per Washington State Department Of Ecology

FLOW RATE	EFFLUENT QUALITY	COLLECTED SIZE
		100%
110 GPM	10 ppm	60 Micron

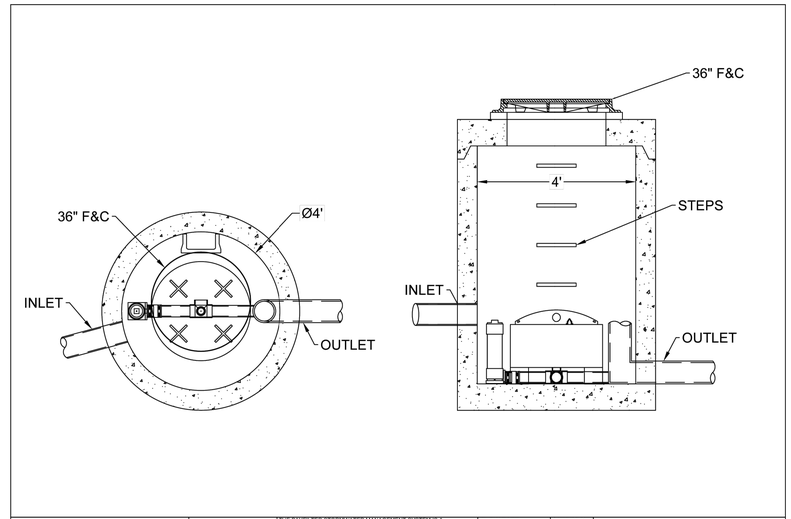
SCALE: 3/8" = 1'-0"

127.1

opauburn.com

OIL/WATER SEPARATOR (OWS) VAULT DETAIL

NOT TO SCALE



BAYSAVER TECHNOLOGIES
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Mount Airy, MD 21771 1-800-229-7283

ADS ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 45 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS OFFLINE WITH AN EXTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE SYSTEM. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.

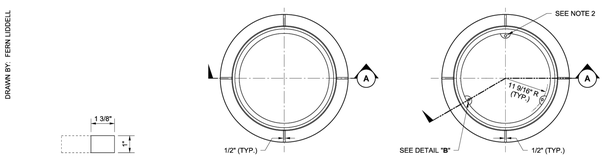
FLOW RATE	0.05 CFS
CARTRIDGE TYPE	622
QTY. CARTRIDGES	1
SEDIMENT CAPACITY	175 LBS
DATE	10/1/016
DRAWN	EKH
CHECKED	PR
SCALE	N.T.S.

BAYFILTER BF-48-1

BAYFILTER BASIC TREATMENT MANHOLE DETAIL

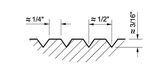
NOT TO SCALE

DRAWN BY: FERN LUDDELL

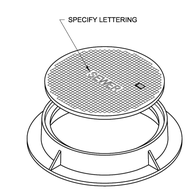


NOTES

1. The gasket and groove may be in the seat (frame) or in the underside of the cover. The gasket may be "T" shaped in section. The groove may be cast or machined.
2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 3 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S) 5/8" - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt down holes varies by manufacturer.
3. For bolt-down manhole ring and covers that are not designated "Watertight," the neoprene gasket, groove, and washer are not required.
4. Washer shall be neoprene (Detail "B").
5. In lieu of blind pick notch for manhole covers, a single 1" (in) pick hole is acceptable. Hole location and number of holes may vary by manufacturer.
6. Alternative reinforcing designs are acceptable in lieu of the rib design.
7. For clarity, the vertical scale of the Cover Section has been exaggerated, it is 1.5 times the horizontal scale (1H:1.5V).



SKID GROOVE PATTERN DETAIL



ISOMETRIC VIEW

Heilman, Julie
Feb 20 2018 12:55 PM

CIRCULAR FRAME (RING) AND COVER

STANDARD PLAN B-30.70-04

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Feb 27 2018 7:59 AM

STATE DESIGN ENGINEER
Washington State Department of Transportation

NO.	BY	DATE	REVISION

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CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

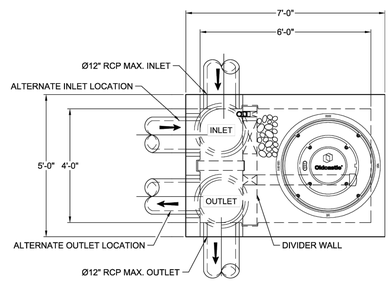
DRAINAGE DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SD03
SHEET 49
OF 89

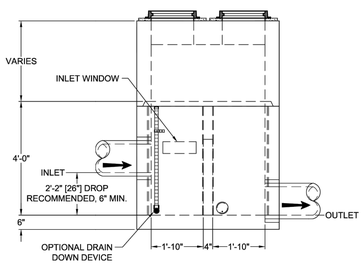
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIV\L.dwg, 05/14/25 02:51:20pm

SITE SPECIFIC DATA				
Structure ID				ID
Treatment Flow Rate (cfs)				-
Peak Flow Rate (cfs)				-
Rim Elevation				-
Top of Vault Elevation				-
Pipe Data	**Pipe Location**	**Pipe Size**	**Pipe Type**	**Invert Elevation**
Inlet	-	-	-	-
Outlet	-	-	-	-
Notes:				

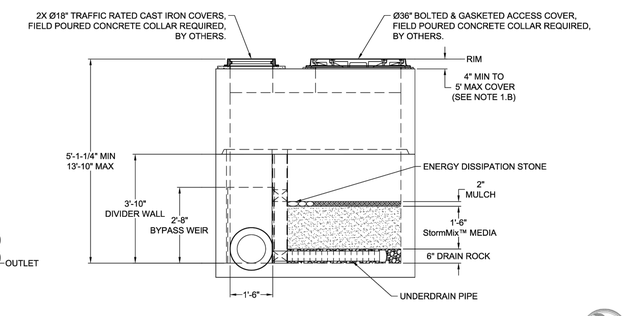
PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities.*	
NJDEP 80% Removal, 75 micron	0.064 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.057 cfs
Bypass Capactiy	5.0 cfs
*Contact Oldcastle for alternative treatment flow capacities.	



PLAN VIEW



LEFT END VIEW



ELEVATION VIEW

NOTES:

1. DESIGN LOADINGS:
   A. AASHTO HS-25 (WITH IMPACT)
   B. DESIGN SOIL COVER: 5'-0" MAXIMUM
   C. ASSUMED WATER TABLE: BELOW BASE OF PRECAST (ENGINEER-OF-RECORD TO CONFIRM SITE WATER TABLE ELEVATION)
   D. LATERAL EARTH PRESSURE: 45 PCF (DRAINED).
   E. LATERAL LIVE LOAD SURCHARGE: 80 PSF (APPLIED TO 8'-0" BELOW GRADE)
   F. NO LATERAL SURCHARGE FROM ADJACENT BUILDINGS, WALLS, PIERS, OR FOUNDATIONS.
2. CONCRETE 28-DAY MINIMUM COMPRESSIVE STRENGTH: 5,000 PSI MINIMUM.
3. REINFORCING: REBAR, ASTM A615/A706, GRADE 60
4. CEMENT: ASTM C150
5. REQUIRED ALLOWABLE SOIL BEARING CAPACITY: 2,500 PSF
6. REFERENCE STANDARD:
   A. ASTM C890
   B. ASTM C913
   C. ACI 318-14
7. THIS STRUCTURE IS DESIGNED TO THE PARAMETERS NOTED HEREIN. ENGINEER-OF-RECORD SHALL VERIFY FV THAT NOTED PARAMETERS MEET OR EXCEED PROJECT REQUIREMENTS. IF DESIGN PARAMETERS ARE INCORRECT, REVIEWING ENGINEER/AUTHORITY SHALL NOTIFY OLDCASTLE INFRASTRUCTURE UPON REVIEW.
8. INLET AND OUTLET HOLES WILL BE FACTORY CORED/CAST PER PLANS AND CUSTOMER REQUIREMENTS. INLET AND OUTLET LOCATIONS CAN BE MIRRORED.
9. CONTRACTOR RESPONSIBLE TO VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS.
10. CONTRACTOR RESPONSIBLE TO ENSURE ADEQUATE BEARING SURFACE IS PROVIDED (I.E. COMPACTED AND LEVEL PER PROJECT SPECIFICATIONS).
11. SECTION HEIGHTS, SLAB/WALL THICKNESSES, AND KEYWAYS ARE SUBJECT TO CHANGE AS REQUIRED FOR SITE REQUIREMENTS AND/OR DUE TO PRODUCT AVAILABILITY AND PRODUCTION FACILITY CONSTRAINTS.
12. MAXIMUM PICK WEIGHTS*:
    A. TOP: XX,XXX LBS
    B. BASE: XX,XXX LBS*
    (* COMBINED WEIGHT OF BASE INCLUDES BYPASS WEIR, DIVIDER WALL, ROCK & MEDIA)
13. INTERNALS SHALL CONSIST OF UNDERDRAIN PIPE, ROCK, STORMMIX™ MEDIA, MULCH, DIVIDER WALL, BYPASS WEIR AND OPTIONAL DRAIN DOWN.

Oldcastle Infrastructure™ A CRH COMPANY
Ph: 800.579.8819 | www.oldcastleinfrastructure.com/stormwater

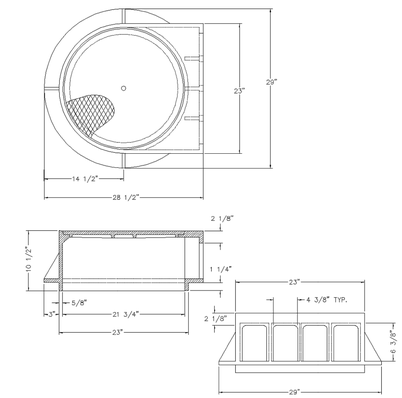
BioPod™ Biofilter System (STANDARD)
Underground Vault with Internal Bypass

CUSTOMER: -
PROJECT NAME: -
SHEET NAME: Specifier Drawing BPU-46IB
REVISION: - REV DATE: -
SHEET: 1 OF 1

Bioretention/ Biofiltration

BIOPOD BIOFILTER ENHANCED TREATMENT VAULT DETAIL

NOT TO SCALE



NOTES:

OLYMPIC FOUNDRY INC.

CURB INLET FRAME & COVER

MATL: Cast Iron ASTM A48, CL30 | RATING: N/A | PART NO. SM94

APPROX WT: Frame 210 Lbs, Cover 75 Lbs | REV: A DATE: 7/3/2003 New border | REV A

DOCUMENT APPROVED BY: DATE: | DWN: CL DATE: 7/3/2003 | CHKD: CL DATE: 7/3/2003 | TOLERANCE XX +- .1 XXX +- .06 XXXX +- .030 < +- 2 DEG | REV: DATE: | DWG #: SM94 | SCALE: N/A | SHEET: 1 OF 1

SM94 FRAME & GRATE DETAIL

NOT TO SCALE

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

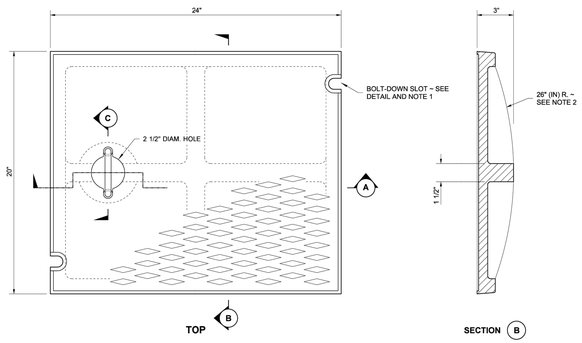
DRAINAGE DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **SD04**
SHEET 50 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:51:29pm

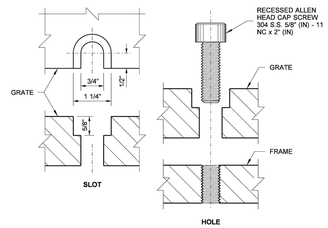
SEC 10, TWP 26 N, RGE 4 E

DRAWN BY: FERN LIDDELL

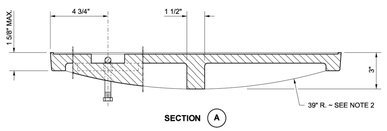


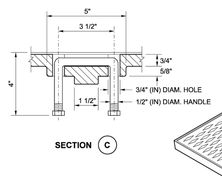
NOTES

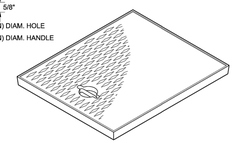
1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC × 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Alternative reinforcing designs are acceptable in lieu of the rib design.
3. Refer to **Standard Specification Section 9-05.15** and **9-05.15(2)** for additional requirements.
4. For frame details, see **Standard Plan B-30.10.**



BOLT-DOWN DETAILS
SEE NOTE 1







ISOMETRIC

Heitman, Julie
Feb 20 2018 12:53 PM
coxsgr

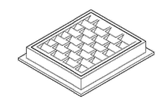
RECTANGULAR SOLID METAL COVER

STANDARD PLAN B-30.20-04

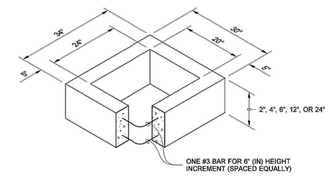
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Feb 27 2018 7:57 AM
coxsgr
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



FRAME AND VANED GRATE



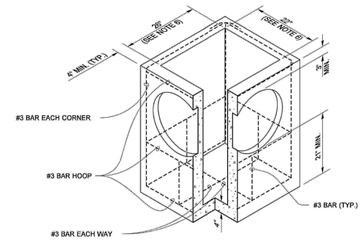
RECTANGULAR ADJUSTMENT SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER (INCHES)
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP ★ (STD. SPEC. SECT. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. SECT. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. SECT. 9-05.12(2))	15"

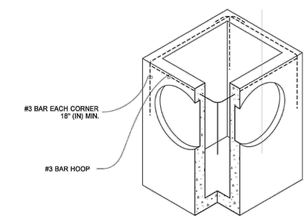
★ CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the **ALTERNATIVE PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 20" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the **Precast Base Section**.
7. All pickup holes shall be grouted full after the basin has been placed.



PRECAST BASE SECTION



(SEE NOTE 1)

ALTERNATIVE PRECAST BASE SECTION

Julie Heitman
2020.09.01 07:52:50 -07'00'

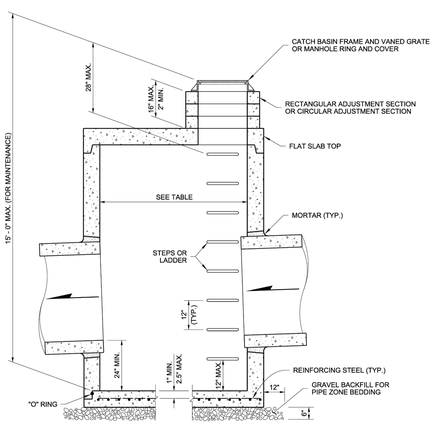
CATCH BASIN TYPE 1

STANDARD PLAN B-5.20-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Roark, Steve
Digitally signed by Roark, Steve
Date: 2020.09.09 09:45:23 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3.**

CATCH BASIN DIMENSIONS				
CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES					
CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ① PP ④	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	30"	30"
54"	30"	36"	30"	36"	36"
60"	36"	42"	36"	42"	42"
72"	42"	54"	42"	48"	48"
84"	54"	60"	54"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

① Corrugated Polyethylene Storm Sewer Pipe (See **Standard Specification Section 9-05.20**)
② (See **Standard Specification Section 9-05.12(1)**)
③ (See **Standard Specification Section 9-05.12(2)**)
④ Polypropylene Pipe (See **Standard Specification Section 9-05.24**)

Heitman, Julie
Feb 20 2018 12:49 PM
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CATCH BASIN TYPE 2

STANDARD PLAN B-10.20-02

SHEET 1 OF 1 SHEET

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Carpenter, Jeff
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STATE DESIGN ENGINEER
Washington State Department of Transportation

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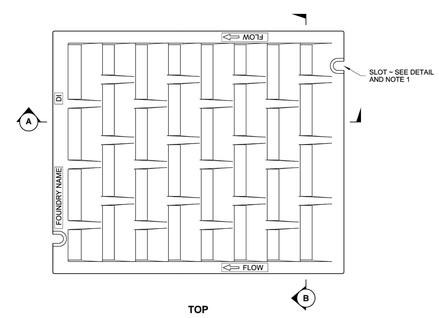

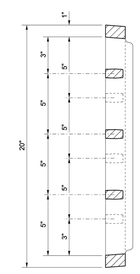

NOTES

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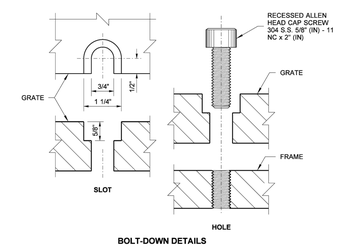
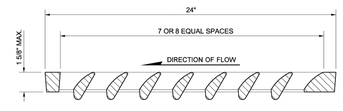
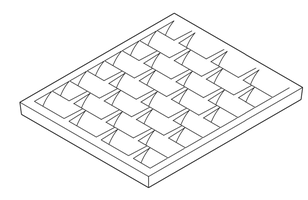
2. Refer to **Standard Specification Section 9-05.15** and **9-05.15(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10**.



BOLT-DOWN DETAILS
SEE NOTE 1





ISOMETRIC

Heitman, Julie
Feb 20 2018 12:54 PM
coxsgr

RECTANGULAR VANED GRATE

STANDARD PLAN B-30.30-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Feb 27 2018 7:58 AM
coxsgr
STATE DESIGN ENGINEER
Washington State Department of Transportation

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT — STATE OF WASHINGTON — 36704 — REGISTERED PROFESSIONAL ENGINEER
5/25/25

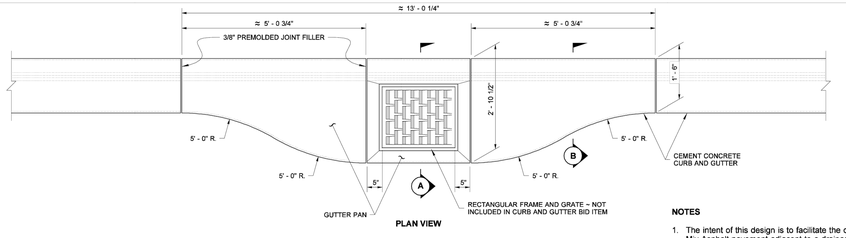
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

DRAINAGE DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SD05
SHEET 51 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:51:34pm

DRAWN BY: MARK SLUKA

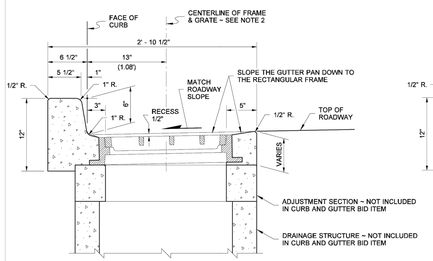


PLAN VIEW

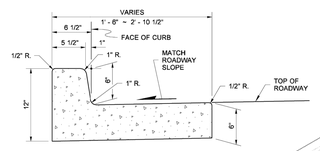
CATCH BASIN GUTTER PAN

NOTES

1. The intent of this design is to facilitate the compaction of Hot Mix Asphalt pavement adjacent to a drainage structure.
2. The centerline of the drainage structure may differ from the centerline of the frame and grate.



SECTION (A)



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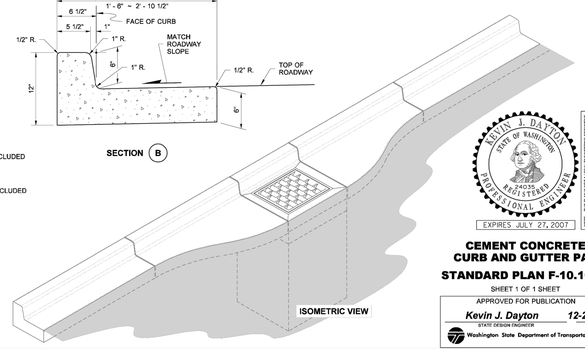

ISOMETRIC VIEW

KEVIN J. DAYTON
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES JULY 27, 2007

BOTH THIS PLAN SET AND THE "ENGINEERING DOCUMENT" FILE ASSOCIATED WITH THIS PROJECT ARE INSTRUMENTS OF SERVICE THAT ARE PROPRIETARY TO THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. THEY MAY NOT BE REPRODUCED OR REUSED WITHOUT WSDOT'S WRITTEN PERMISSION. A COPY MAY BE OBTAINED UPON REQUEST.

CEMENT CONCRETE CURB AND GUTTER PAN

STANDARD PLAN F-10.16-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Kevin J. Dayton — STATE DESIGN ENGINEER — *12-20-06* — DATE

Washington State Department of Transportation

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:51:44pm

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
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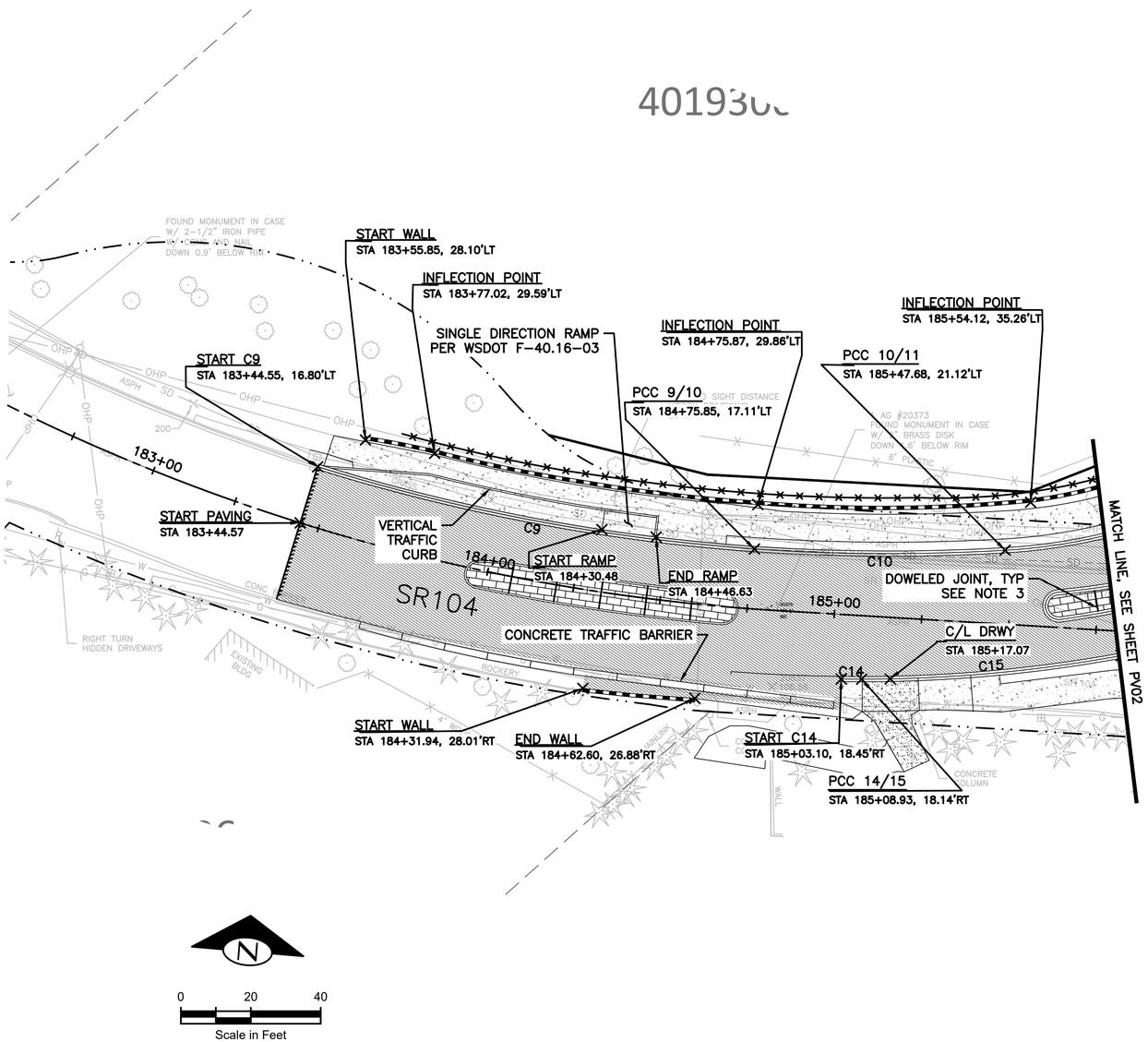
ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED
PROFESSIONAL ENGINEER
5/25/25

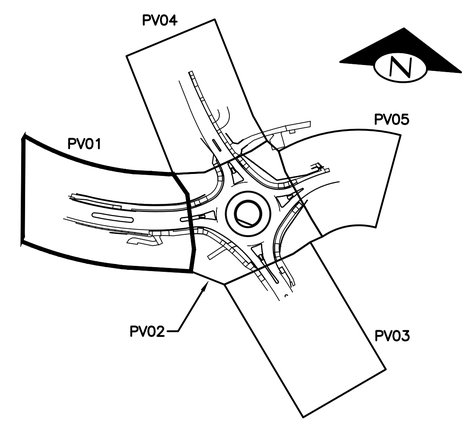
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

DRAINAGE DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. **SD06**
SHEET 52 OF 89

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTES:

1. REFER TO SHEETS SI01 AND SI02 FOR SPLITTER ISLANDS.
2. UNLESS OTHERWISE NOTED, ALL ADA CURB RAMPS TO BE COMBINATION CURB RAMPS PER WSDOT STANDARD PLAN F-40.14-03.
3. DOWEL BAR PCCP JOINT PER WSDOT STANDARD PLAN A-40.10-04.
4. REFER TO DRP SHEETS FOR DRIVEWAY PROFILES AND ADDITIONAL NOTES.

Curb Flowline Curve & Line Data

Line #/Curve #	Length	Direction/Delta	Radius	Tangent
C9	127.422	013°20'04"	547.511	64.00
C10	71.743	007°09'41"	574.000	35.92
C11	75.329	026°28'43"	163.000	38.35
C12	61.471	078°16'02"	45.000	36.61
C13	36.790	017°33'57"	120.000	18.54
C14	5.846	000°40'11"	500.000	2.92
C15	74.613	010°22'34"	412.000	37.41
C16	44.754	037°42'33"	68.000	23.22
C17	93.131	024°15'17"	220.000	47.27
C18	39.769	003°52'31"	588.000	19.89
C19	110.332	044°18'27"	142.674	58.09
C20	34.334	005°06'35"	385.000	17.18
C21	91.672	066°29'11"	79.000	51.78
C22	64.718	011°55'23"	311.000	32.48
C23	66.848	063°50'05"	60.000	37.37
C24	52.730	015°06'22"	200.000	26.52
C25	39.545	004°38'00"	489.000	19.78
C26	59.560	006°58'43"	489.000	29.82
C27	70.467	004°04'57"	989.000	35.25
L13	39.387	N39° 09' 46.50"W		
L14	5.202	S34° 11' 50.27"E		
L15	29.653	S21° 00' 50.90"E		

Curve Table

Curve #	Length	Radius	Delta	Tangent
C29	81.021	297.500	015°36'14"	40.76
C30	19.356	62.500	017°44'39"	9.76

LEGEND

- HMA PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE WALKWAY
- DECORATIVE CONCRETE PAVEMENT
- RETAINING WALL
- WOOD FENCING

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR, #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

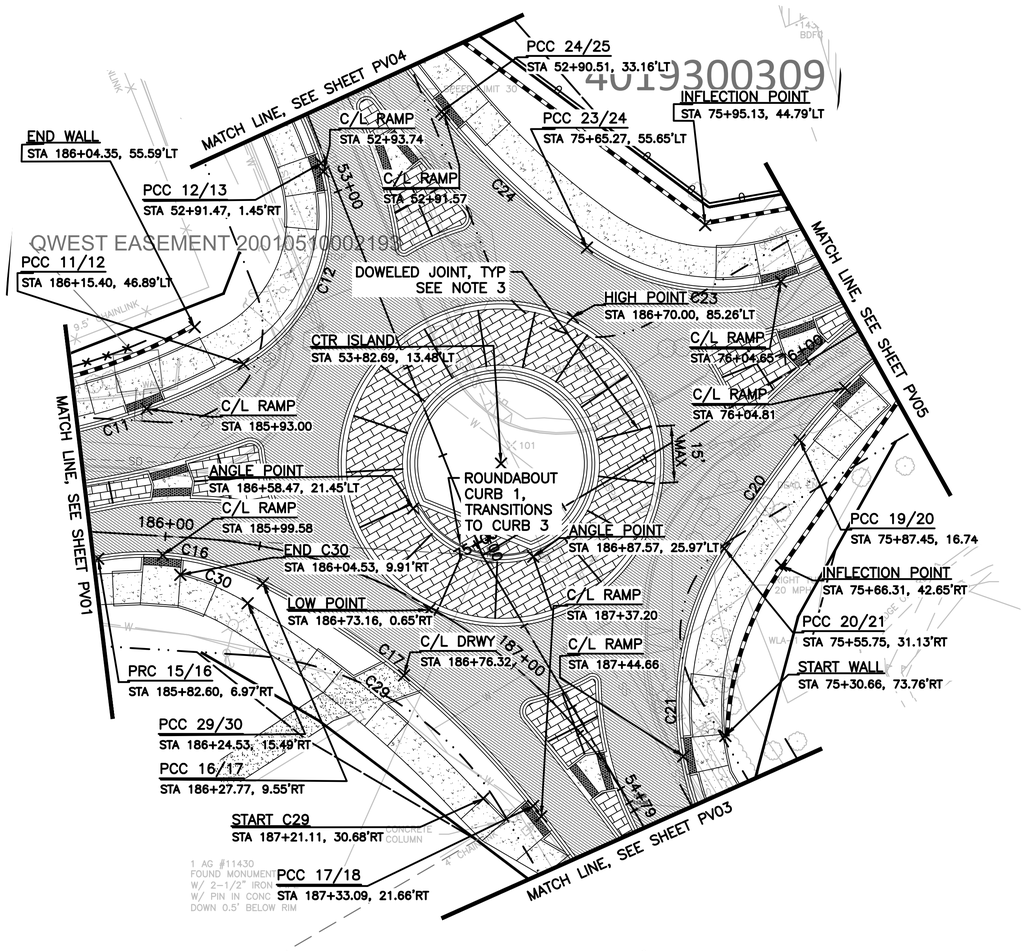
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

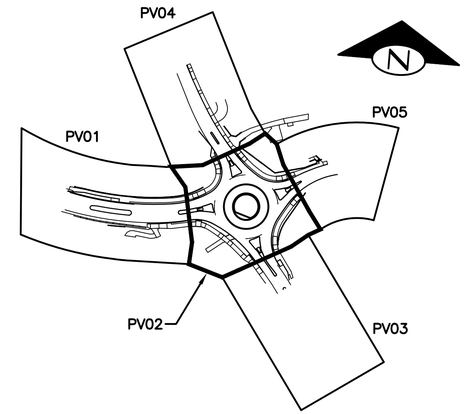
PAVING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. PV01
SHEET 53 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:52:02pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTES:

1. REFER TO SHEETS SI01 AND SI02 FOR SPLITTER ISLANDS.
2. UNLESS OTHERWISE NOTED, ALL ADA CURB RAMPS TO BE COMBINATION CURB RAMPS PER WSDOT STANDARD PLAN F-40.14-03.
3. DOWEL BAR PCCP JOINT PER WSDOT STANDARD PLAN A-40.10-04.
4. REFER TO DRP SHEETS FOR DRIVEWAY PROFILES AND ADDITIONAL NOTES.

N

0 20 40
Scale in Feet

Curb Flowline Curve & Line Data

Line #/Curve #	Length	Direction/Delta	Radius	Tangent
C9	127.422	013°20'04"	547.511	64.00
C10	71.743	007°09'41"	574.000	35.92
C11	75.329	026°28'43"	163.000	38.35
C12	61.471	078°16'02"	45.000	36.61
C13	36.790	017°33'57"	120.000	18.54
C14	5.846	000°40'11"	500.000	2.92
C15	74.613	010°22'34"	412.000	37.41
C16	44.754	037°42'33"	68.000	23.22
C17	93.131	024°15'17"	220.000	47.27
C18	39.769	003°52'31"	588.000	19.89
C19	110.332	044°18'27"	142.674	58.09
C20	34.334	005°06'35"	385.000	17.18
C21	91.672	066°29'11"	79.000	51.78
C22	64.718	011°55'23"	311.000	32.48
C23	66.848	063°50'05"	60.000	37.37
C24	52.730	015°06'22"	200.000	26.52
C25	39.545	004°38'00"	489.000	19.78
C26	59.560	006°58'43"	489.000	29.82
C27	70.467	004°04'57"	989.000	35.25
L13	39.387	N39° 09' 46.50"W		
L14	5.202	S34° 11' 50.27"E		
L15	29.653	S21° 00' 50.90"E		

Curve Table

Curve #	Length	Radius	Delta	Tangent
C29	81.021	297.500	015°36'14"	40.76
C30	19.356	62.500	017°44'39"	9.76

LEGEND

- HMA PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE WALKWAY
- DECORATIVE CONCRETE PAVEMENT
- RETAINING WALL
- WOOD FENCING

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR, #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

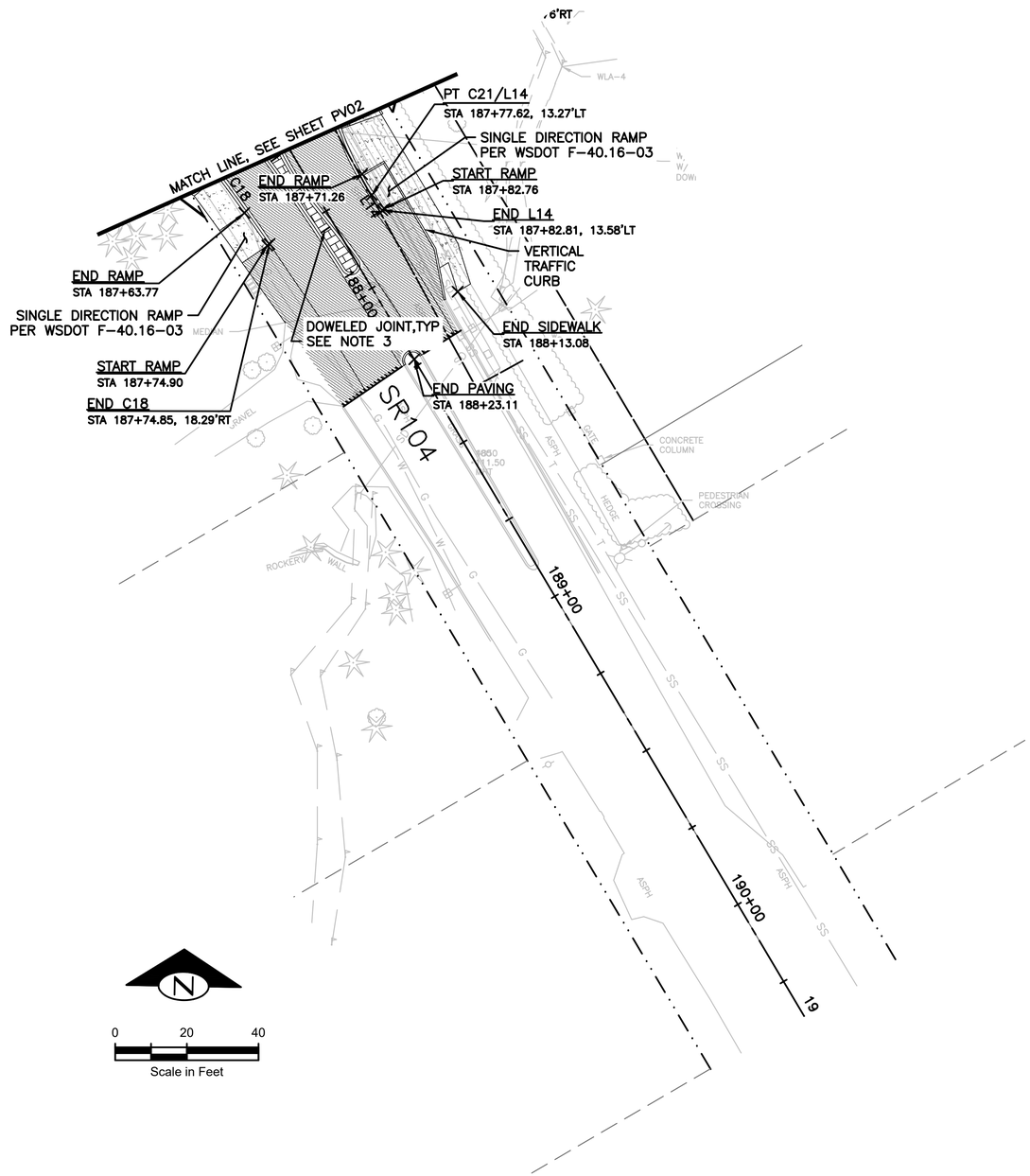
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

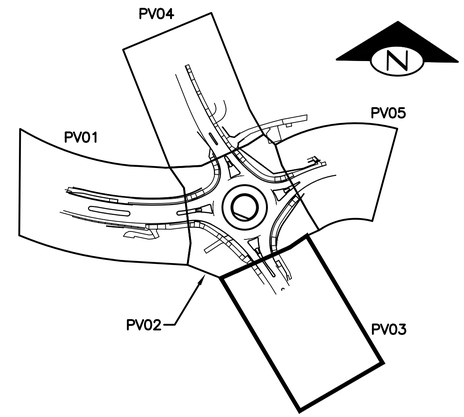
PAVING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. PV02
SHEET 54 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:52:14pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTES:

1. REFER TO SHEETS SI01 AND SI02 FOR SPLITTER ISLANDS.
2. UNLESS OTHERWISE NOTED, ALL ADA CURB RAMPS TO BE COMBINATION CURB RAMPS PER WSDOT STANDARD PLAN F-40.14-03.
3. DOWEL BAR PCCP JOINT PER WSDOT STANDARD PLAN A-40.10-04.
4. REFER TO DRP SHEETS FOR DRIVEWAY PROFILES AND ADDITIONAL NOTES.

Curb Flowline Curve & Line Data

Line #/Curve #	Length	Direction/Delta	Radius	Tangent
C9	127.422	013°20'04"	547.511	64.00
C10	71.743	007°09'41"	574.000	35.92
C11	75.329	026°28'43"	163.000	38.35
C12	61.471	078°16'02"	45.000	36.61
C13	36.790	017°33'57"	120.000	18.54
C14	5.846	000°40'11"	500.000	2.92
C15	74.613	010°22'34"	412.000	37.41
C16	44.754	037°42'33"	68.000	23.22
C17	93.131	024°15'17"	220.000	47.27
C18	39.769	003°52'31"	588.000	19.89
C19	110.332	044°18'27"	142.674	58.09
C20	34.334	005°06'35"	385.000	17.18
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C27	70.467	004°04'57"	989.000	35.25
L13	39.387	N39° 09' 46.50"W		
L14	5.202	S34° 11' 50.27"E		
L15	29.653	S21° 00' 50.90"E		

Curve Table

Curve #	Length	Radius	Delta	Tangent
C29	81.021	297.500	015°36'14"	40.76
C30	19.356	62.500	017°44'39"	9.76

LEGEND

- HMA PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE WALKWAY
- DECORATIVE CONCRETE PAVEMENT
- RETAINING WALL
- WOOD FENCING
- CHAIN LINK FENCING

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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Consulting Engineers
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ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

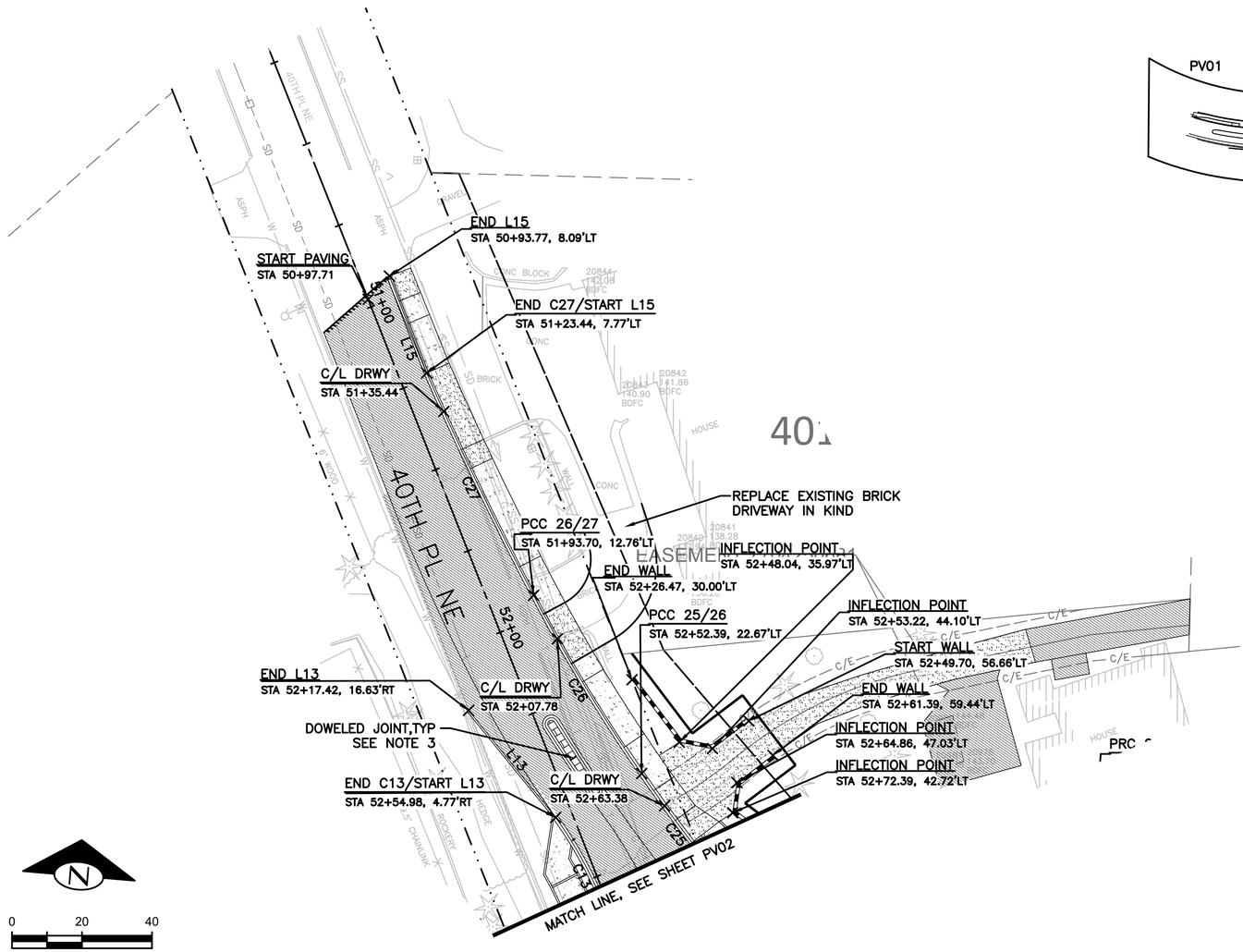
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

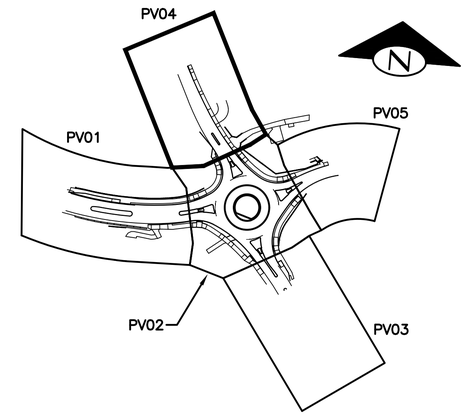
PAVING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. PV03
SHEET 55 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 06/03/25 12:40:02pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTES:

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3. DOWEL BAR PCCP JOINT PER WSDOT STANDARD PLAN A-40.10-04.
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C14	5.846	000°40'11"	500.000	2.92
C15	74.613	010°22'34"	412.000	37.41
C16	44.754	037°42'33"	68.000	23.22
C17	93.131	024°15'17"	220.000	47.27
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L13	39.387	N39° 09' 46.50"W		
L14	5.202	S34° 11' 50.27"E		
L15	29.653	S21° 00' 50.90"E		

Curve Table

Curve #	Length	Radius	Delta	Tangent
C29	81.021	297.500	015°36'14"	40.76
C30	19.356	62.500	017°44'39"	9.76

LEGEND

- HMA PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE WALKWAY
- DECORATIVE CONCRETE PAVEMENT
- RETAINING WALL
- WOOD FENCING

0 20 40
Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
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ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

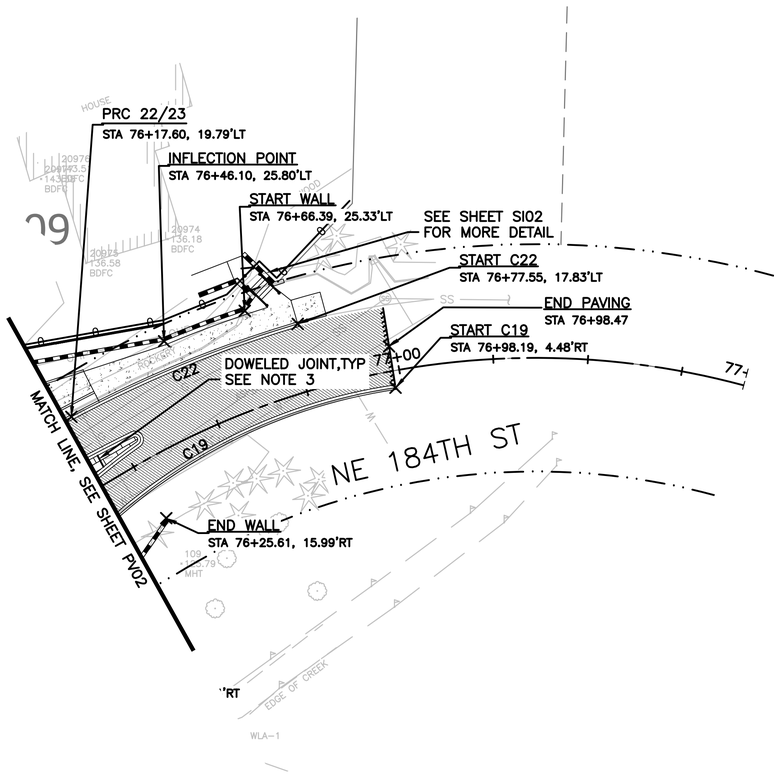
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

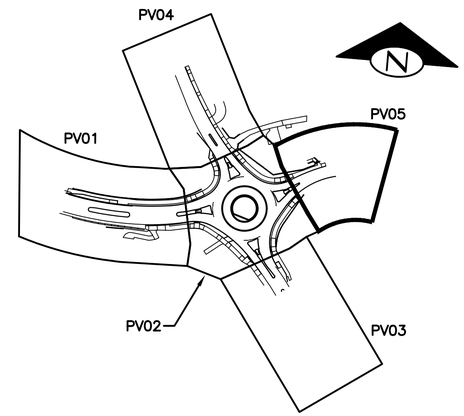
PAVING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. PV04
SHEET 56 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:52:39pm

SEC 10, TWP 26 N, RGE 4 E





KEY MAP
NOT TO SCALE

NOTES:

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2. UNLESS OTHERWISE NOTED, ALL ADA CURB RAMPS TO BE COMBINATION CURB RAMPS PER WSDOT STANDARD PLAN F-40.14-03.
3. DOWEL BAR PCCP JOINT PER WSDOT STANDARD PLAN A-40.10-04.
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N

0 20 40
Scale in Feet

Curb Flowline Curve & Line Data

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Curve Table

Curve #	Length	Radius	Delta	Tangent
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C30	19.356	62.500	017°44'39"	9.76

LEGEND

- HMA PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE WALKWAY
- DECORATIVE CONCRETE PAVEMENT
- RETAINING WALL
- WOOD FENCING

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR, #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT, STATE OF WASHINGTON, 36704, REGISTERED PROFESSIONAL ENGINEER
5/25/25

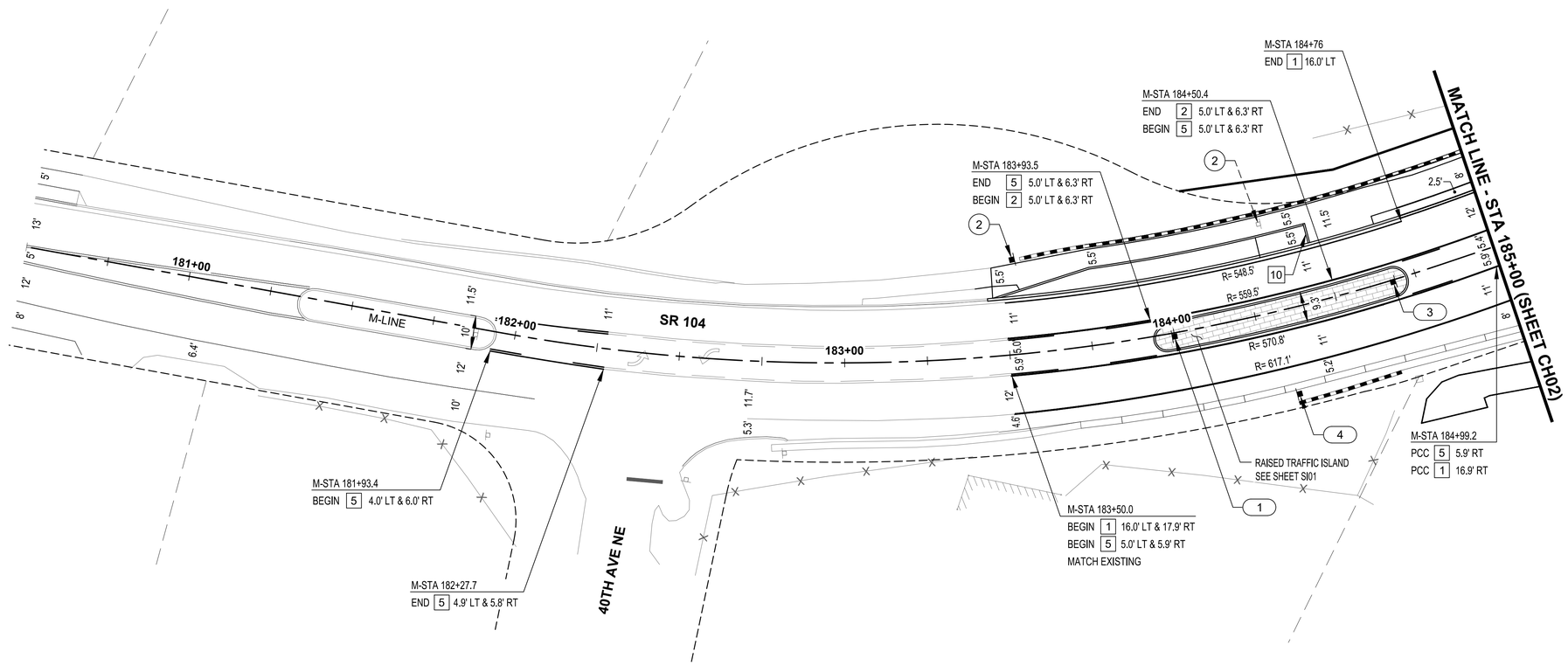
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PAVING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. PV05
SHEET 57 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:52:54pm

SECTION 10, T 26 N, R 4 E, WM



CHANNELIZATION NOTES:

1. WHITE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
2. YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.
3. WHITE WIDE DOTTED ENTRY LINE, PER WSDOT STD. PLAN M-20.10.
4. YELLOW DOUBLE CENTERLINE, PER WSDOT STD. PLAN M-20.10.
5. YELLOW TWO-WAY LEFT-TURN LINE, PER WSDOT STD. PLAN M-20.10.
6. TRAFFIC ARROW, PER WSDOT STD. PLAN M-24.40.
7. WHITE WIDE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
8. YIELD LINE SYMBOL TYPE 2, PER WSDOT STD. PLAN M-24.60.
9. WHITE CROSSWALK MARKING, PER WSDOT STD. PLAN M-15.10. EXCEPT CHANGE CROSSWALK MARKING WIDTH FROM 8' TO 10'.
10. YELLOW LINEAR DETECTABLE STRIP.

GENERAL NOTES:

1. SEE SHEET CH05 AND CH06 FOR RAISED ISLAND DETAILS AND STRIPING CALLOUTS ADJACENT TO SPLITTER ISLANDS.
2. SEE SHEET CH05 FOR SIGN SCHEDULE.
3. CHANNELIZATION TO BE INSTALLED SHALL BE PER WSDOT STANDARD SECTION M.

SIGN LEGEND:

(X) - NEW SIGN

[XXR] - REMOVE EXISTING SIGN

(X) NEW SIGN LOCATION / EXISTING SIGN LOCATION

- EXISTING SIGN

- NEW SIGN

20' 10' 0 20' 40'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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CITY OF LAKE FOREST PARK

Transportation Solutions
INNOVATIVE | PRACTICAL | EQUITABLE
16932 Woodinville-Redmond Road, Suite A206
Woodinville, WA 98072
(425) 883-4134 | www.tsinw.com

KIRK ANDREW HARRIS, STATE OF WASHINGTON, 34403, REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CHANNELIZATION AND SIGNING PLAN

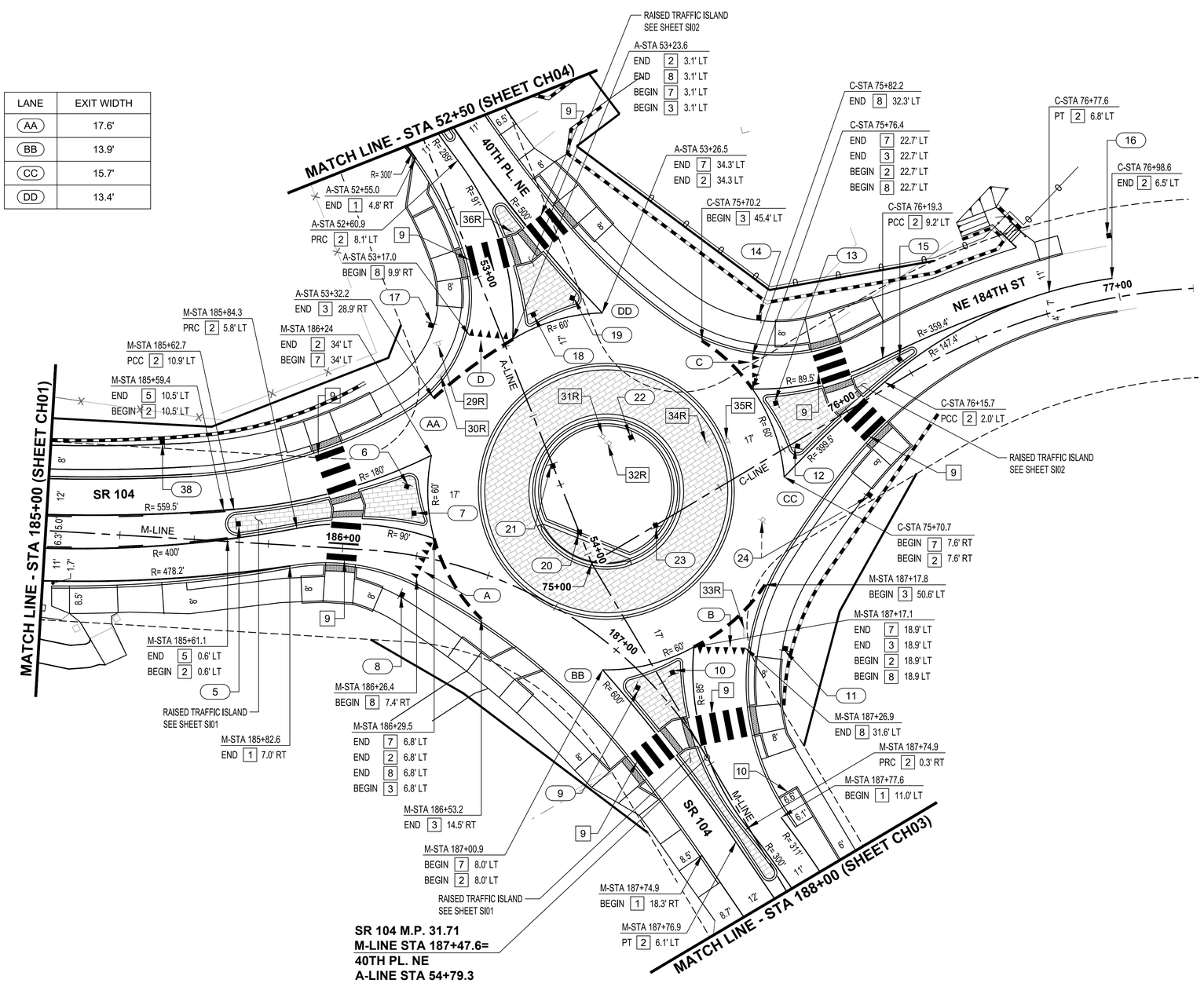
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CH01
SHEET 58 OF 89

C:\Users\MIKESC~1\AppData\Local\Temp\AcPublish_24568\221007-CH.dwg, 06/09/25 07:29:21am

SECTION 10, T 26 N, R 4 E, WM

LANE	ENTRY WIDTH
A	17.0'
B	18.8'
C	13.1'
D	15.6'

LANE	EXIT WIDTH
AA	17.6'
BB	13.9'
CC	15.7'
DD	13.4'



CHANNELIZATION NOTES:

1. WHITE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
2. YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.
3. WHITE WIDE DOTTED ENTRY LINE, PER WSDOT STD. PLAN M-20.10.
4. YELLOW DOUBLE CENTERLINE, PER WSDOT STD. PLAN M-20.10.
5. YELLOW TWO-WAY LEFT-TURN LINE, PER WSDOT STD. PLAN M-20.10.
6. TRAFFIC ARROW, PER WSDOT STD. PLAN M-24.40.
7. WHITE WIDE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
8. YIELD LINE SYMBOL TYPE 2, PER WSDOT STD. PLAN M-24.60.
9. WHITE CROSSWALK MARKING, PER WSDOT STD. PLAN M-15.10. EXCEPT CHANGE CROSSWALK MARKING WIDTH FROM 8' TO 10'.
10. YELLOW LINEAR DETECTABLE STRIP.

GENERAL NOTES:

1. SEE SHEET CH05 AND CH06 FOR RAISED ISLAND DETAILS AND STRIPING CALLOUTS ADJACENT TO SPLITTER ISLANDS.
2. SEE SHEET CH05 FOR SIGN SCHEDULE.
3. CHANNELIZATION TO BE INSTALLED SHALL BE PER WSDOT STANDARD SECTION M.

SIGN LEGEND:

(X) - NEW SIGN

[XXR] - REMOVE EXISTING SIGN

(X) NEW SIGN LOCATION / EXISTING SIGN LOCATION

- EXISTING SIGN

- NEW SIGN

20' 10' 0 20' 40'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS, STATE OF WASHINGTON, 54403, REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CHANNELIZATION AND SIGNING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CH02
SHEET 59 OF 89

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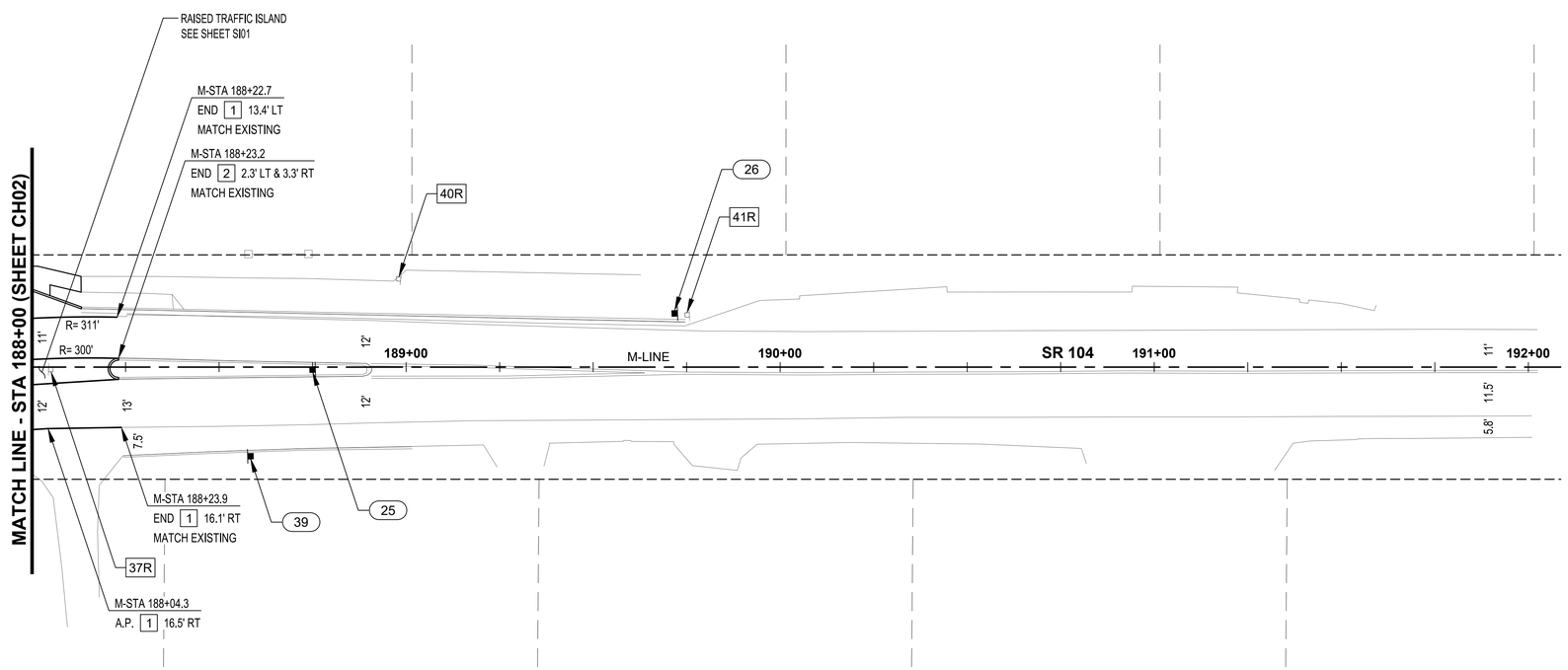
SECTION 10, T 26 N, R 4 E, WM



CHANNELIZATION NOTES:

1. WHITE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
2. YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.
3. WHITE WIDE DOTTED ENTRY LINE, PER WSDOT STD. PLAN M-20.10.
4. YELLOW DOUBLE CENTERLINE, PER WSDOT STD. PLAN M-20.10.
5. YELLOW TWO-WAY LEFT-TURN LINE, PER WSDOT STD. PLAN M-20.10.
6. TRAFFIC ARROW, PER WSDOT STD. PLAN M-24.40.
7. WHITE WIDE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
8. YIELD LINE SYMBOL TYPE 2, PER WSDOT STD. PLAN M-24.60.
9. WHITE CROSSWALK MARKING, PER WSDOT STD. PLAN M-15.10. EXCEPT CHANGE CROSSWALK MARKING WIDTH FROM 8' TO 10'.
10. YELLOW LINEAR DETECTABLE STRIP.

GENERAL NOTES:

1. SEE SHEET CH05 AND CH06 FOR RAISED ISLAND DETAILS AND STRIPING CALLOUTS ADJACENT TO SPLITTER ISLANDS.
2. SEE SHEET CH05 FOR SIGN SCHEDULE.
3. CHANNELIZATION TO BE INSTALLED SHALL BE PER WSDOT STANDARD SECTION M.

SIGN LEGEND:

(X) - NEW SIGN

[XXR] - REMOVE EXISTING SIGN

(X) NEW SIGN LOCATION / EXISTING SIGN LOCATION

- EXISTING SIGN

- NEW SIGN

20' 10' 0 20' 40'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS, STATE OF WASHINGTON, 54403, REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CHANNELIZATION AND SIGNING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CH03
SHEET 60 OF 89

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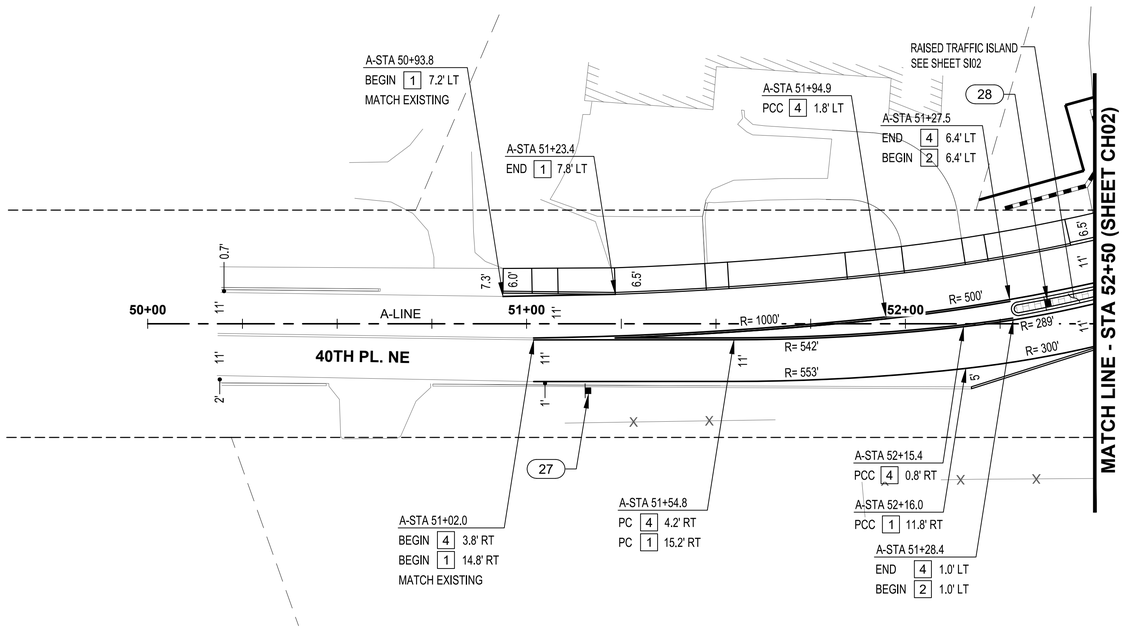
SECTION 10, T 26 N, R 4 E, WM



CHANNELIZATION NOTES:

1. WHITE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
2. YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.
3. WHITE WIDE DOTTED ENTRY LINE, PER WSDOT STD. PLAN M-20.10.
4. YELLOW DOUBLE CENTERLINE, PER WSDOT STD. PLAN M-20.10.
5. YELLOW TWO-WAY LEFT-TURN LINE, PER WSDOT STD. PLAN M-20.10.
6. TRAFFIC ARROW, PER WSDOT STD. PLAN M-24.40.
7. WHITE WIDE EDGE LINE, PER WSDOT STD. PLAN M-20.10.
8. YIELD LINE SYMBOL TYPE 2, PER WSDOT STD. PLAN M-24.60.
9. WHITE CROSSWALK MARKING, PER WSDOT STD. PLAN M-15.10. EXCEPT CHANGE CROSSWALK MARKING WIDTH FROM 8' TO 10'.
10. YELLOW LINEAR DETECTABLE STRIP.

GENERAL NOTES:

1. SEE SHEET CH05 AND CH06 FOR RAISED ISLAND DETAILS AND STRIPING CALLOUTS ADJACENT TO SPLITTER ISLANDS.
2. SEE SHEET CH05 FOR SIGN SCHEDULE.
3. CHANNELIZATION TO BE INSTALLED SHALL BE PER WSDOT STANDARD SECTION M.

SIGN LEGEND:

(X) - NEW SIGN

[XXR] - REMOVE EXISTING SIGN

(X) NEW SIGN LOCATION / EXISTING SIGN LOCATION

- EXISTING SIGN

- NEW SIGN

20' 10' 0 20' 40'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS
STATE OF WASHINGTON
54403
REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CHANNELIZATION AND SIGNING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CH04
SHEET 61 OF 89

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SIGN SCHEDULE

SIGN NO.	STATION	OFFSET	SIGN TYPE	SIGN SIZE W (IN)	SIGN SIZE H (IN)	DESCRIPTION	REMARKS
1	184+00.0	1.0' RT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
2	183+53.4	28.5' LT				REDUCED SIGHT DISTANCE HIDDEN DRIVEWAYS 25 MPH	RELOCATE (3) SIGNS ON NEW POST
3	184+67.9	0.6' RT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
4	184+32.7	25.8' RT	W2-6P	30	18	ROUNDABOUT AHEAD	MOUNT ABOVE W2-6 SIGN
			W2-6	30	30	CIRCULAR INTERSECTION	NEW SIGN & POST
			W13-1P	18	18	20 MPH	MOUNT BELOW W2-6 SIGN
5	185+63.2	5.9' LT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
6	186+18.6	22.5' LT	D3-1a	VARIES	12	SR 104 SYMBOL / BALLINGER WAY NE	NEW SIGN & POST
7	186+21.9	13.9' LT	R1-2	36	36	YIELD	NEW SIGN & POST
8	186+22.3	13.6' RT	R1-2	36	36	YIELD	NEW SIGN & POST
			R6-5P	30	30	ROUNDABOUT CIRCULATION	MOUNT BELOW R1-2 SIGN
9	187+14.1	4.3' RT	D3-1a	VARIES	12	SR 104 SYMBOL / BALLINGER WAY NE	NEW SIGN & POST
10	187+18.3	7.7' LT	R1-2	36	36	YIELD	NEW SIGN & POST
11	187+33.6	42.2' LT	R1-2	36	36	YIELD	NEW SIGN & POST
			R6-5P	30	30	ROUNDABOUT CIRCULATION	MOUNT BELOW R1-2 SIGN
12	75+79.6	1.6' RT	D3-302	VARIES	12	NE 184TH ST	NEW SIGN & POST
13	75+80.7	14.6' LT	R1-2	36	36	YIELD	NEW SIGN & POST
14	75+90.6	42.3' LT	R1-2	36	36	YIELD	NEW SIGN & POST
			R6-5P	30	30	ROUNDABOUT CIRCULATION	MOUNT BELOW R1-2 SIGN
15	76+24.0	6.0' LT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
16	77+00.0	20.9' LT	W2-6P	30	18	ROUNDABOUT AHEAD	MOUNT ABOVE W2-6 SIGN
			W2-6	30	30	CIRCULAR INTERSECTION	NEW SIGN & POST
			W13-1P	18	18	20 MPH	MOUNT BELOW W2-6 SIGN
17	53+09.1	20.7'RT	R1-2	36	36	YIELD	NEW SIGN & POST
			R6-5P	30	30	ROUNDABOUT CIRCULATION	MOUNT BELOW R1-2 SIGN
18	53+18.4	12.6' LT	R1-2	36	36	YIELD	NEW SIGN & POST
19	53+18.1	26.8' LT	D3-302	VARIES	12	40TH PL NE	NEW SIGN & POST
20	186+70.1	26.0' LT	R6-1L	36	12	ONE WAY	NEW SIGN & POST
			OM1-3	18	18	OBJECT MARKER	MOUNT BELOW R6-1L SIGN
21	53+68.2	0.0' RT	R6-1L	36	12	ONE WAY	NEW SIGN & POST
			OM1-3	18	18	OBJECT MARKER	MOUNT BELOW R6-1L SIGN
22	75+33.1	29.7' LT	R6-1L	36	12	ONE WAY	NEW SIGN & POST
			OM1-3	18	18	OBJECT MARKER	MOUNT BELOW R6-1L SIGN
23	186+86.8	41.4' LT	R6-1L	36	12	ONE WAY	NEW SIGN & POST
			OM1-3	18	18	OBJECT MARKER	MOUNT BELOW R6-1L SIGN
24	75+92.0	28.1' RT	W14-1			DEAD END	RELOCATE SIGN ON NEW POST
25	188+75.0	0.7' RT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
26	189+71.8	14.4' RT	W2-6P	30	18	ROUNDABOUT AHEAD	MOUNT ABOVE W2-6 SIGN
			W2-6	30	30	CIRCULAR INTERSECTION	NEW SIGN & POST
			W13-1P	18	18	20 MPH	MOUNT BELOW W2-6 SIGN
27	51+16.2	17.7' RT	W2-6P	30	18	ROUNDABOUT AHEAD	MOUNT ABOVE W2-6 SIGN
			W2-6	30	30	CIRCULAR INTERSECTION	NEW SIGN & POST
			W13-1P	18	18	20 MPH	MOUNT BELOW W2-6 SIGN

SIGN SCHEDULE

SIGN NO.	STATION	OFFSET	SIGN TYPE	SIGN SIZE W (IN)	SIGN SIZE H (IN)	DESCRIPTION	REMARKS
28	52+37.6	5.5' LT	R4-7	18	24	KEEP RIGHT SYMBOL	NEW SIGN & POST
29R			R1-1			STOP	REMOVE SIGN & POST
30R			SPECIAL			20 MPH WITH ARROW	REMOVE SIGN & POST(S)
31R			SPECIAL			ARROW	REMOVE SIGN & POST
32R			D3-302			STREET NAME SIGNS	REMOVE SIGN(S) & POST
33R			SPECIAL			20 MPH WITH ARROW	REMOVE SIGN & POST(S)
34R			W14-1			DEAD END	
35R			R1-1			STOP	REMOVE SIGN & POST
36R			R2-1			SPEED LIMIT 30	REMOVE SIGN & POST
37R			R4-7			KEEP RIGHT SYMBOL	REMOVE SIGN & POST
38	185+37.6	32.1' LT	M1-701	24	36	WEST, SR 104	NEW SIGN & POST
39	188+58.4	23.9' RT	M1-701	24	36	EAST, SR 104	NEW SIGN & POST
40R			W11-2			PEDESTRIAN CROSSING SYMBOL	REMOVE SIGN & POST
			W16-9P			AHEAD	
41R			W16-6P			CURVE AHEAD	REMOVE SIGN & POST
			R2-1			20 MPH	

SIGNING NOTES:

1. FOR SIGNS AND SIGN SUPPORT DETAILS, SEE WSDOT STANDARD PLANS, SECTION G.
2. SIGN CLEARANCE FROM BOTTOM OF SIGN - 7' ABOVE SIDEWALK. OFFSETS ARE NOTED ON PLAN.
3. EXISTING SIGNS SHALL MOUNTED ON NEW 2 1/4" I.D. PERFORATED SQUARE STEEL POSTS, UNLESS OTHERWISE NOTED. EXISTING FOUNDATIONS SHALL BE REMOVED AND BACKFILLED, UNLESS OTHERWISE NOTED.
4. PROTECT AND MAINTAIN ALL SIGNS NOT NOTED ON PLANS.
5. ALL SIGN LOCATIONS SHALL BE MARKED OR STAKED PRIOR TO INSTALLATION FOR APPROVAL BY THE ENGINEER.
6. ALL NEW PERFORATED SQUARE STEEL SIGN POSTS SHALL INCLUDE VIS-Z-SHIELD, OR APPROVED EQUAL, WITH A MATCHING COLOR TO THE SIGN(S) SUPPORTED, ALONG THE FULL EXPOSED LENGTH OF THE STEEL SIGN SUPPORT.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS, STATE OF WASHINGTON, 34403, REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SIGN SCHEDULE

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CH05
SHEET 62 OF 89

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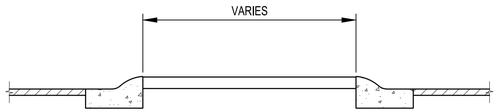
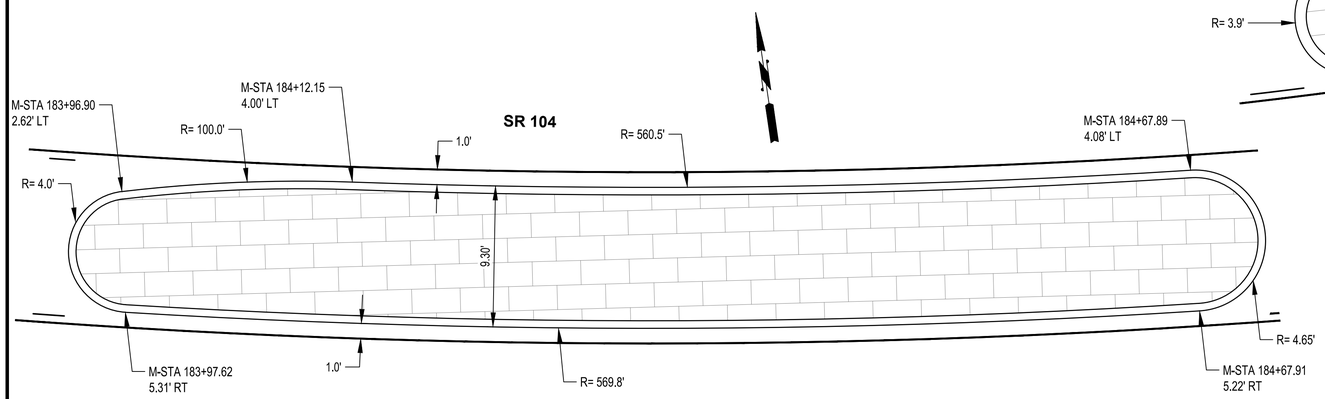
CHANNELIZATION NOTES:

2 YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.

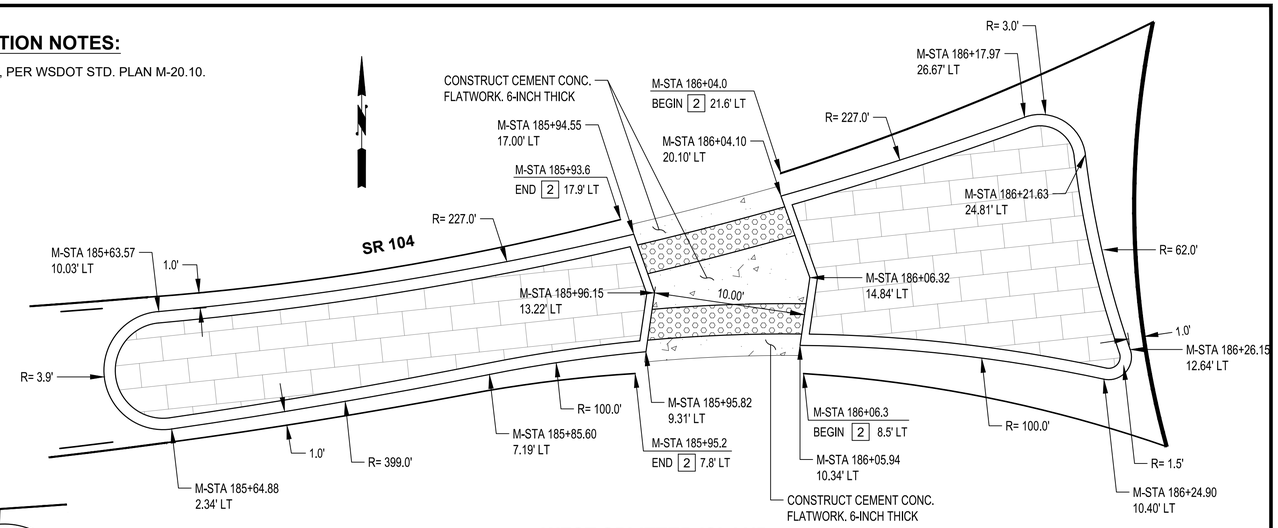


RAISED ISLAND CROSS SECTION



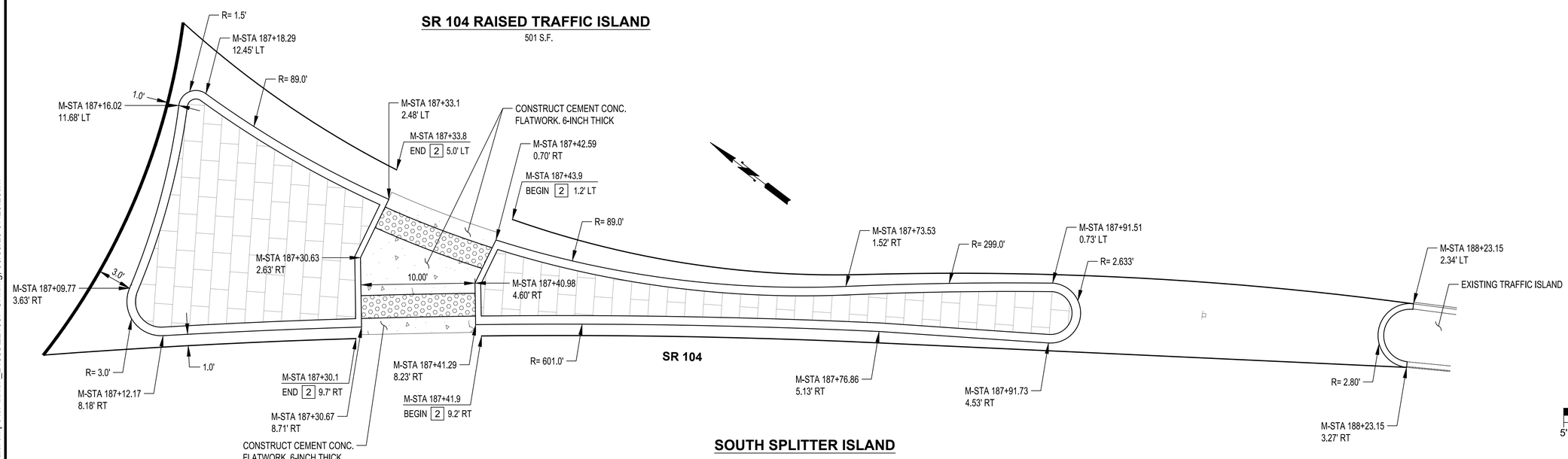
SR 104 RAISED TRAFFIC ISLAND

501 S.F.



WEST SPLITTER ISLAND

633 S.F.



SOUTH SPLITTER ISLAND

5' 2.5' 0 5' 10'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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KIRK ANDREW HARRIS
STATE OF WASHINGTON
54403
REGISTERED PROFESSIONAL ENGINEER
6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ISLAND DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. ID01
SHEET 63 OF 89

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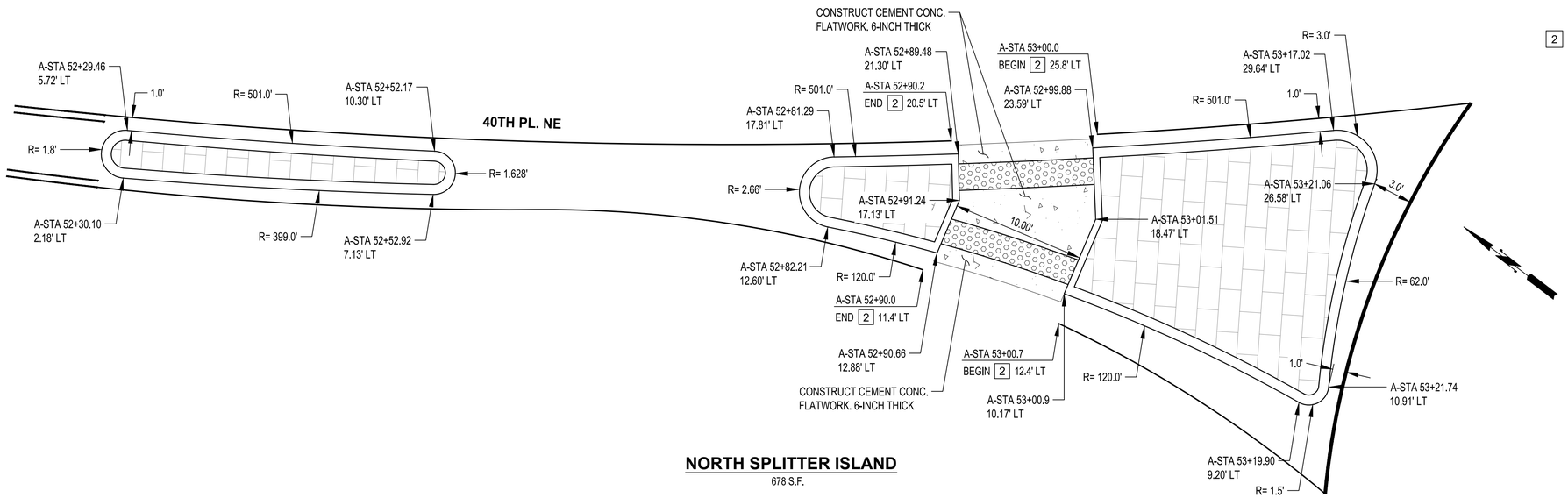
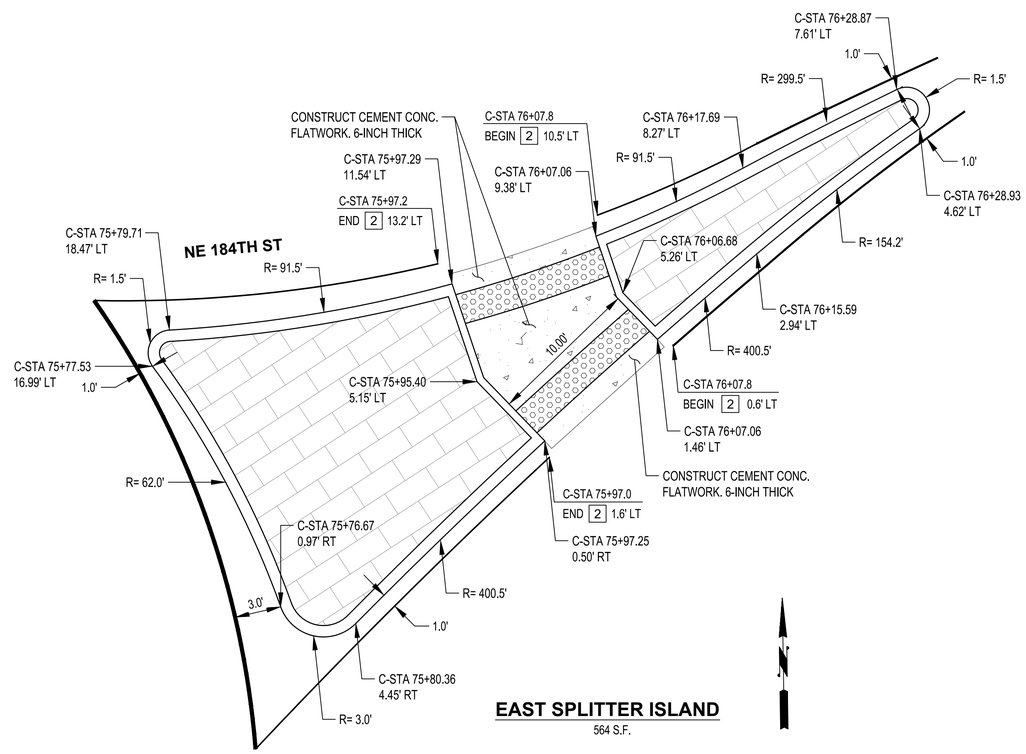
CHANNELIZATION NOTES:

2 YELLOW EDGE LINE, PER WSDOT STD. PLAN M-20.10.



NORTH SPLITTER ISLAND
678 S.F.



EAST SPLITTER ISLAND
564 S.F.

5' 2.5' 0 5' 10'
SCALE IN FEET

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

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6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

ISLAND DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. ID02
SHEET 64 OF 89

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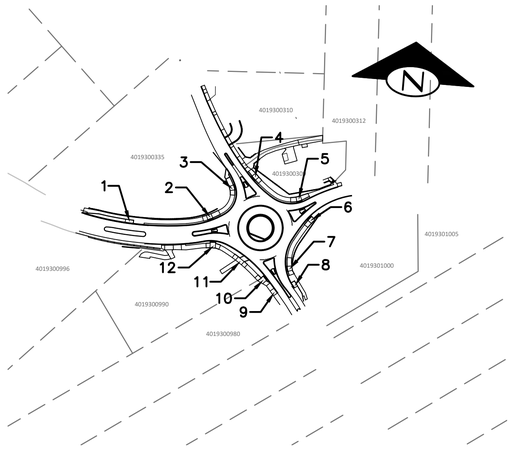
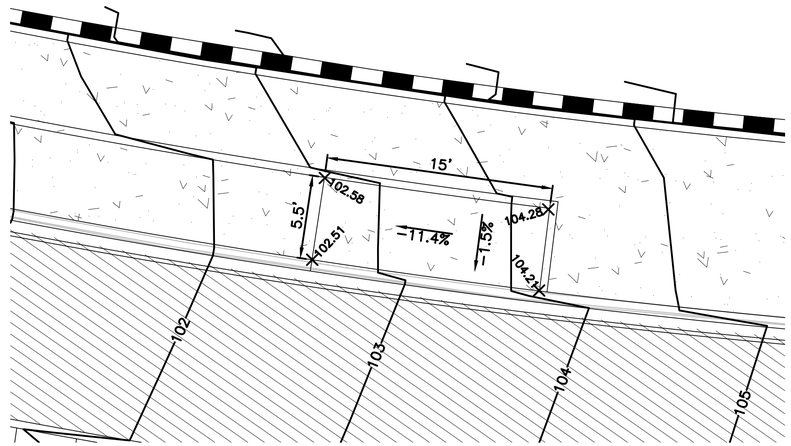
SEC 10, TWP 26 N, RGE 4 E

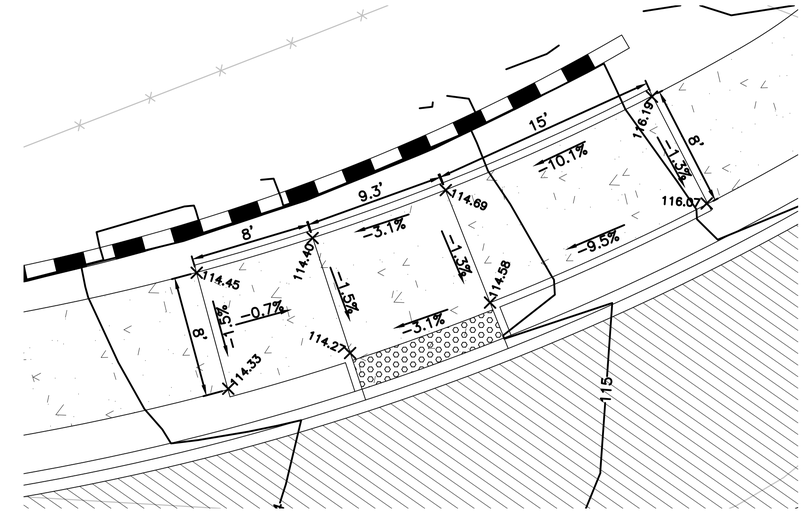


KEY MAP
NOT TO SCALE



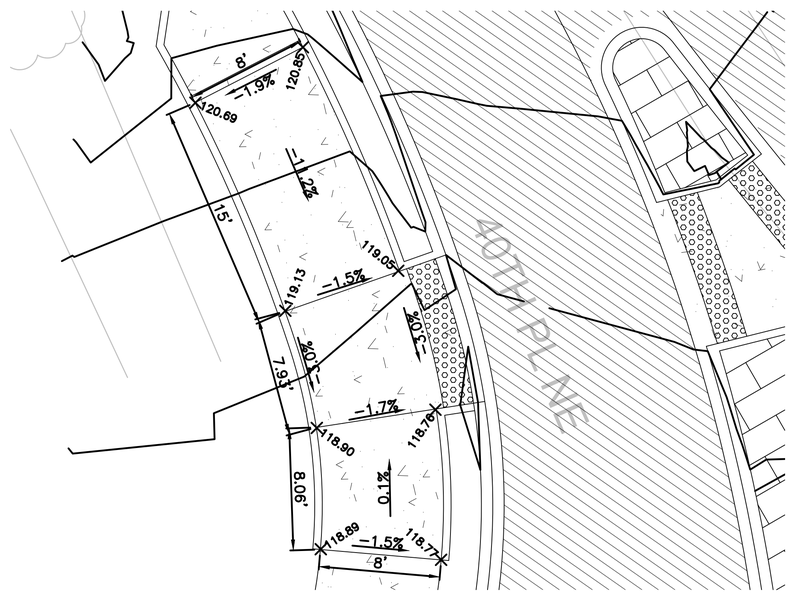
BIKE RAMP 1 DETAIL

N 0 5 10 Scale in Feet



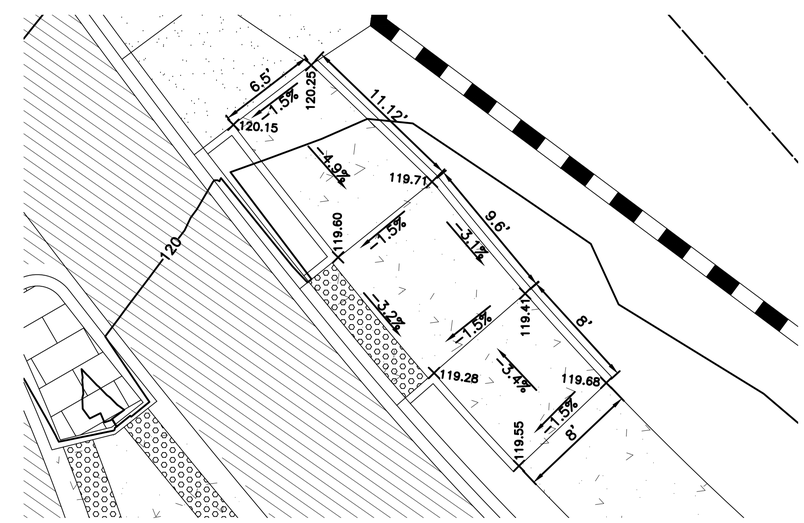
CURB RAMP 2 DETAIL

N 0 5 10 Scale in Feet



CURB RAMP 3 DETAIL

N 0 5 10 Scale in Feet



CURB RAMP 4 DETAIL

N 0 5 10 Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SMOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

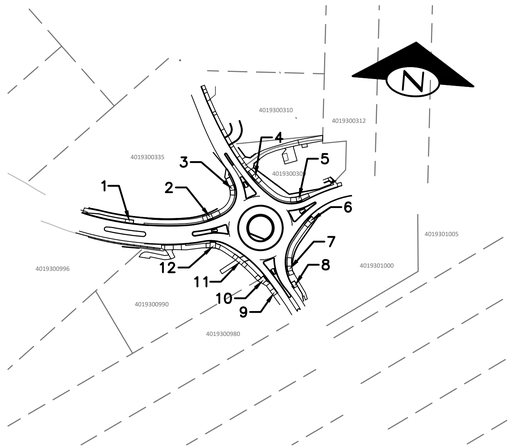
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CURB RAMP DETAILS

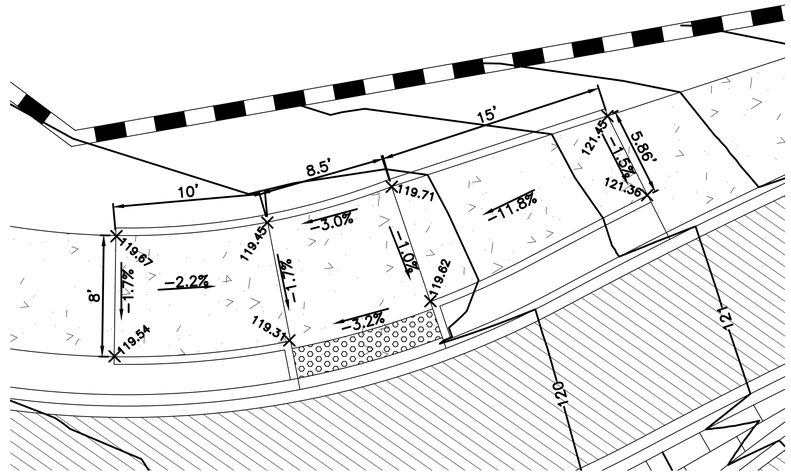
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CR01
SHEET 65 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:53:13pm

SEC 10, TWP 26 N, RGE 4 E



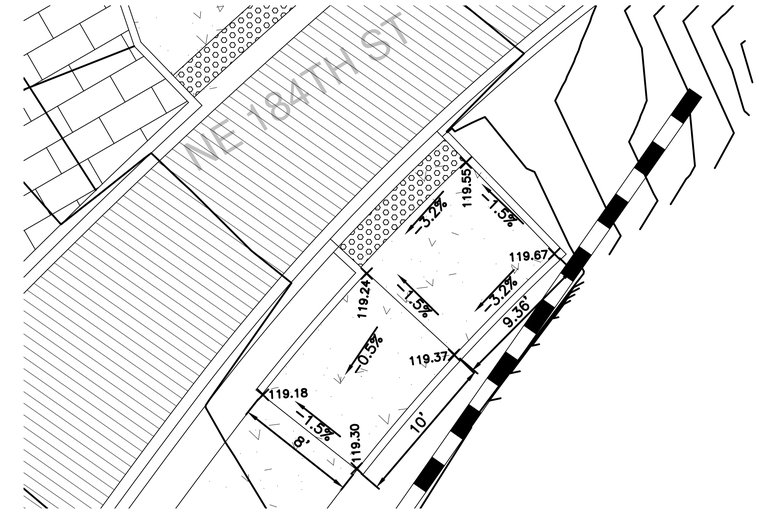
KEY MAP
NOT TO SCALE



CURB RAMP 5 DETAIL

N

0 5 10
Scale in Feet



CURB RAMP 6 DETAIL

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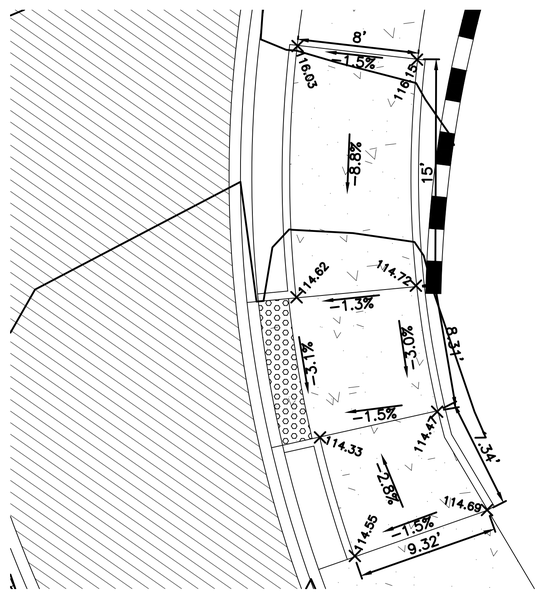
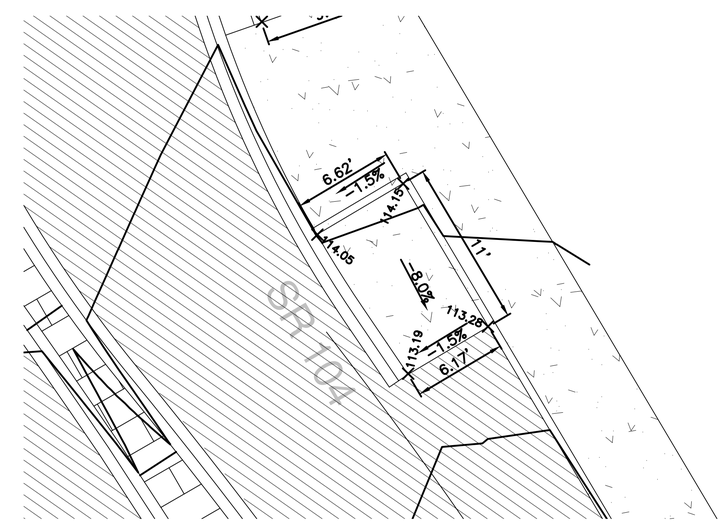
0 5 10
Scale in Feet



CURB RAMP 7 DETAIL

N

0 5 10
Scale in Feet



BIKE RAMP 8 DETAIL

N

0 5 10
Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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ERIC J. SCOTT
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5/25/25

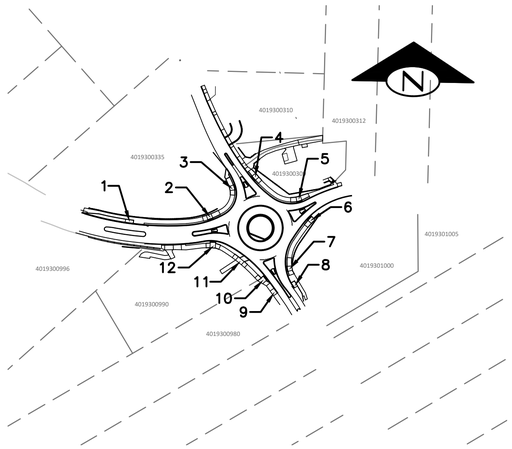
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CURB RAMP DETAILS

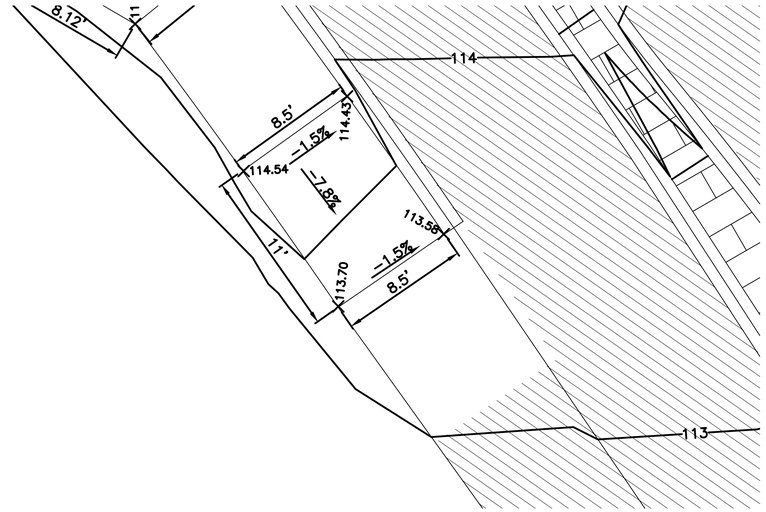
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CR02
SHEET 66 OF 89

T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:53:28pm

SEC 10, TWP 26 N, RGE 4 E

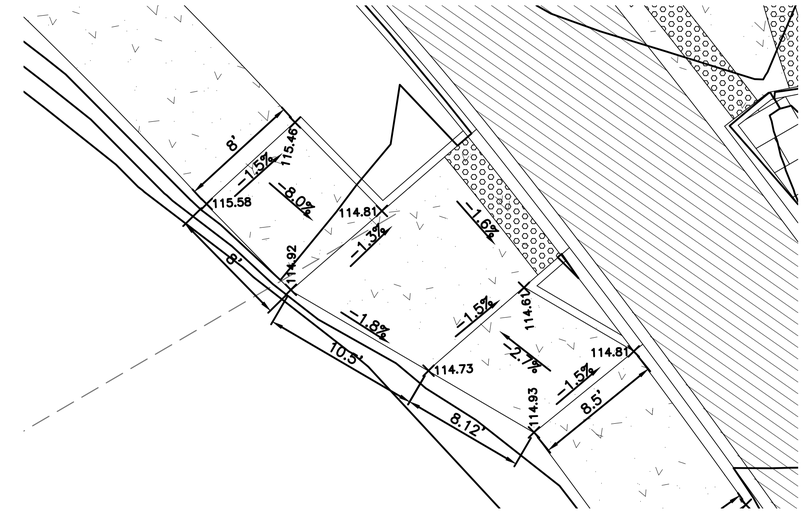


KEY MAP
NOT TO SCALE



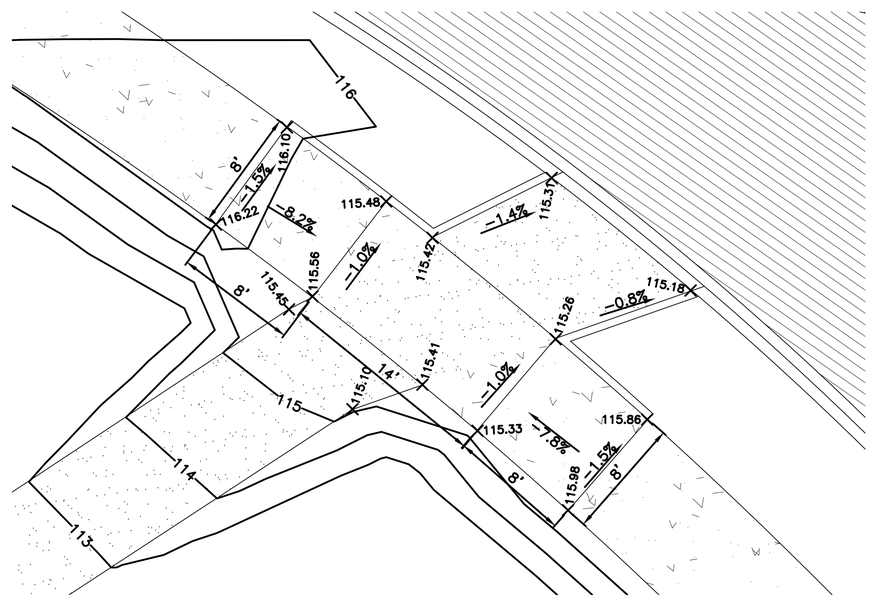
BIKE RAMP 9 DETAIL

N 0 5 10 Scale in Feet



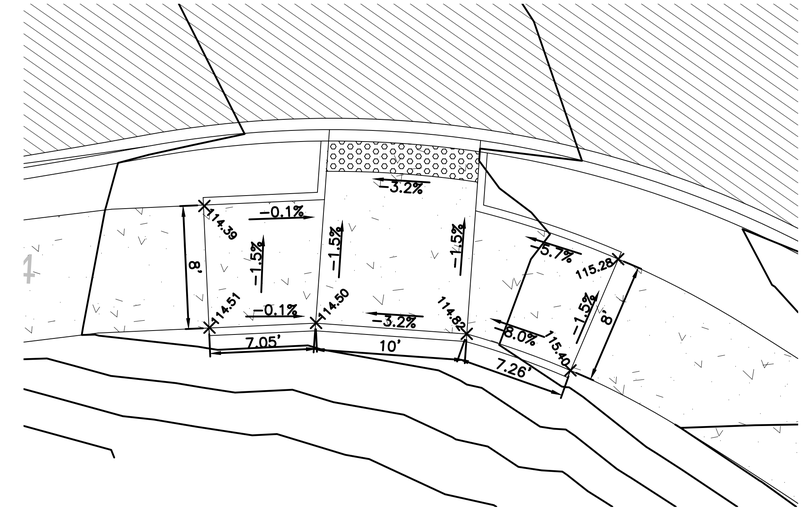
CURB RAMP 10 DETAIL

N 0 5 10 Scale in Feet



DRIVEWAY RAMPS 11 DETAIL

N 0 5 10 Scale in Feet



CURB RAMP 12 DETAIL

N 0 5 10 Scale in Feet

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	R. PFIEFLE	5/25/2025
Designed	R. PFIEFLE	5/25/2025
Reviewed	E. SCOTT	5/25/2025
Approved	E. SCOTT	5/25/2025

BID SET

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CITY OF LAKE FOREST PARK

TerraVista NW LLC
Consulting Engineers
3204 SHOKEY POINT DR. #207
ARLINGTON, WA 98223
360-691-9272
WWW.TERRAVISTANW.COM

ERIC J. SCOTT
STATE OF WASHINGTON
36704
REGISTERED PROFESSIONAL ENGINEER
5/25/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

CURB RAMP DETAILS

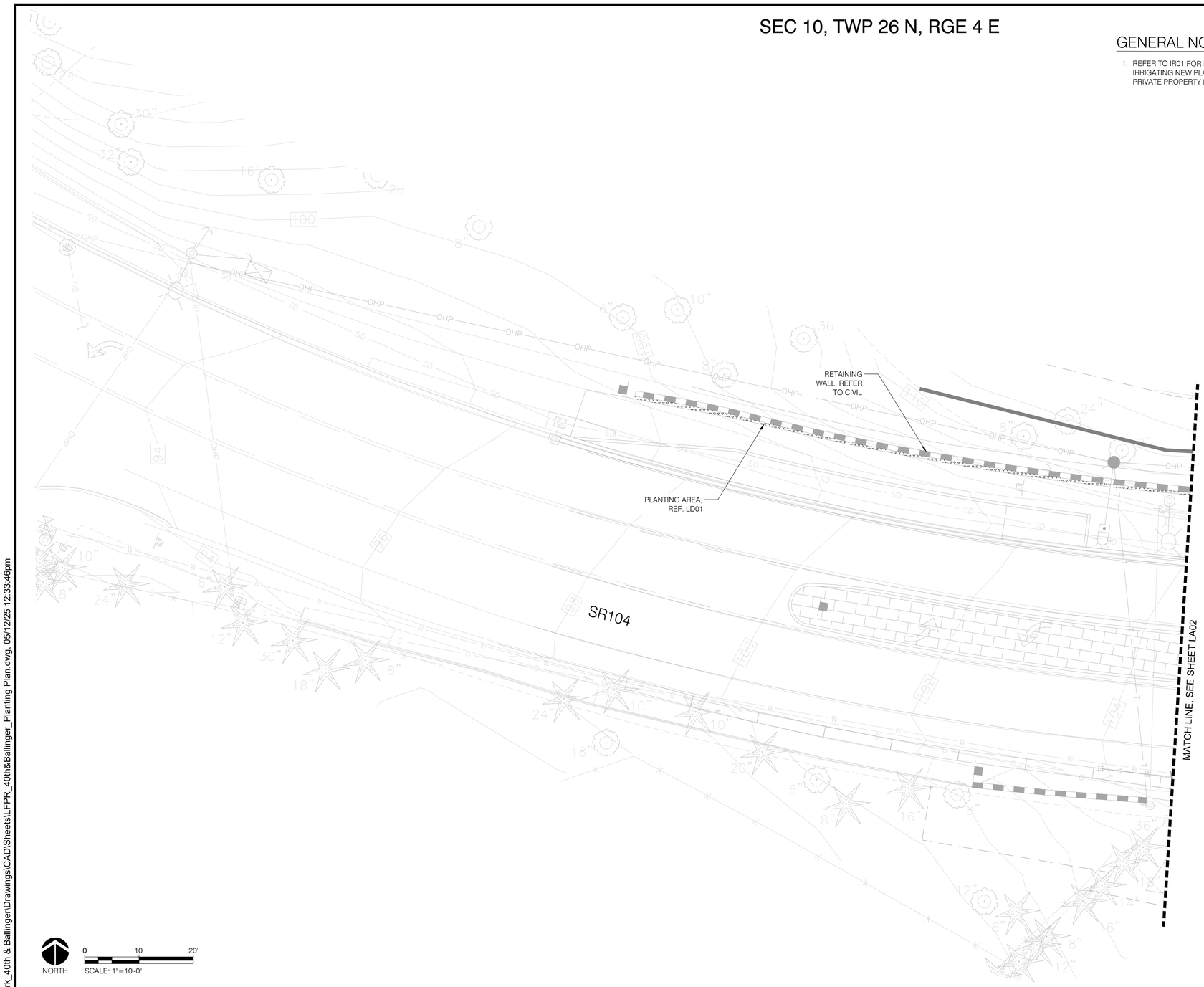
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. CR03
SHEET 67 OF 89

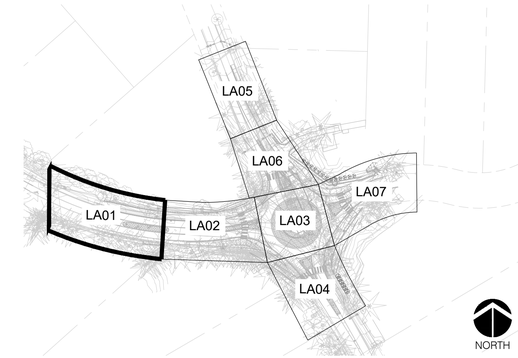
T:\Projects\200902 Lk Forest Park Roundabout (Lk Forest Park)\Plans\LFPR_P-CIVIL.dwg, 05/14/25 02:53:49pm

SEC 10, TWP 26 N, RGE 4 E

GENERAL NOTE:

1. REFER TO IR01 FOR IRRIGATION PLAN AND REQUIREMENTS FOR IRRIGATING NEW PLANTING OUTSIDE OF THE RIGHT OF WAY AND ON PRIVATE PROPERTY PER AGREEMENTS.





KEY MAP
NOT TO SCALE

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME
TREES		
	CHAMAECYPARIS OBTUSA 'GRACILIS'	SLENDER HINOKI FALSE CYPRESS
	CHAMAECYPARIS OBTUSA 'COMPACTA'	COMPACT HINOKI CYPRESS
SHRUBS		
	LONICERA PILEATA	BOXLEAF HONEYSUCKLE
	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY
GRASSES, FERNS AND GROUNDCOVERS		
	ACHILLEA MILLEFOLIUM	YARROW (WHITE)
	AQUILEGIA FORMOSA	WESTERN RED COLUMBINE
	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK
	ASARUM CAUDATUM	WILD GINGER
	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS
	EPIMEDIUM X RUBRUM	HYBRID EPIMEDIUM
	FESTUCA IDAHOENSIS	IDAHO FESCUE
	FRAGARIA CHILOENSIS	BEACH STRAWBERRY
	GAULTHERIA SHALLON	SALAL
	LUPINUS POLYPHYLLUS	LARGE LEAVED LUPINE
	MAHONIA REPENS	CREEPING MAHONIA
	PARTHENOCISSUS TRICUSPIDATA	BOSTON IVY
	POLYSTICHUM MUNITUM	WESTERN SWORD FERN
	POLYSTICHUM POLYBLEPHARUM	JAPANESE TASSEL FERN
	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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PARTNERSHIP berger
1927 Post Alley, Ste. 2 Seattle, WA 98101
206 325 6877 bergerpartnership.com

STATE OF WASHINGTON JONATHAN D. MORLEY NO 736 EXP. 2/21/2027 LANDSCAPE ARCHITECT
05/08/25

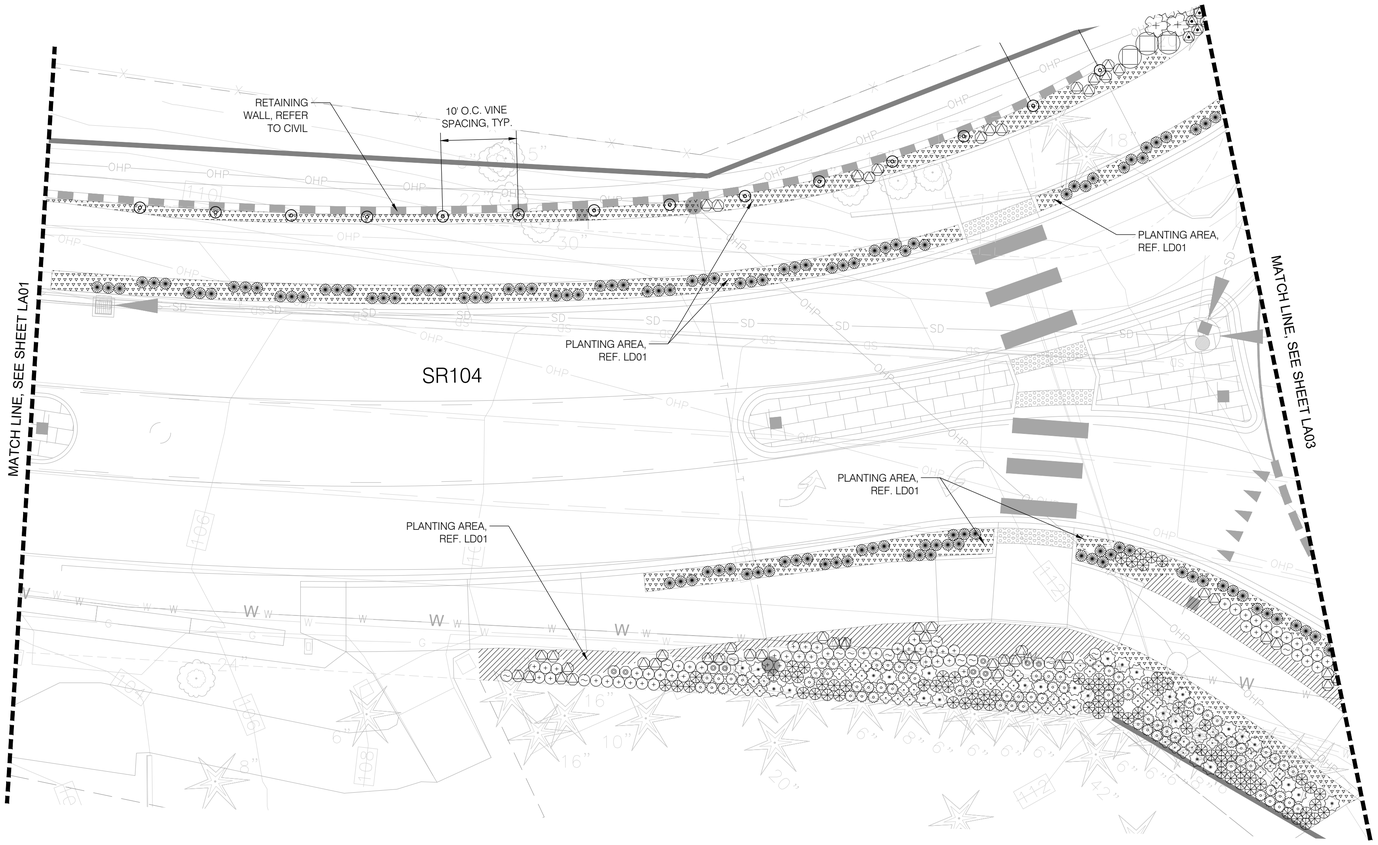
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA01
SHEET 68 OF 89

G:\1PROJECT\LLake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Plan.dwg, 05/12/25 12:33:46pm

SEC 10, TWP 26 N, RGE 4 E



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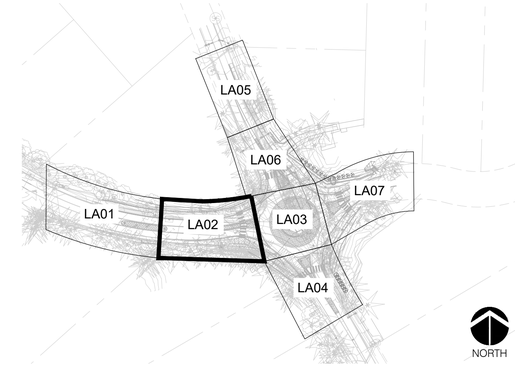

KEY MAP
NOT TO SCALE

PLANTING LEGEND

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	ASARUM CAUDATUM	WILD GINGER
	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS
	EPIMEDIUM X RUBRUM	HYBRID EPIMEDIUM
	FESTUCA IDAHOENSIS	IDAHO FESCUE
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	POLYSTICHUM MUNITUM	WESTERN SWORD FERN
	POLYSTICHUM POLYBLEPHARUM	JAPANESE TASSEL FERN
	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NORTH
0 10' 20'
SCALE: 1"=10'-0"

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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STATE OF WASHINGTON JONATHAN D. MORLEY NO 736 EXP. 2/21/2027 LANDSCAPE ARCHITECT
05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA02
SHEET 69 OF 89

G:\1PROJECT\LLake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Plan.dwg, 05/12/25 12:33:51pm

SEC 10, TWP 26 N, RGE 4 E

GENERAL NOTE:

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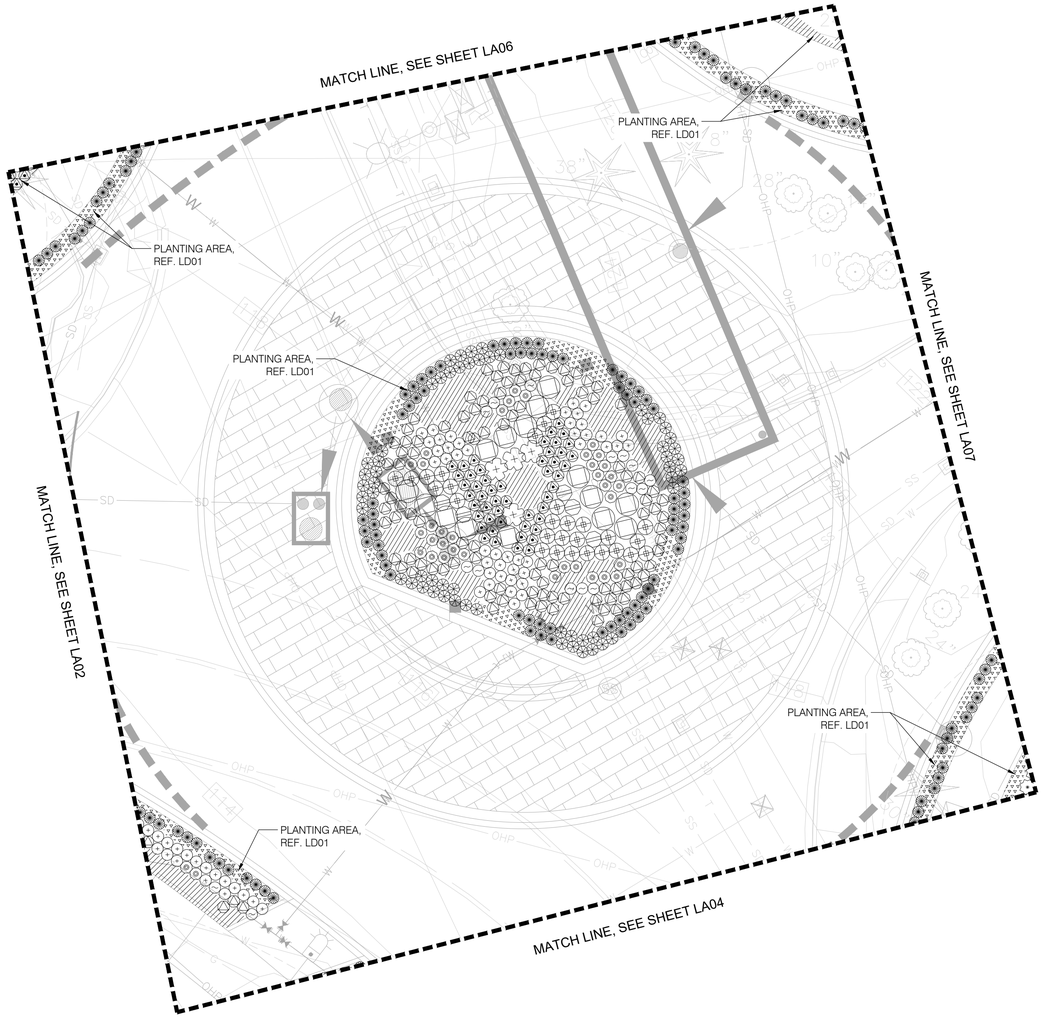

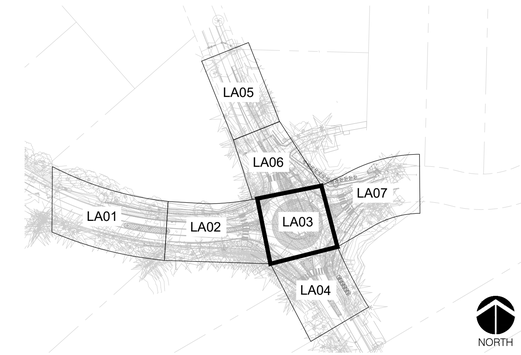

KEY MAP
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PLANTING LEGEND

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	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NORTH
0 10' 20'
SCALE: 1"=10'-0"

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA03
SHEET 70 OF 89

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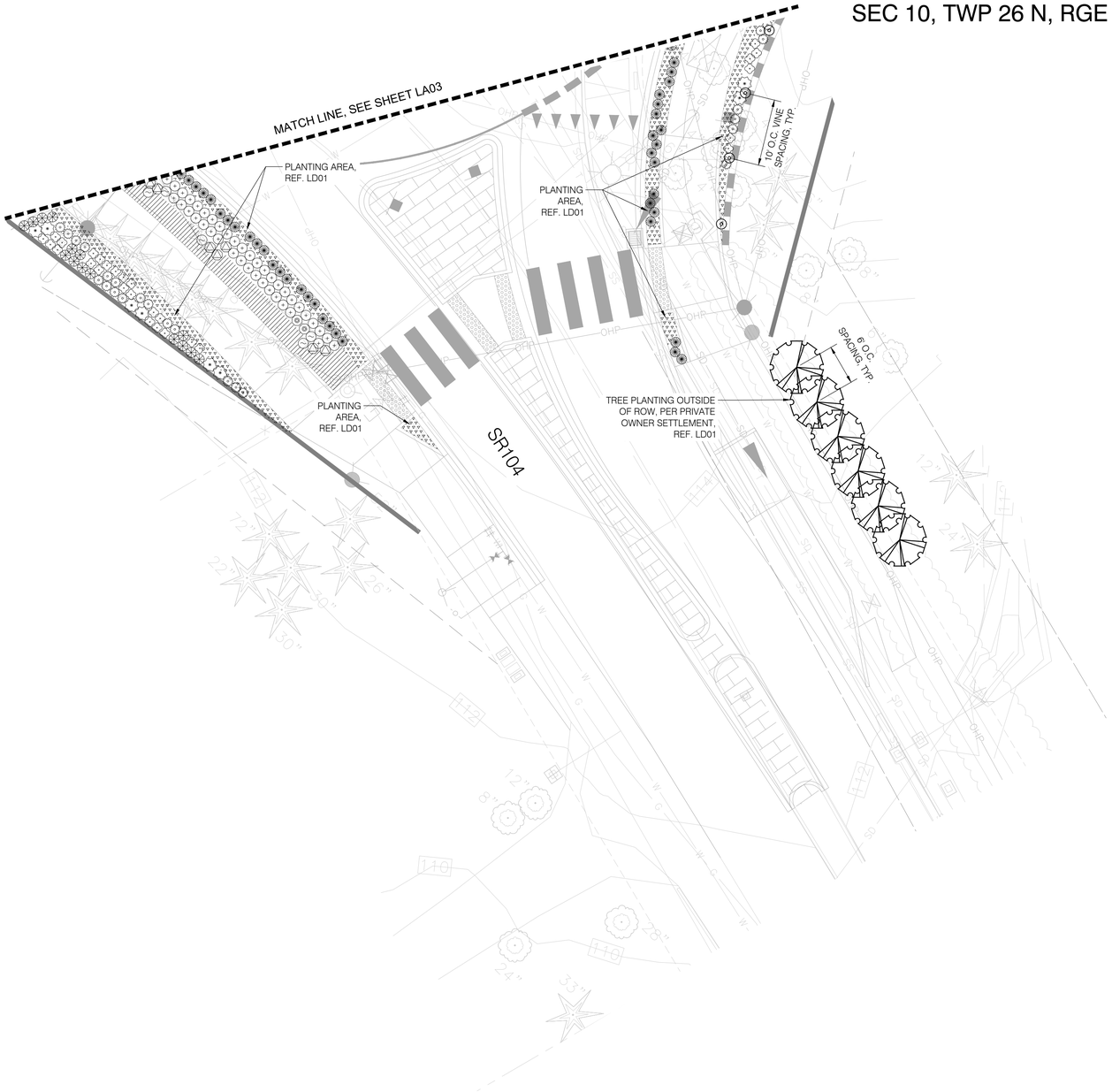
SEC 10, TWP 26 N, RGE 4 E



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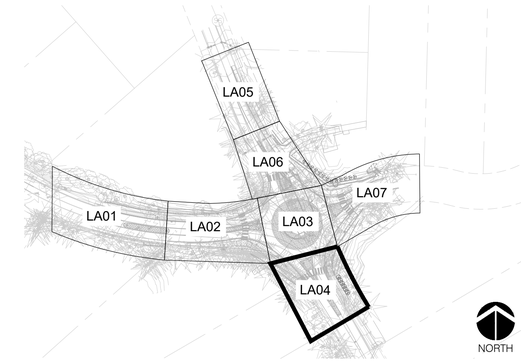

KEY MAP
NOT TO SCALE

PLANTING LEGEND

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	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NORTH
0 10' 20'
SCALE: 1"=10'-0"

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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CITY OF LAKE FOREST PARK

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206 325 6877 bergerpartnership.com

STATE OF WASHINGTON JONATHAN D. MORLEY NO. 736 EXP. 2/21/2025 LANDSCAPE ARCHITECT
05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA04
SHEET 71 OF 89

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SEC 10, TWP 26 N, RGE 4 E

GENERAL NOTE:

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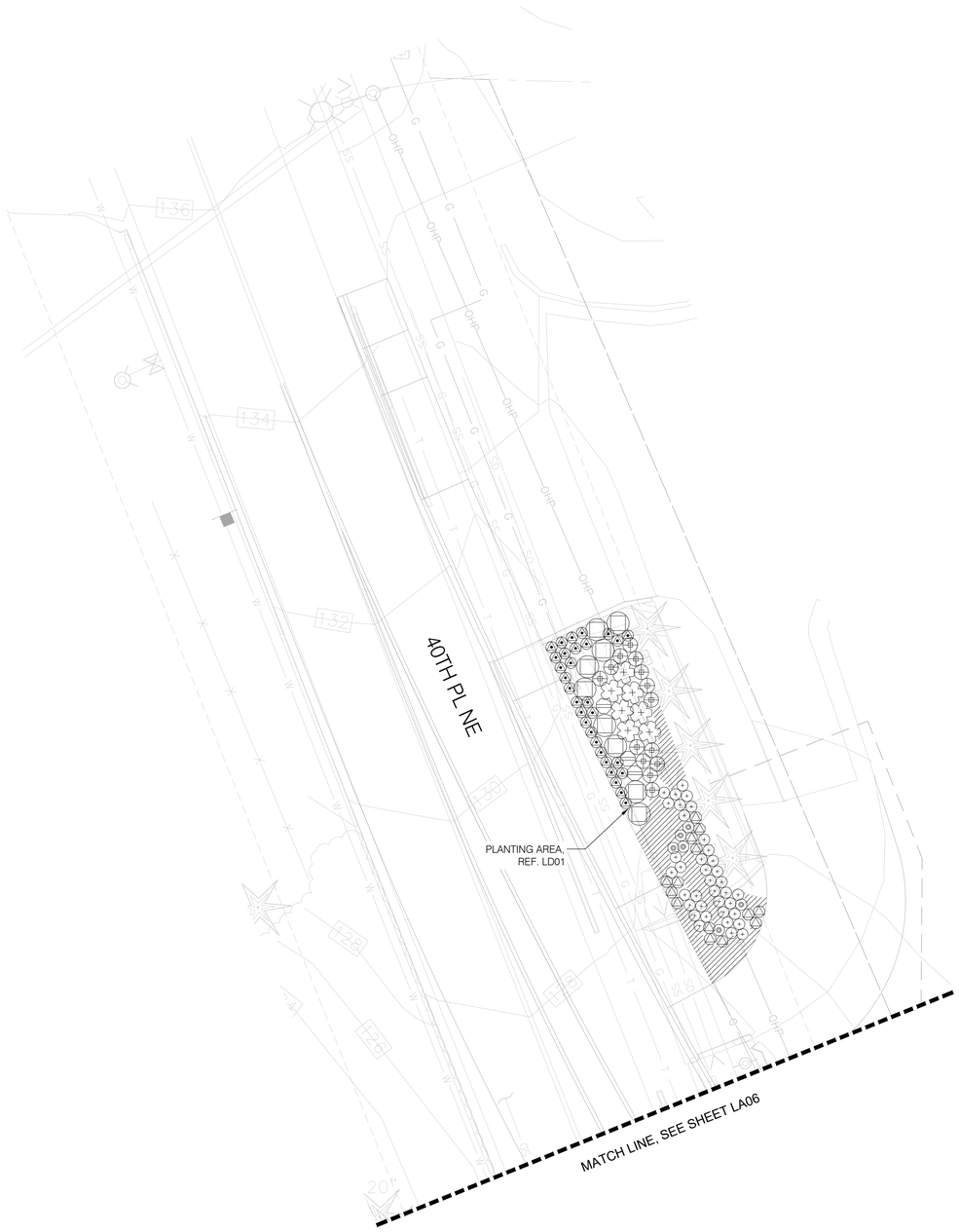

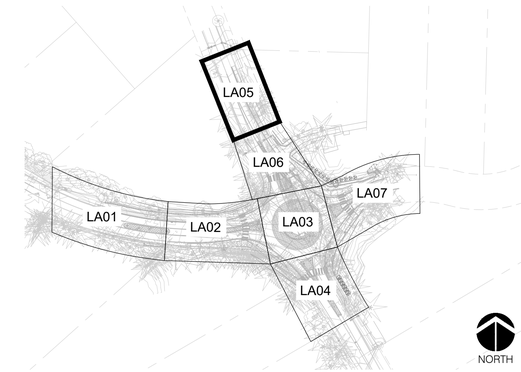

KEY MAP
NOT TO SCALE

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME
TREES		
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	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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CITY OF LAKE FOREST PARK

PARTNERSHIP berger
1927 Post Alley, Ste. 2 Seattle, WA 98101
206 325 6877 bergerpartnership.com

STATE OF WASHINGTON JONATHAN D. MORLEY NO. 736 EXP. 2/21/2027 LANDSCAPE ARCHITECT
05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

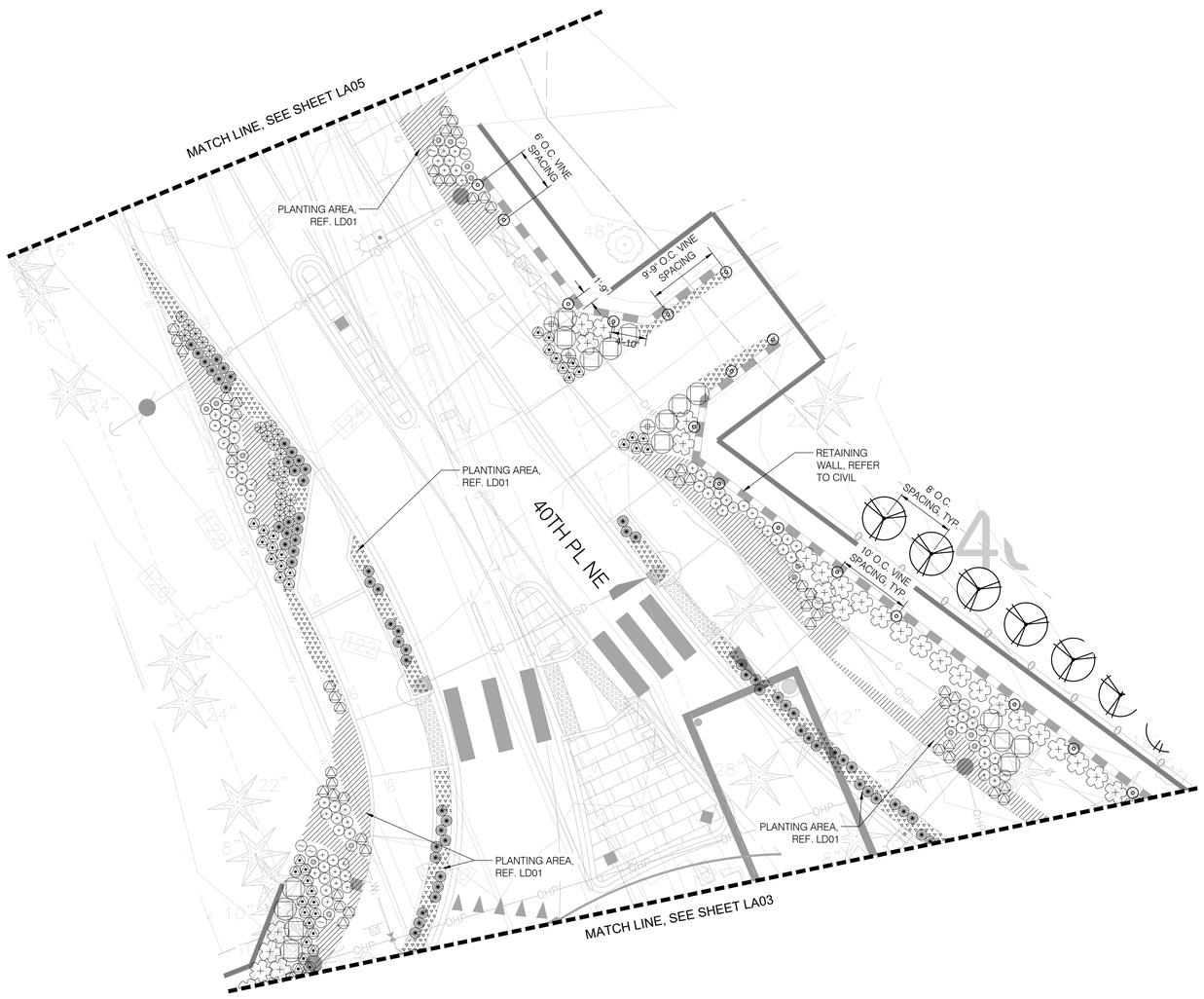
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA05
SHEET 72 OF 89

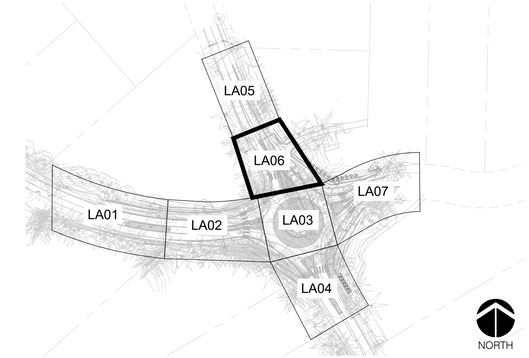
G:\1PROJECT\Lake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Plan.dwg, 05/12/25 12:34:21pm

SEC 10, TWP 26 N, RGE 4 E

GENERAL NOTE:

1. REFER TO IR01 FOR IRRIGATION PLAN AND REQUIREMENTS FOR IRRIGATING NEW PLANTING OUTSIDE OF THE RIGHT OF WAY AND ON PRIVATE PROPERTY PER AGREEMENTS.





KEY MAP
NOT TO SCALE

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME
TREES		
	CHAMAECYPARIS OBTUSA 'GRACILIS'	SLENDER HINOKI FALSE CYPRESS
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	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NORTH
0 10' 20'
SCALE: 1"=10'-0"

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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1927 Post Alley, Ste. 2 Seattle, WA 98101
206 325 6877 bergerpartnership.com

STATE OF WASHINGTON
JONATHAN D. MORLEY
NO 736 EXP. 2/21/2027
LANDSCAPE ARCHITECT
05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA06
SHEET 73 OF 89

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SEC 10, TWP 26 N, RGE 4 E

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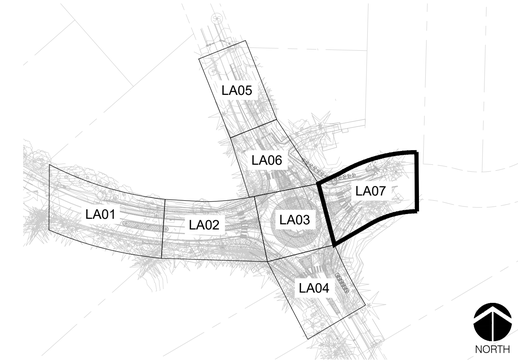

KEY MAP
NOT TO SCALE

NORTH 0 10' 20'
SCALE: 1"= 10'-0"

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME
	TREES	
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	GRASSES, FERNS AND GROUNDCOVERS	
	ACHILLEA MILLEFOLIUM	YARROW (WHITE)
	AQUILEGIA FORMOSA	WESTERN RED COLUMBINE
	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK
	ASARUM CAUDATUM	WILD GINGER
	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS
	EPIMEDIUM X RUBRUM	HYBRID EPIMEDIUM
	FESTUCA IDAHOENSIS	IDAHO FESCUE
	FRAGARIA CHILOENSIS	BEACH STRAWBERRY
	GAULTHERIA SHALLON	SALAL
	LUPINUS POLYPHYLLUS	LARGE LEAVED LUPINE
	MAHONIA REPENS	CREEPING MAHONIA
	PARTHENOCISSUS TRICUSPIDATA	BOSTON IVY
	POLYSTICHUM MUNITUM	WESTERN SWORD FERN
	POLYSTICHUM POLYBLEPHARUM	JAPANESE TASSEL FERN
	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LL/SW	05/07/2025
Designed	LL/SW/JM	05/07/2025
Reviewed	JF	05/08/2025
Approved	JM	05/08/2025

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206 325 6877 bergerpartnership.com

STATE OF WASHINGTON JONATHAN D. MORLEY NO 736 EXP. 2/2/2027 LANDSCAPE ARCHITECT
05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LA07
SHEET 74 OF 89

G:\1PROJECT\LLake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Plan.dwg, 05/14/25 10:33:15am

SEC 10, TWP 26 N, RGE 4 E

GENERAL NOTES

1. EXISTING LANDSCAPE
   - 1.1. ALL LANDSCAPE OUTSIDE OF THE LIMITS OF WORK SHALL REMAIN UNLESS NOTED OTHERWISE OR IN LOCATION OF NEWLY PROPOSED HARSCAPE.
   - 1.2. ALL LANDSCAPE IN THE RIGHT-OF-WAY SHALL REMAIN UNLESS NOTED OTHERWISE.
   - 1.3. ANY LANDSCAPE OUTSIDE THE LIMITS OF WORK OR IN THE RIGHT-OF-WAY WHICH IS DISTURBED OR REMOVED SHALL BE RESTORED TO MEET LFPMC REQUIREMENTS.
2. ALL NEWLY PLANTED LANDSCAPE AREAS IN WITHIN THE LIMIT OF WORK SHALL BE MULCHED (REFER TO SPECS).
3. THE CONTRACTOR SHALL STAKE ALL TREE LOCATIONS IN THE FIELD PRIOR TO PLANTING. TREE LOCATIONS ARE SUBJECT TO MODIFICATION BY LANDSCAPE ARCHITECT OR OWNER.
4. ALL PLANT MATERIAL TO BE REVIEWED WITH LANDSCAPE ARCHITECT AND OWNER IN THE FIELD PRIOR TO PLANTING.
5. PLANT QUANTITIES SHOWN ON PLANS TAKE PRECEDENCE OVER PLANT QUANTITIES PROVIDED IN PLANT SCHEDULE.
6. ALL PLANTED AREAS SHALL RECEIVE SOIL AMENDMENTS, REFER TO DETAIL 06/LD02.
   - 6.1. ALL PLANTED AREAS TO RECEIVE IMPORT TOPSOIL, REFER TO SPECIFICATIONS FOR SOIL TYPE AND PREPARATION REQUIREMENTS.
7. RESTORE ALL DISTURBED AREAS TO THEIR PRE-CONSTRUCTION CONDITION IF NO OTHER CONDITION IS PROPOSED.
8. ALL NEWLY PLANTED AREAS SHALL RECEIVE FULLY AUTOMATIC IN-GROUND IRRIGATION ZONED APPROPRIATELY, UNLESS NOTED OTHERWISE; REF. IRRIGATION DRAWINGS.
9. ALL PLANTING AREA FINISH GRADES (TOP OF MULCH) SHALL BE 1" BELOW ADJACENT PAVED SURFACES UNLESS NOTED OR DIRECTED OTHERWISE.

PLANTING SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	INSTALL HT. / CONT. SIZE	SPACING (O.C.)	QUANTITY
TREES					
	CHAMAECYPARIS OBTUSA 'GRACILIS'	SLENDER HINOKI FALSE CYPRESS	#2	PER PLAN	14
	CHAMAECYPARIS OBTUSA 'COMPACTA'	COMPACT HINOKI CYPRESS	6' HT	PER PLAN	6
SHRUBS					
	LONICERA PILEATA	BOXLEAF HONEYSUCKLE	#5	PER PLAN	54
	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	#2	PER PLAN	43
GRASSES, FERNS AND GROUNDCOVERS					
	ACHILLEA MILLEFOLIUM	YARROW (WHITE)	#1	PER PLAN	232
	AQUILEGIA FORMOSA	WESTERN RED COLUMBINE	#1	PER PLAN	49
	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK	#1	PER PLAN	418
	ASARUM CAUDATUM	WILD GINGER	#1	PER PLAN	105
	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS	#1	PER PLAN	302
	EPIMEDIUM X RUBRUM	HYBRID EPIMEDIUM	#1	PER PLAN	8
	FESTUCA IDAHOENSIS	IDAHO FESCUE	#1	18", TRIANGULAR	600
	FRAGARIA CHILOENSIS	BEACH STRAWBERRY	#1	18", TRIANGULAR	378
	GAULTHERIA SHALLON	SALAL	#2	PER PLAN	45
	LUPINUS POLYPHYLLUS	LARGE LEAVED LUPINE	#1	PER PLAN	73
	MAHONIA REPENS	CREEPING MAHONIA	#1	PER PLAN	509
	PARTHENOCISSUS TRICUSPIDATA	BOSTON IVY	4" POT	PER PLAN	52
	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	#1	PER PLAN	118
	POLYSTICHUM POLYBLEPHARUM	JAPANESE TASSEL FERN	#1	PER PLAN	50
	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS	#1	PER PLAN	126

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05/08/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

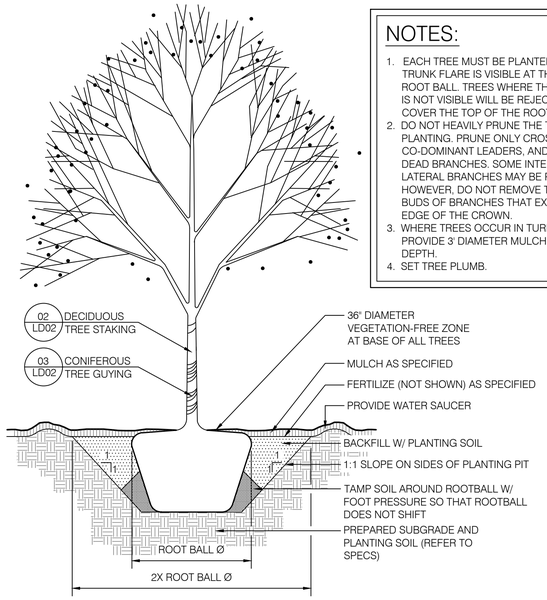
PLANTING DETAILS - SCHEDULE & NOTES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LD01
SHEET 75 OF 89

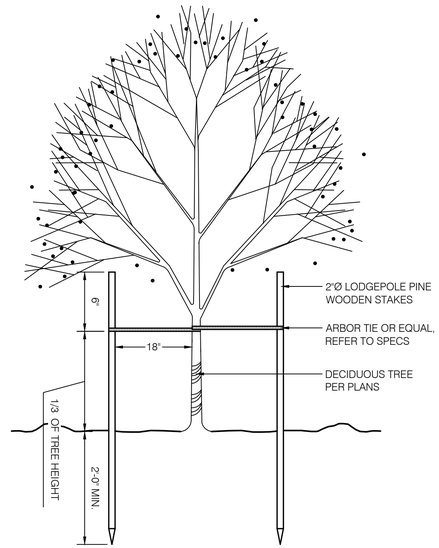
G:\1PROJECT\Lake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Details.dwg, 05/12/25 12:35:06pm

NOTES:

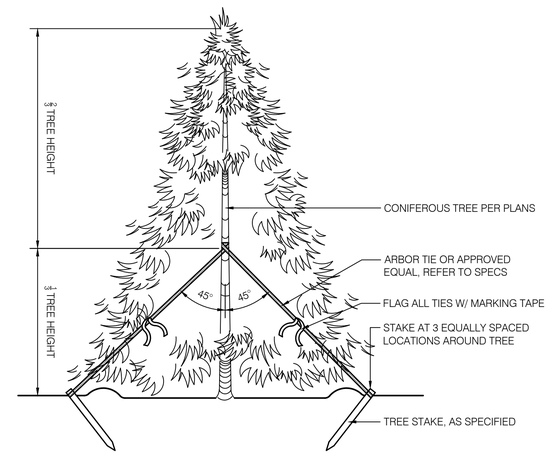
1. EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE TRUNK FLARE IS NOT VISIBLE WILL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.
2. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
3. WHERE TREES OCCUR IN TURF AREAS, PROVIDE 3' DIAMETER MULCH CIRCLE, 3" DEPTH.
4. SET TREE PLUMB.



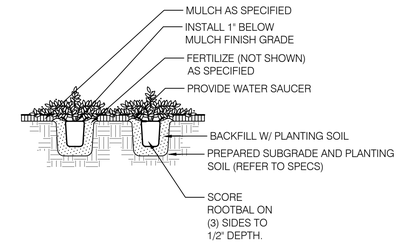
01 TREE PLANTING
SCALE: 1/2" = 1'-0"



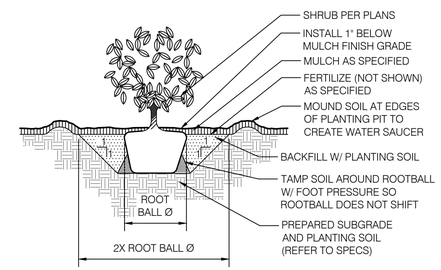
02 DECIDUOUS TREE STAKING
SCALE: 1/2" = 1'-0"



03 CONIFEROUS TREE GUYING
SCALE: 1/2" = 1'-0"

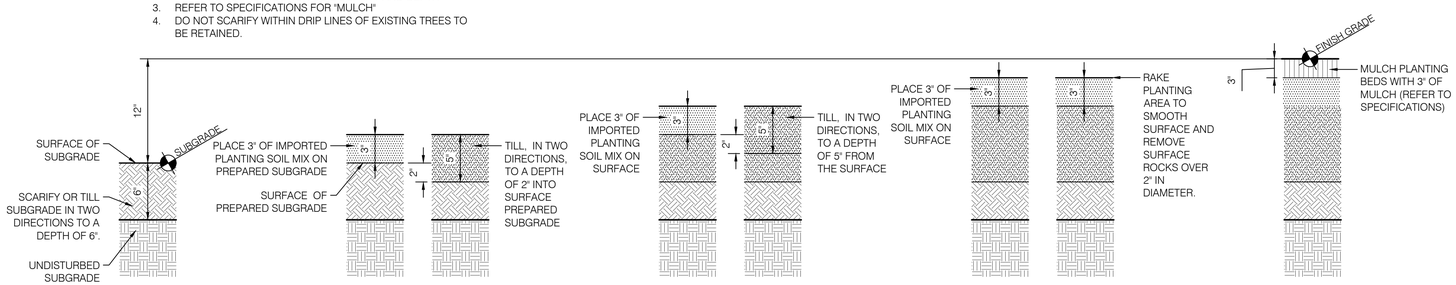


04 GROUNDCOVER PLANTING
SCALE: 1/2" = 1'-0"



05 SHRUB PLANTING
SCALE: 1/2" = 1'-0"

NOTES:
1. ALL SCARIFICATION OR TILLING SHALL BE CONDUCTED IN TWO DIRECTIONS AT 90 DEGREES TO EACH OTHER.
2. REFER TO SPECIFICATIONS FOR "PLANTING SOIL MIX"
   2.1. MIX SHALL COMPLY WITH WA DOE BMP T5.13 "POST-CONSTRUCTION SOIL QUALITY AND DEPTH"
3. REFER TO SPECIFICATIONS FOR "MULCH"
4. DO NOT SCARIFY WITHIN DRIP LINES OF EXISTING TREES TO BE RETAINED.



SOIL AMENDMENT: STEP 1 | SOIL AMENDMENT: STEP 2 | SOIL AMENDMENT: STEP 3 | SOIL AMENDMENT: STEP 4 | SOIL AMENDMENT: STEP 5

06 SOIL AMENDMENT
SCALE: 1 1/2" = 1'-0"

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05/08/25

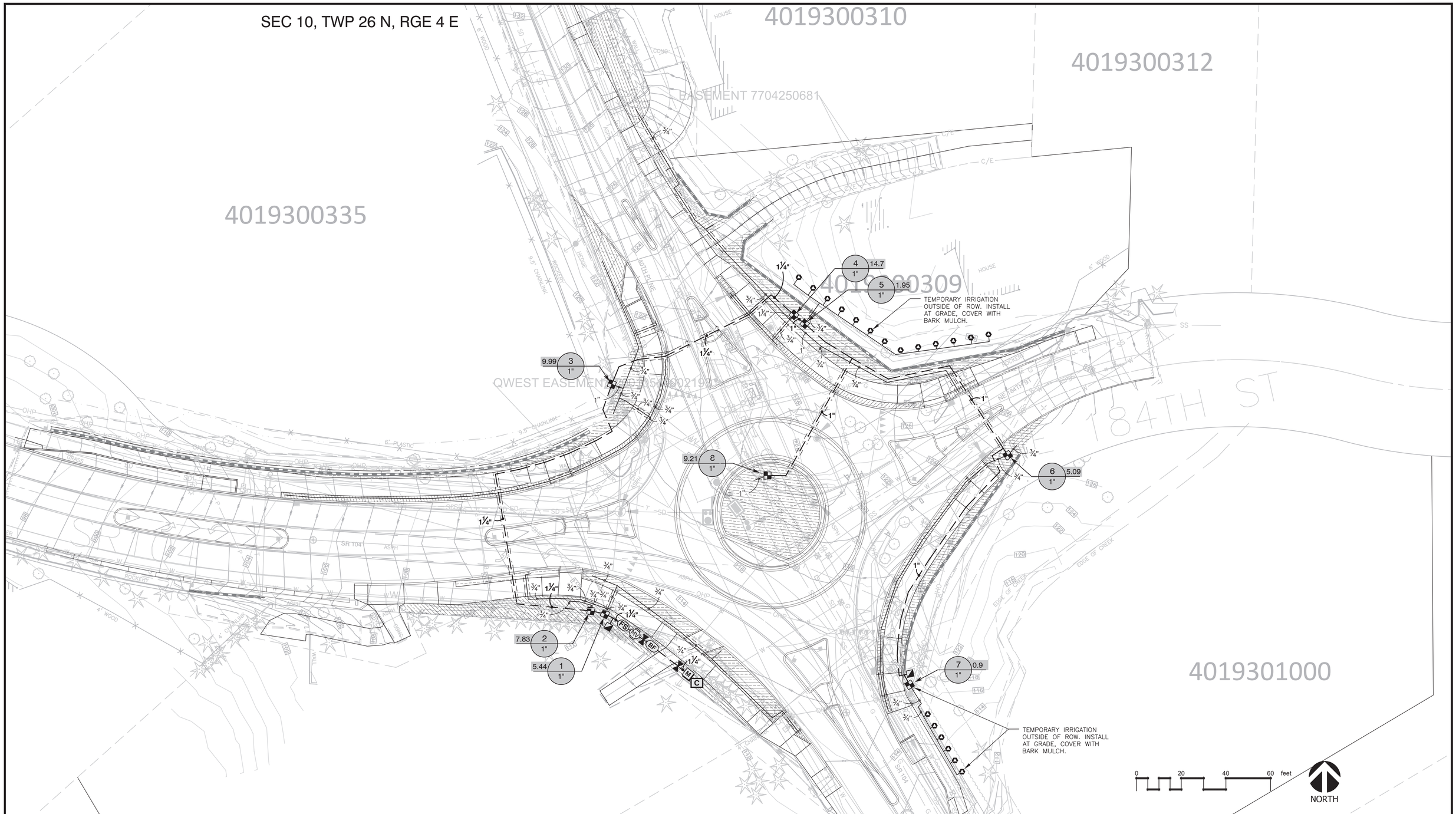
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

PLANTING DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. LD02
SHEET 76 OF 89

G:\1PROJECT\LLake Forest Park_40th & Ballinger\Drawings\CAD\Sheets\LFPR_40th&Ballinger_Planting Details.dwg, 05/12/25 12:35:10pm

SEC 10, TWP 26 N, RGE 4 E



NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LZ/JA/AV	05/16/25
Designed	LZ/JA/AV	05/16/25
Reviewed	JA	05/16/25
Approved	JA	05/16/25

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05/16/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

IRRIGATION PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. IR01
SHEET 77 OF 89

SEC 10, TWP 26 N, RGE 4 E

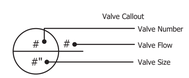
IRRIGATION NOTES:

1. PROVIDE & INSTALL ALL IRRIGATION IN CONFORMANCE WITH WSDOT STANDARDS & DETAILS. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, NOTES, OR DETAILS & WSDOT STANDARDS & DETAILS, THE STANDARDS & DETAILS SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND APPROPRIATE SAFETY REGULATIONS.
3. IRRIGATION DRAWINGS ARE SCHEMATIC. ACTUAL LOCATIONS MAY VARY DUE TO UTILITIES OR EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. ALL IRRIGATION EQUIPMENT SHALL BE LOCATED WITHIN PROJECT PROPERTY LINES & WITHIN LANDSCAPE BEDS (EXCEPT RIGHT OF WAY IRRIGATION, SEE PLANS). ITEMS SHOWN OFF PROPERTY OR IN HARDSCAPE ARE FOR CLARITY ONLY.
5. WATER PRESSURE AT DOMESTIC WATER STUB OUT IS ANTICIPATED TO BE 50 PSI. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, CONTRACTOR SHALL FIELD VERIFY EXISTING P.S.I. PROVIDE WRITTEN RESULTS TO OWNER'S REPRESENTATIVE TWO (2) WEEKS PRIOR TO PROCEEDING W/ WORK.
6. SYSTEM DESIGNED TO 30 P.S.I. AT BUBBLER HEADS & 30 P.S.I. AT DRIP EMITTERS. SEE IRRIGATION SCHEDULE FOR HEAD DESIGN PRESSURES.
7. LOCATE QUICK COUPLING VALVE & AUTOMATIC CONTROL VALVES AT POINT OF EASY ACCESS. OWNER'S REPRESENTATIVE TO REVIEW & APPROVE FINAL LOCATION OF ALL QUICK COUPLERS & AUTOMATIC CONTROL VALVES PRIOR TO INSTALLATION.
8. HEAD LOCATION MUST BE ADJUSTED IN THE FIELD TO COMPLY W/ EXISTING SITE CONDITIONS AND PLANT MATERIALS. ADJUST SPRAY PATTERN FOR MAXIMUM COVERAGE.
9. ALL IRRIGATION SLEEVING TO BE STAKED IN THE FIELD & LOCATED ON DIMENSIONED "AS-BUILT" DRAWING TO ALLOW FUTURE LOCATION & USE.
11. ALL IRRIGATION SLEEVES SHALL BE TWICE THE DIAMETER OF THE INSERT PIPE(S). SLEEVES SHALL NOT EXCEED 6" DIAMETER.
12. PVC MAINLINE LOCATIONS ARE SCHEMATIC. NO BENDING OF MAINLINE PIPE.
13. NO VALVE MANIFOLDS. GROUP VALVES TOGETHER W/ TEES 3' APART.
14. VALVE BOXES SHALL BE LEVEL & OPEN SAME DIRECTION.
15. AIR BLOW IRRIGATION SYSTEM THROUGH QUICK COUPLERS TO WINTERIZE IRRIGATION SYSTEM.
16. PIPES TO SHARE TRENCHES WHERE POSSIBLE. SEPARATE COMMON PIPING BY 6" MIN.
17. WHERE PIPE SIZES ARE NOT SHOWN ON THE PLAN, PIPE SHALL BE SIZED TO THE NEXT LARGEST PIPE SIZE SHOWN UPSTREAM ON THE PLAN.
18. LETTERS ON PIPING SHALL BE ROTATED TO FACE UP.
19. GENERAL CONTRACTOR TO PROVIDE AND INSTALL ALL CONDUIT TO CONTROLLER LOCATIONS & POINTS OF CONNECTION.
20. GENERAL CONTRACTOR TO PROVIDE POWER SOURCE FOR IRRIGATION CONTROLLER. (VERIFY LOCATION W/ OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK)
21. IRRIGATION INSTALL FLOW SENSOR PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	HUNTER HQ-44LRC-AW QUICK COUPLER VALVE, YELLOW RUBBER LOCKING COVER, RED BRASS AND STAINLESS STEEL, WITH 1" NPT INLET, 2-PIECE BODY. ACME KEY WITH ANTI-ROTATION WINGS.
	MATCO-NORCA 514T 1/2"-4" BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE. IPS. WHEEL HANDLE. SAME SIZE AS MAINLINE PIPE.
MV	HUNTER ICV-G 1" PLASTIC ELECTRIC MASTER VALVE, GLOBE CONFIGURATION, WITH NPT THREADED INLET/OUTLET, FOR COMMERCIAL/MUNICIPAL USE.
BF	ZURN 950XLT 1" DOUBLE CHECK VALVE ASSEMBLY
C	HUNTER HCC-1600-M 16 STATION OUTDOOR WI-FI ENABLED, FULL-FUNCTIONING CONTROLLER WITH TOUCHSCREEN & ONE ICM-800 MODULE. COMMERCIAL USE. METAL CABINET.
FS	HUNTER HC-100-FLOW 1" FLOW METER FOR USE WITH HYDRAWISE ENABLED CONTROLLER TO MONITOR FLOW AND PROVIDE SYSTEM ALERTS. ALSO FUNCTIONS AS STAND ALONE FLOW TOTALIZER/SUB METER ON ANY RESIDENTIAL OR COMMERCIAL IRRIGATION SYSTEM.
M	WATER METER 3/4"
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40
	IRRIGATION MAINLINE: PVC SCHEDULE 40
	PIPE SLEEVE: DUCTILE IRON PIPE- CLASS 350
	PIPE SLEEVE: PVC SCHEDULE 40

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	HUNTER ICZ-101-40-LF DRIP CONTROL ZONE KIT. 1IN. ICV GLOBE VALVE WITH 1IN. HY100 FILTER SYSTEM. PRESSURE REGULATION: 40 PSI. FLOW RANGE: .5 GPM - 15 GPM. 150 MESH STAINLESS STEEL SCREEN.
	HUNTER HDL-06-12-CV DRIP RING
	AREA TO RECEIVE DRIPLINE HUNTER HDL-06-18-CV HDL-06-18-CV: HUNTER DRIPLINE W/ 0.6 GPH EMITTERS AT 12" O.C. CHECK VALVE, DARK BROWN TUBING WITH GRAY STRIPING. DRIPLINE LATERALS SPACED AT 18" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. INSTALL WITH HUNTER PLD BARBED OR PLD-LOC FITTINGS.



VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	DESIGN PSI	FRICTION LOSS	VALVE LOSS	PSI	PSI @ POC	PRECIP
1	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	5.44	40	0.69	5.26	46.0	54.8	0.64 in/h
2	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	7.83	40	0.85	6.7	47.5	57.1	0.64 in/h
3	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	9.99	40	1.07	7.99	49.1	60.8	0.64 in/h
4	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	14.71	40	2.4	10.8	53.2	70.1	0.65 in/h
5	HUNTER ICZ-101-40-LF	1"	DRIP RING	1.95	15	0.14	3	18.1	26.4	0.51 in/h
6	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	5.09	40	0.34	5.05	45.4	55.8	0.65 in/h
7	HUNTER ICZ-101-40-LF	1"	DRIP RING	0.9	15	0.03	3	18.0	26.1	0.51 in/h
8	HUNTER ICZ-101-40-LF	1"	AREA FOR DRIPLINE	9.21	40	0.15	7.53	47.7	62.0	0.64 in/h

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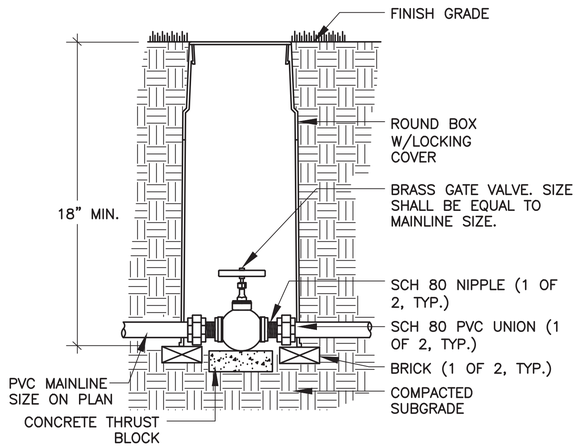
05/16/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

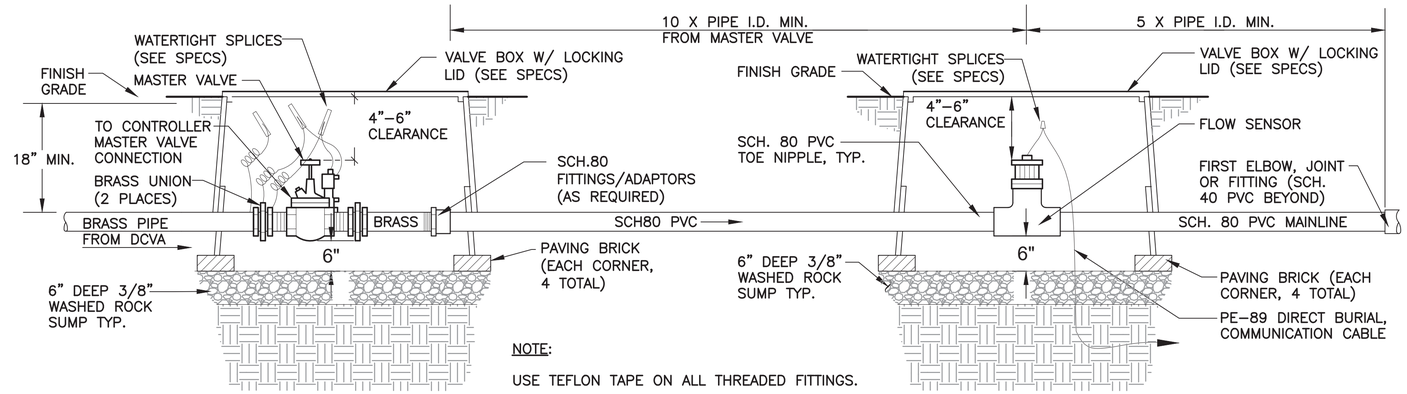
IRRIGATION SCHEDULE & IRRIGATION NOTES

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. IR02
SHEET 78 OF 89

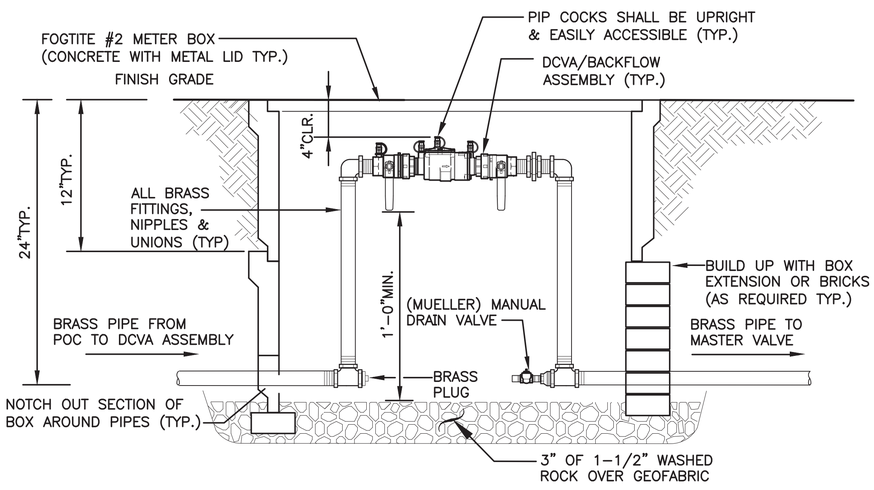
SEC 10, TWP 26 N, RGE 4 E



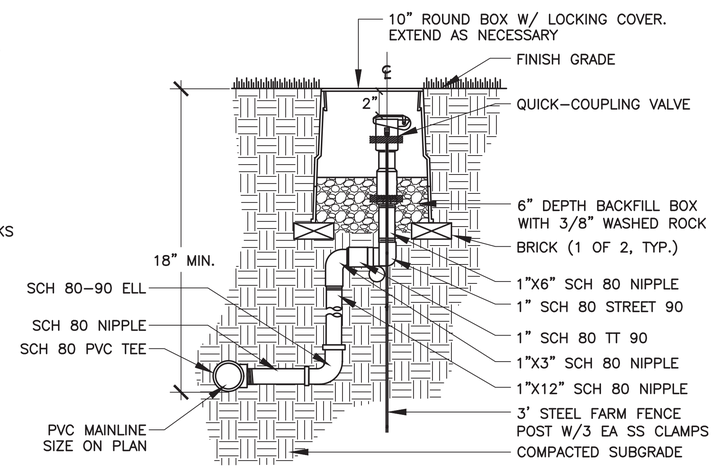
1 GATE WITH UNION



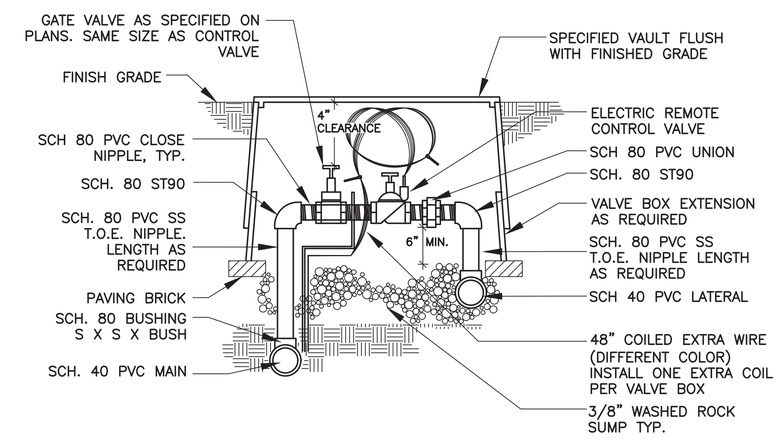
2 MASTER VALVE & FLOW SENSOR



3 DOUBLE CHECK VALVE ASSEMBLEY



4 QUICK COUPLER VALVE ASSEMBLY



5 AUTOMATIC VALVE ASSEMBLY

NO.	BY	DATE	REVISION

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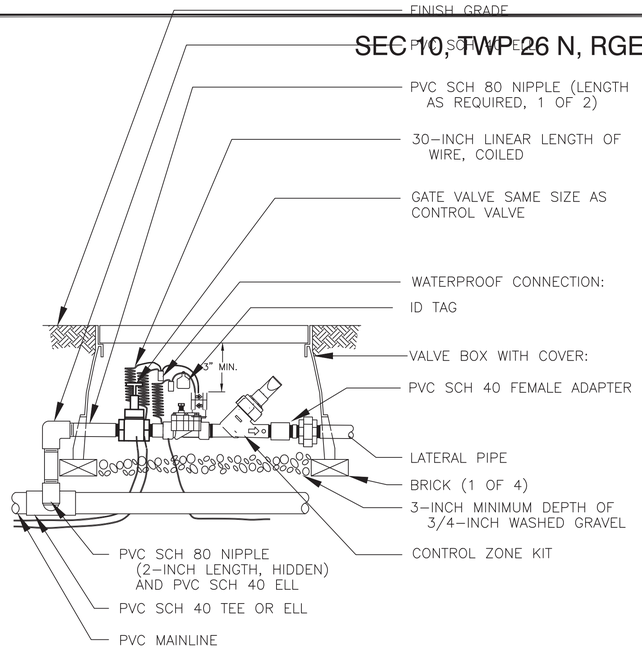
05/16/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

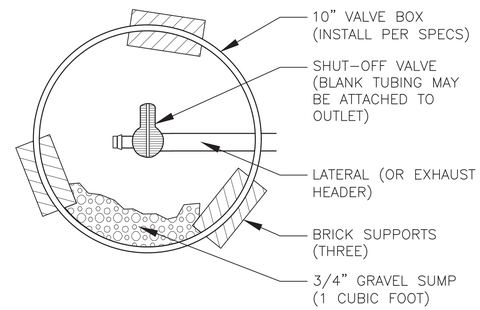
IRRIGATION DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. IR03
SHEET 79 OF 89

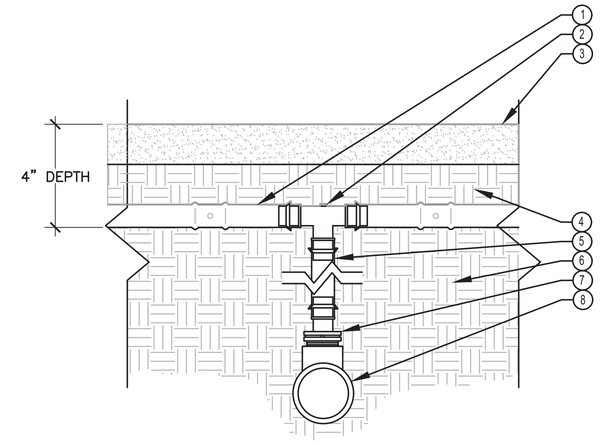
SEC 10, TWP 26 N, RGE 4 E



1 DRIP ZONE VALVE KIT



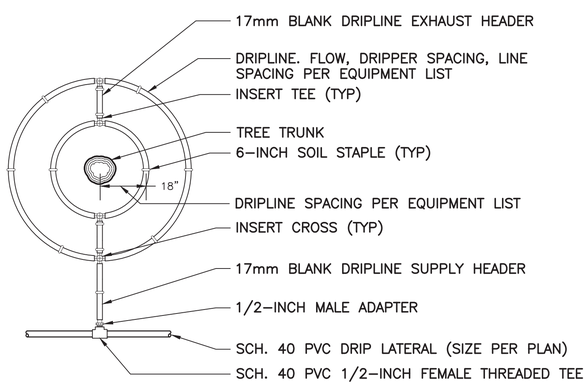
2 MANUAL DRAIN VALVE



LEGEND:

1. HUNTER DRIPLINE (HDL) PER PLAN
2. PLD OR PLD–LOC FITTING
3. FINISHED GRADE
4. MULCH (AS SPECIFIED)
5. HDL RISER – LENGTH AS REQUIRED
6. SOIL
7. PLD OR PLD–LOC FITTING
8. PVC SUPPLY HEADER – SIZE PER PLAN

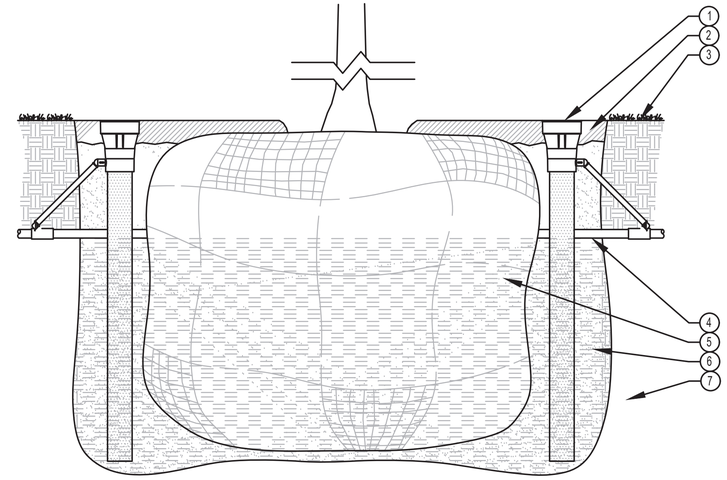
3 CONNECTION WITH DRIPLINE AND TEE



NOTES:

1. INSTALL FIRST DRIPLINE LOOP 18–INCHES FROM CENTER OF TREE TRUNK. INSTALL EACH ADDITIONAL LOOP PER EQUIPMENT LIST.
2. INSTALL DRIPLINE ON SURFACE, STAPLE IN PLACE PER MANUFACTURER'S RECOMMENDATIONS, BACKFILL AND SPREAD SURFACE TREATMENT AS DIRECTED BY OTHERS.

4 DOUBLE TREE RING LAYOUT



LEGEND:

1. ROOT ZONE WATERING SYSTEM PER PLAN
2. MULCH
3. FINISHED GRADE
4. LATERAL PIPE – SIZE PER PLAN
5. ROOT BALL
6. AMENDED SOIL
7. NATIVE SOIL

NOTES:
INSTALL RZWS SLEEVE OVER TUBE TO HELP PREVENT SOIL INTRUSION

5 ROOT ZONE WATERING SYSTEM - 36"

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LZ/JA/AV	05/16/25
Designed	LZ/JA/AV	05/16/25
Reviewed	JA	05/16/25
Approved	JA	05/16/25

BID SET

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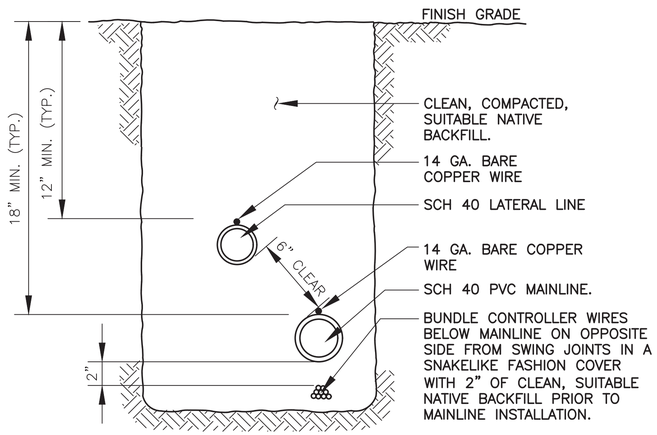
STATE OF WASHINGTON JASON M. ANDERSON NO. 0936 EXP. 08/24/2026 LANDSCAPE ARCHITECT
05/16/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

IRRIGATION DETAILS

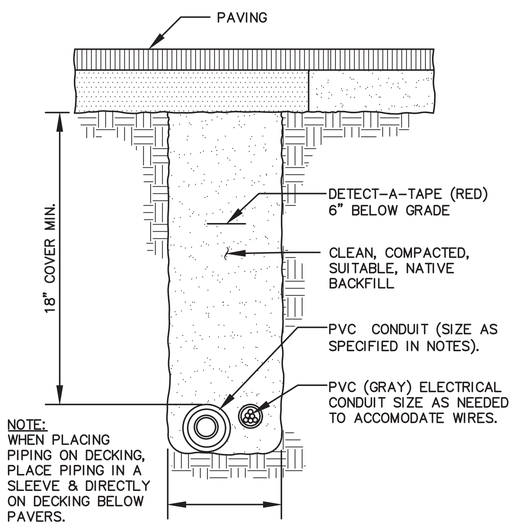
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. IR04
SHEET 80 OF 89

SEC 10, TWP 26 N, RGE 4 E



NOTE:
TAPE WIRES TOGETHER EVERY 10', BUT DO NOT TAPE BUNDLED WIRES TO MAINLINE.

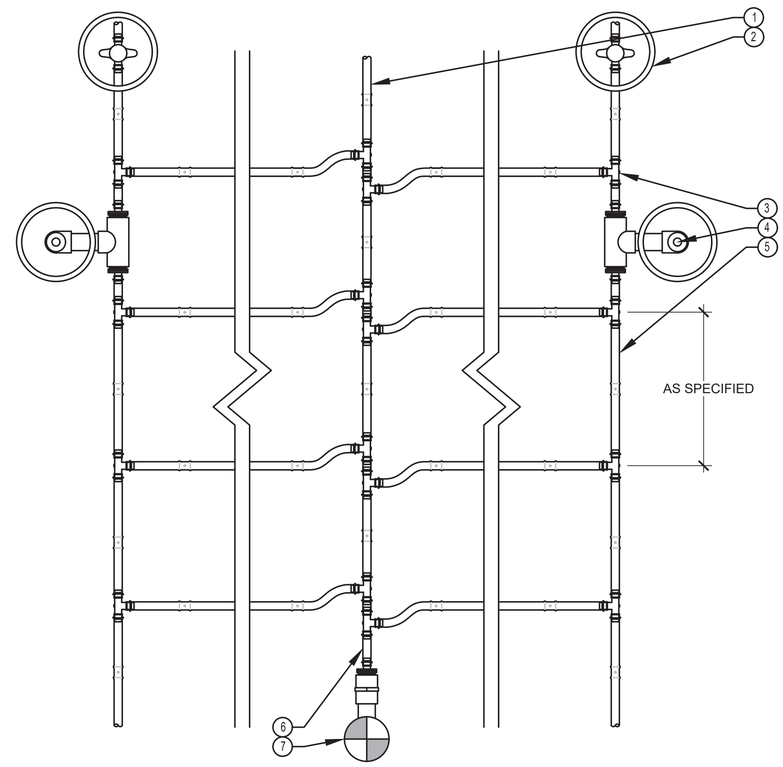
1 IRRIGATION TRENCH



NOTE:
WHEN PLACING PIPING ON DECKING, PLACE PIPING IN A SLEEVE & DIRECTLY ON DECKING BELOW PAVERS.

6" WIDE TRENCH
(OR AS REQUIRED TO ALLOW ADEQUATE COMPACTION OF BACKFILL)

2 TRENCH UNDER ASPHALT



3 DRIPLINE - PLANTING BED CENTER FEED

LEGEND:

1. HUNTER DRIPLINE (HDL) PER PLAN
2. FLUSH POINT (PLD–BV) IN SUBTERRANEAN BOX PER PLAN
3. PLD OR PLD–LOC FITTINGS TYP.
4. AIR RELIEF VALVE IN VALVE BOX (ONLY FOR CHANGES IN HEIGHT OF GREATER THAN 6' ON THE SAME ZONE)
5. PLD TUBING EXHAUST HEADER
6. HDL TUBING SUPPLY HEADER
7. DRIP CONTROL ZONE KIT PER PLAN

NOTES:
AIR RELIEF VALVE (PLD–AVR) INSTALLED IN VALVE BOX AT OPTIMAL HIGHEST POINT FROM CONTROL ZONE KIT. MULTIPLE AIR RELIEF VALVES MAY BE NEEDED TO ACCOMMODATE DIFFERENCES IN GRADE.

FLUSH POINT TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT TO ALLOW FOR MAXIMUM DEBRIS FLUSH IN SYSTEM.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	LZ/JA/AV	05/16/25
Designed	LZ/JA/AV	05/16/25
Reviewed	JA	05/16/25
Approved	JA	05/16/25

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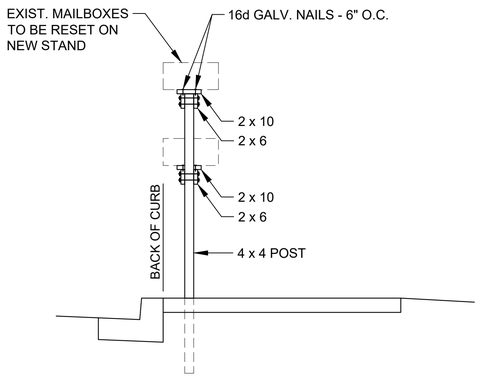
05/16/25

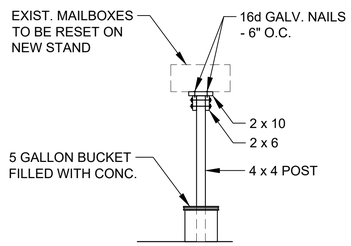
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

IRRIGATION DETAILS

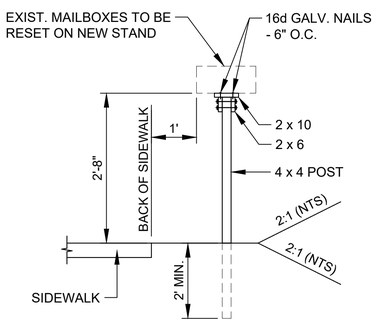
PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. IR05
SHEET 81 OF 89



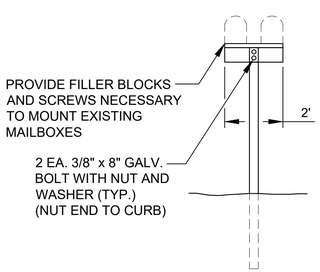
TYP. MAILBOX STAND AT BACK OF CURB (BOC)
N.T.S.



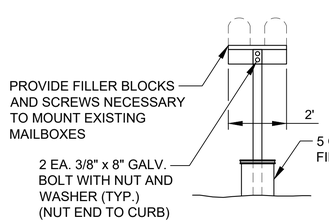
TYP. MAILBOX STAND (TEMPORARY)
N.T.S.



TYP. MAILBOX STAND AT BACK OF SIDEWALK (BOS)
N.T.S.

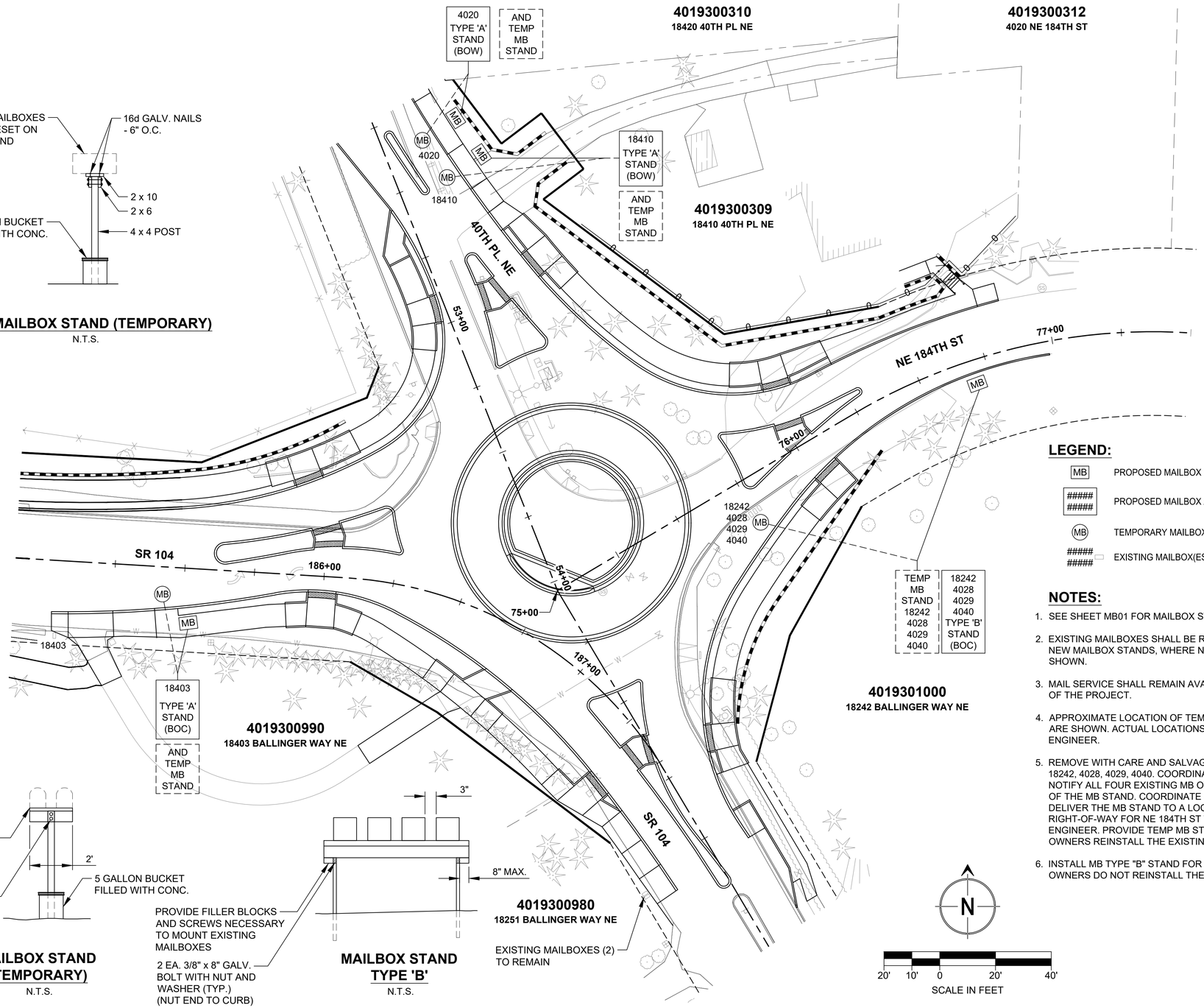


MAILBOX STAND TYPE 'A'
N.T.S.



MAILBOX STAND (TEMPORARY)
N.T.S.

MAILBOX STAND TYPE 'B'
N.T.S.



LEGEND:

MB	PROPOSED MAILBOX STAND
##### #####	PROPOSED MAILBOX ADDRESS(ES)
MB	TEMPORARY MAILBOX STAND
##### #####	EXISTING MAILBOX(ES) WITH ADDRESS(ES)

NOTES:

1. SEE SHEET MB01 FOR MAILBOX STAND DETAILS.
2. EXISTING MAILBOXES SHALL BE REMOVED AND RELOCATED TO NEW MAILBOX STANDS, WHERE NEW MAILBOX STANDS ARE SHOWN.
3. MAIL SERVICE SHALL REMAIN AVAILABLE FOR THE DURATION OF THE PROJECT.
4. APPROXIMATE LOCATION OF TEMPORARY MAILBOX STANDS ARE SHOWN. ACTUAL LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
5. REMOVE WITH CARE AND SALVAGE EXISTING MB STAND FOR: 18242, 4028, 4029, 4040. COORDINATE WITH THE ENGINEER AND NOTIFY ALL FOUR EXISTING MB OWNERS PRIOR TO REMOVAL OF THE MB STAND. COORDINATE WITH THE OWNERS AND DELIVER THE MB STAND TO A LOCATION WITHIN THE EXISTING RIGHT-OF-WAY FOR NE 184TH ST THAT IS APPROVED BY THE ENGINEER. PROVIDE TEMP MB STANDS FOR USE UNTIL THE OWNERS REINSTALL THE EXISTING MB STAND.
6. INSTALL MB TYPE "B" STAND FOR 18242, 4028, 4029, 4040 IF OWNERS DO NOT REINSTALL THE EXISTING MB STAND.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

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6/9/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE ROUNDABOUT PROJECT

MAILBOX RELOCATION PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. MB01
SHEET 82 OF 89

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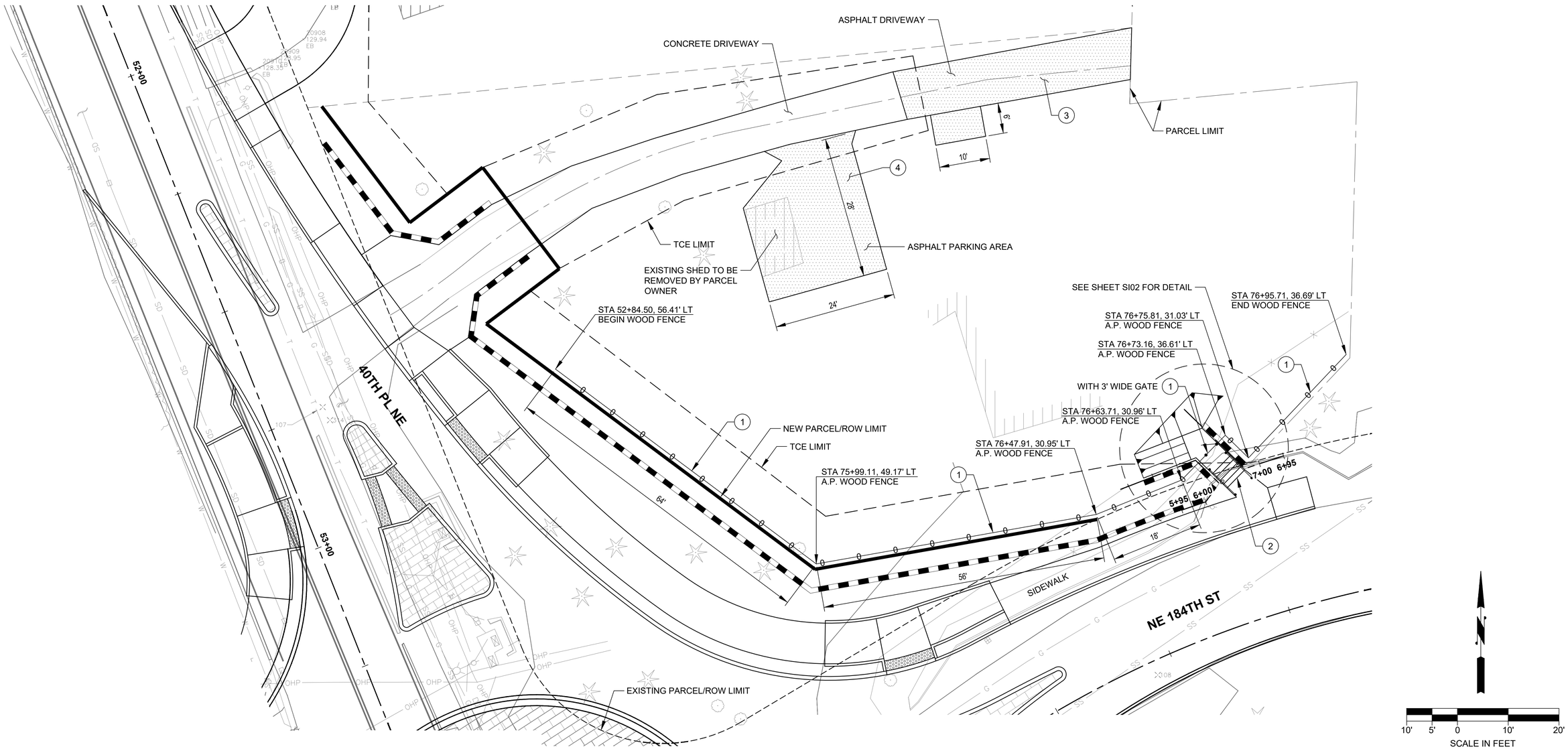
SECTION 10, T 26 N, R 4 E, WM

GENERAL NOTES:

1. FOR DRIVEWAY SECTIONS, SEE SHEET DRP01.
2. FOR DRIVEWAY PROFILE, SEE SHEET DRP02.
3. FOR WALL PROFILES, SEE SHEET SI02.
4. FOR WALL DETAILS, SEE SHEET WD07.
5. FOR STAIRWAY DETAILS, SEE SHEETS SI03-SI04.

CONSTRUCTION NOTES:

1. CONSTRUCT 6' HIGH WOOD FENCE PER DETAILS, ON SHEET SI03.
2. CONSTRUCT CONCRETE STAIRS PER DETAILS, ON SHEETS SI03-SI04.
3. CONSTRUCT ASPHALT DRIVEWAY PER DETAIL, ON SHEET DRP01.
4. CONSTRUCT ASPHALT PARKING AREA PER ASPHALT DRIVEWAY DETAIL, ON SHEET DRP01.



NO.	BY	DATE	REVISION

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5/14/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SITE IMPROVEMENT PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SI01
SHEET 83 OF 89

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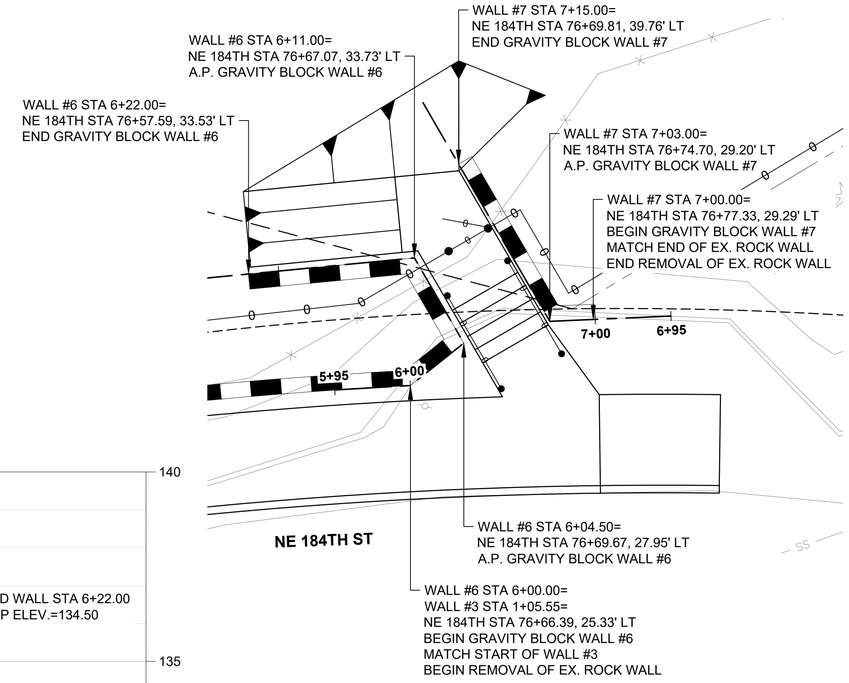
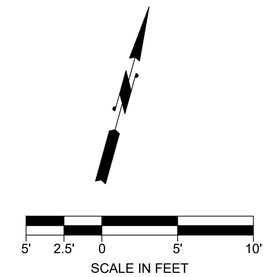
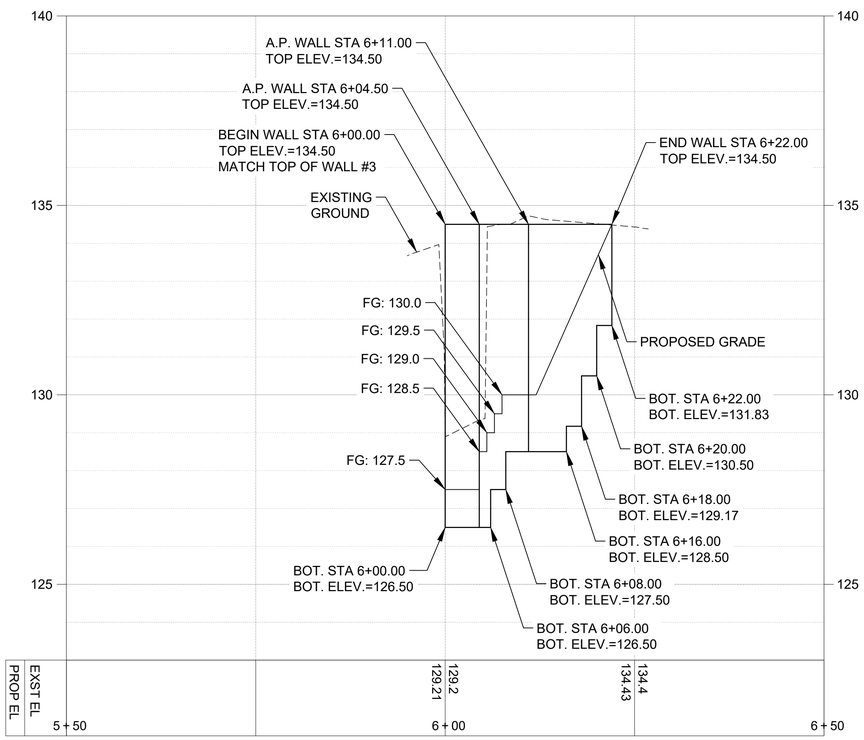
SECTION 10, T 26 N, R 4 E, WM

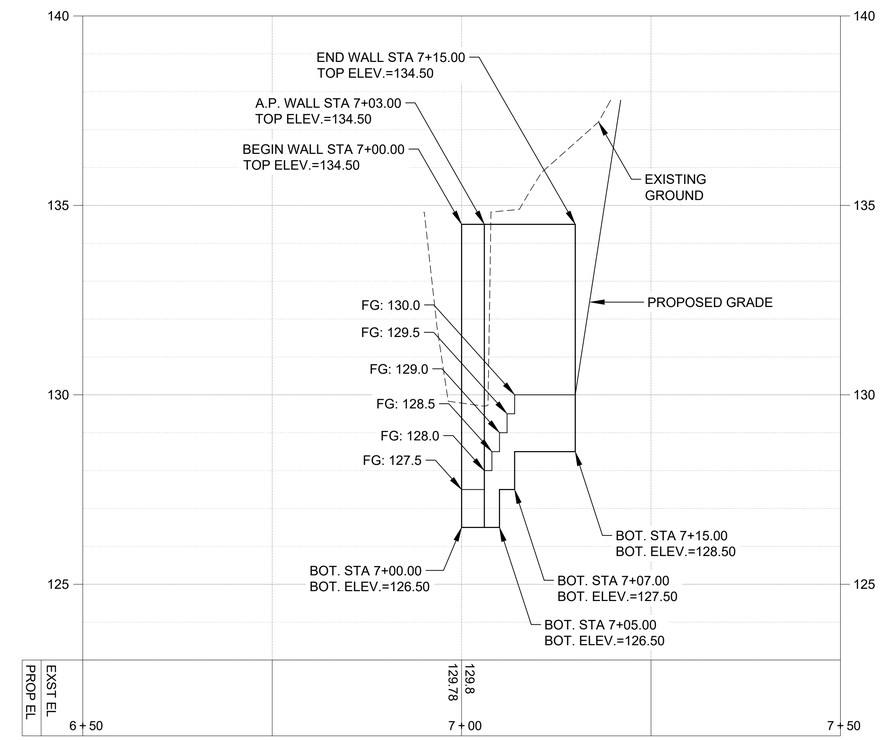






SITE PLAN CUT WALL PROFILE
REFLECTED WALL ELEVATION
GRAVITY BLOCK WALL #6

SCALE: 1"=10' HORIZ., 1"=2' VERT.



SITE PLAN CUT WALL PROFILE
REFLECTED WALL ELEVATION
GRAVITY BLOCK WALL #7

SCALE: 1"=10' HORIZ., 1"=2' VERT.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

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5/14/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SITE IMPROVEMENT PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SI02
SHEET 84 OF 89

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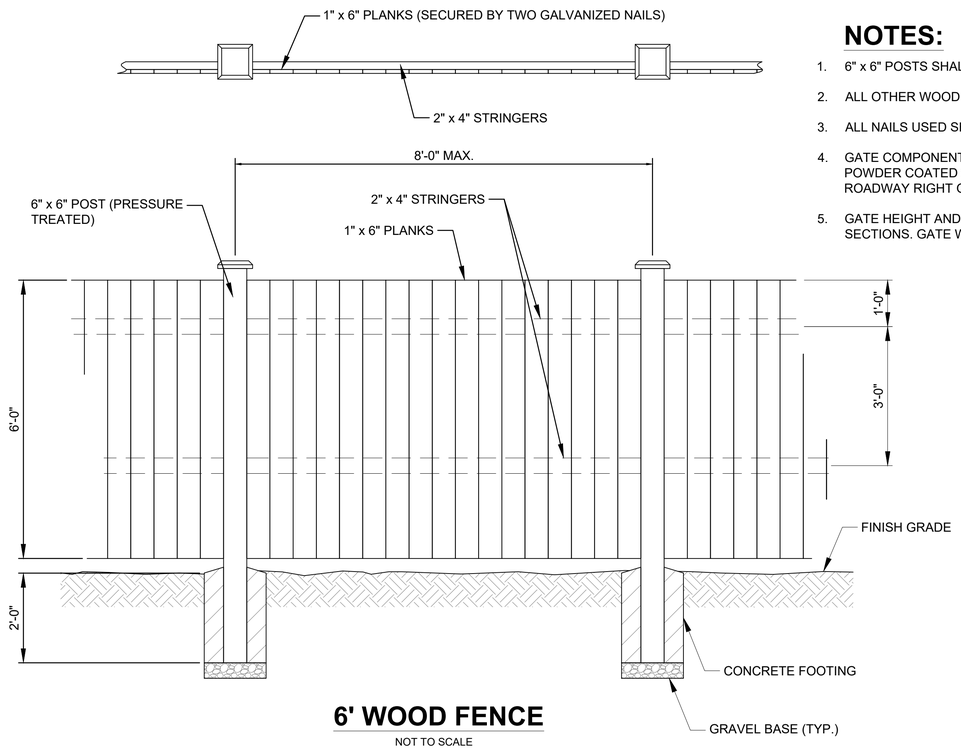
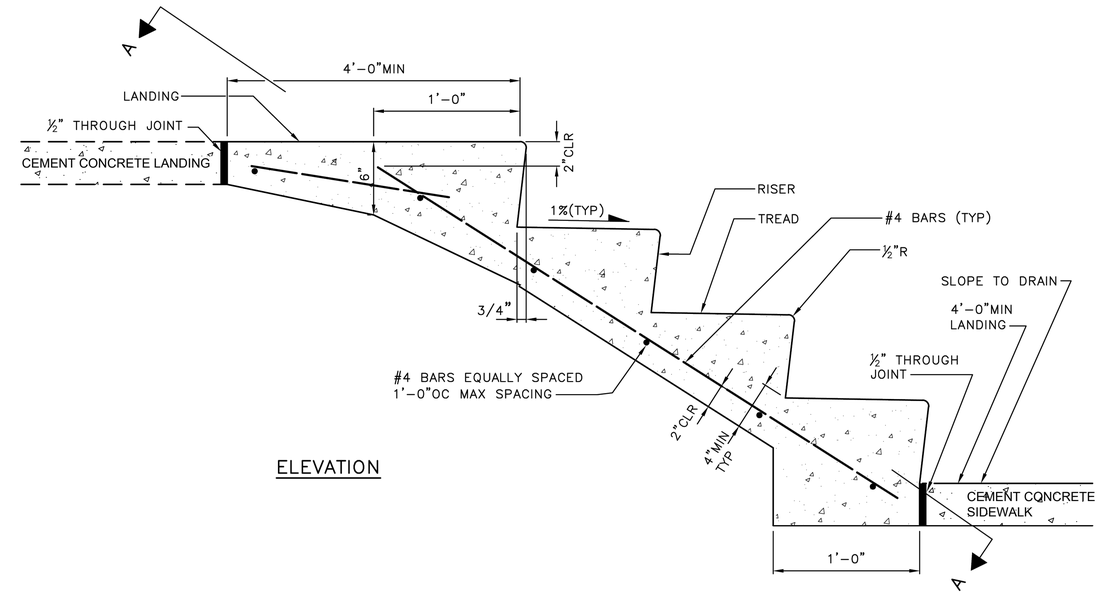


6' WOOD FENCE

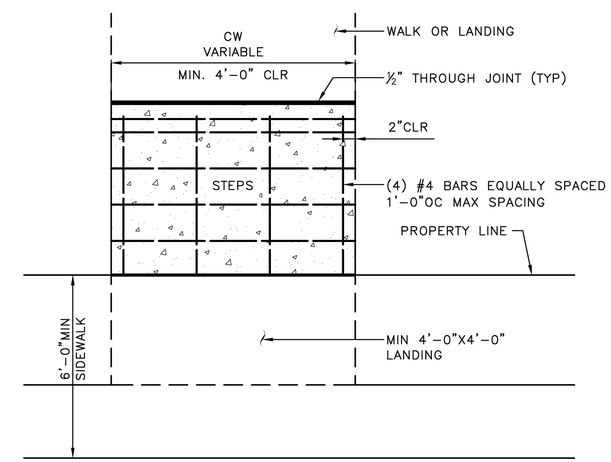
NOT TO SCALE

NOTES:

1. 6" x 6" POSTS SHALL BE PRESSURE TREATED FIR.
2. ALL OTHER WOOD MEMBERS TO BE CEDAR.
3. ALL NAILS USED SHALL BE GALVANIZED.
4. GATE COMPONENTS, INCLUDING HINGES AND CATCHS, SHALL BE BLACK POWDER COATED STEEL AND INSTALL ON THE OPPOSITE SIDE OF THE ROADWAY RIGHT OF WAY.
5. GATE HEIGHT AND STYLE TYPE SHALL MATCH ADJACENT FENCE SECTIONS. GATE WIDTH SHALL BE AS NOTED ON THE PLANS.



ELEVATION



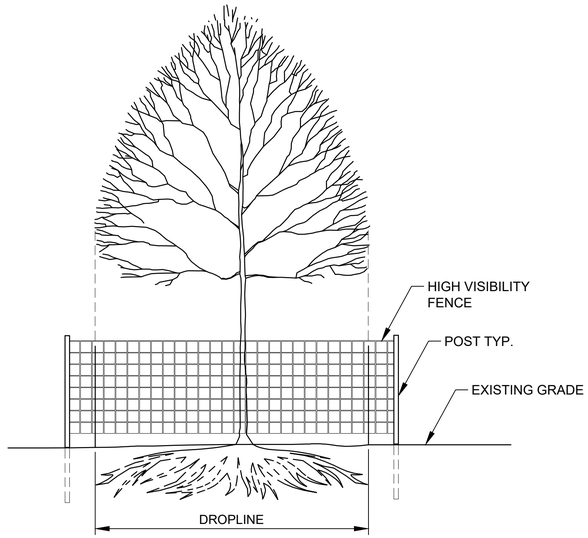
SECTION A–A

NOTES:

1. CEMENT CONCRETE MUST BE CL 3000 TROWEL FINISH
2. NUMBER OF STEPS MUST SUIT INDIVIDUAL CONDITIONS WITH UNIFORM TREAD AND RISER DIMENSIONS AS FOLLOWS:
   TREADS MUST BE 11"MIN – 1'–0"MAX
   RISERS MUST BE 5"MIN – 7"MAX
3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 2'–6"WIDE
4. STAIRWAYS WITH 4 OR MORE RISERS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE EXHIBITS 5 AND 6.
5. REINFORCING STEEL ASTM A 615 GR60
6. TREAD SLOPES OUTWARD @1%

CEMENT CONCRETE STAIRWAY DETAIL

NOT TO SCALE



TREE PROTECTION

NOT TO SCALE

NOTES:

1. 3' HIGH VISIBILITY FENCE SHALL BE PLACED AT DRIPLINE OF TREE TO BE PROTECTED; FENCE SHALL COMPLETELY ENCIRCLE TREE(S); AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER 1" IN DIA., MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE COVERED WITH TOPSOIL IMMEDIATELY TO PREVENT DRYING.
3. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL NOT BE ALLOWED WITHIN THE LIMIT OF THE FENCING. SEE SPECIFICATIONS FOR SOIL AMENDMENT TREATMENT WITHIN TREE PROTECTION AREA.

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

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6/3/25

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SITE IMPROVEMENT DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SI03
SHEET 85 OF 89

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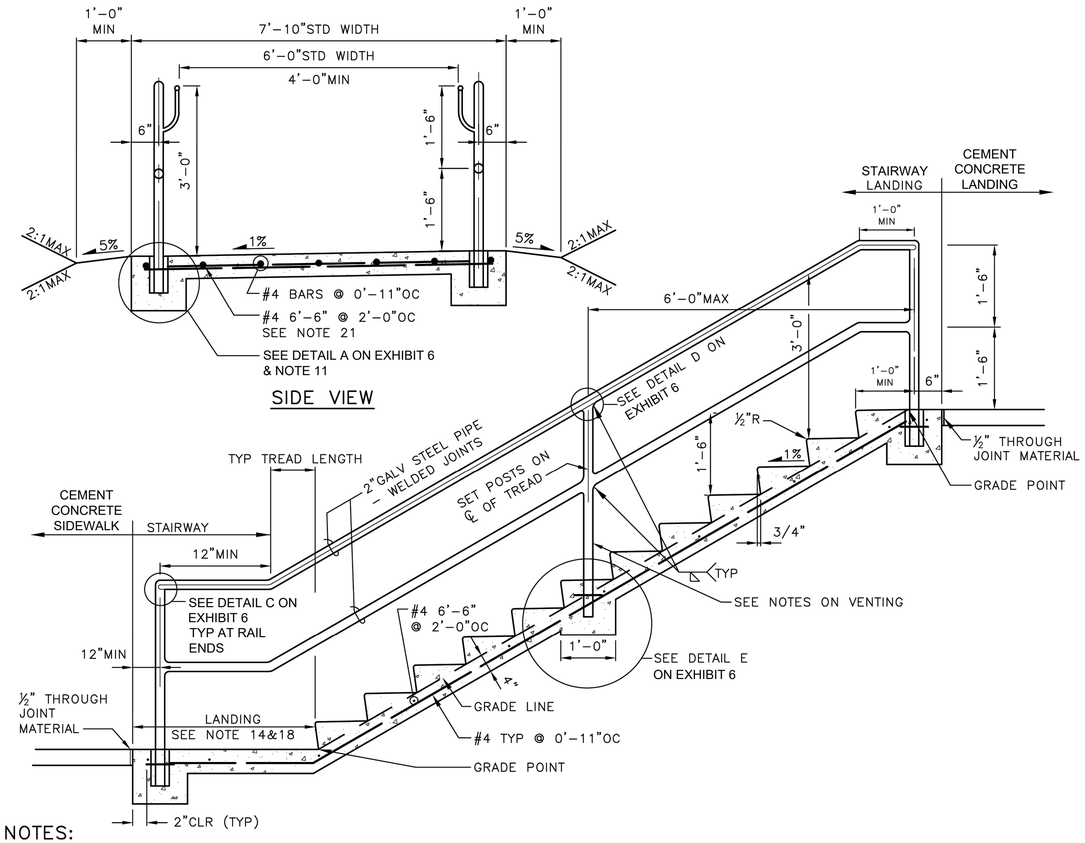
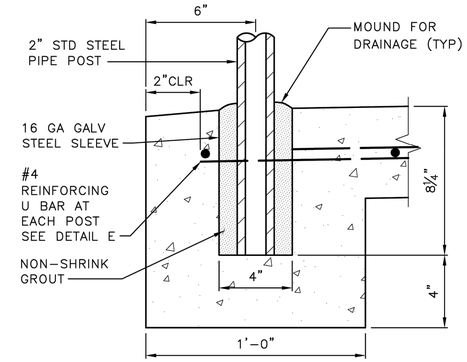
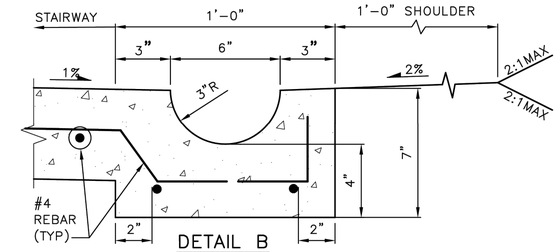


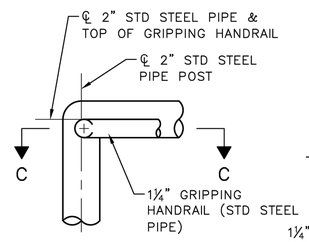


DETAIL A

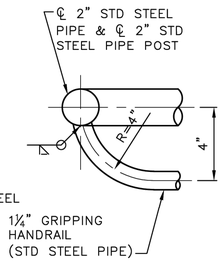


DETAIL B

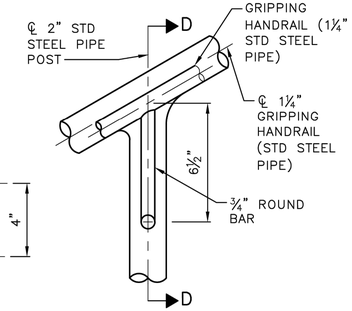
SEE NOTE 11 ON STD PLAN NO 440a



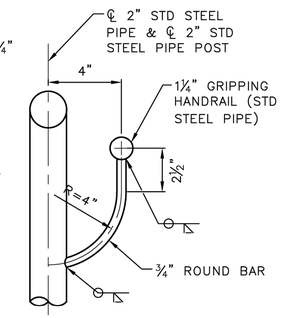
DETAIL C
HAND GRIP TERMINATION



SECTION C–C

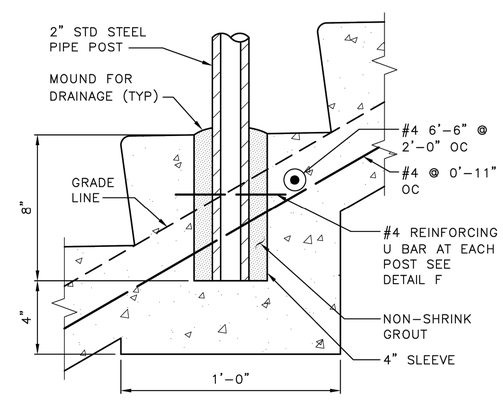


DETAIL D

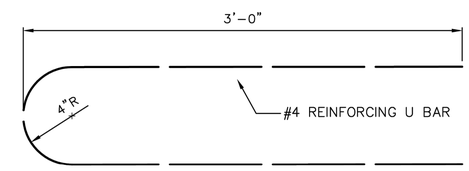


SECTION D–D

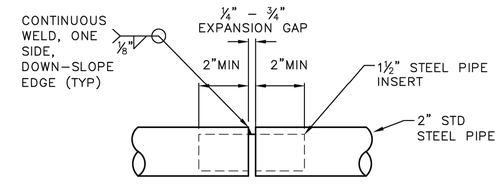
NOTE:
PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.



DETAIL E



DETAIL F



DETAIL G
SLIP JOINT

NOTES:

1. FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12' BEFORE A LANDING.
2. AVOID FEWER THAN 2 RISERS PER FLIGHT.
3. STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF ±3/8".
4. TREADS MUST BE 11"MIN, 12"MAX. RISERS MUST BE 5"MIN, 7"MAX.
5. LANDINGS BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4'-0".
6. STAIRWAYS WITH 1 OR MORE RISERS MUST HAVE HANDRAILS ON BOTH SIDES.
7. HANDRAILS MUST BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
8. ALL STEEL MUST BE HOT DIPPED GALVANIZED.
9. PIPE MATERIAL MUST BE ASTM A53 AND ROUND BAR ASTM A36.
10. REINFORCING STEEL MUST BE ASTM A615 GR 60.
11. FOR FORMAL DRAINAGE PICK-UP SEE DETAIL B ON STD PLAN NO 440b (THIS IS OPTIONAL AND MUST BE CALLED OUT ON DRAWINGS).
12. PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
13. CONCRETE CLASS CL3000.
14. LANDINGS MUST BE 0.5%MIN FOR A MIN LENGTH OF 4', ADJACENT SIDEWALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
15. TREAD SURFACE MUST HAVE GROOVES AT THE NOSE FOR TRACTION.
16. IF LANDING IS ELEVATED, LANDING MUST HAVE VERTICAL RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.
17. STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED PER STD PLAN NO 440C OR 440D.
18. DIMENSION FROM THE BOTTOM LANDING RAILING TO THE NOSE OF THE TREAD MUST BE 12"MIN + 1 TREAD LENGTH.
19. HANDRAIL GRIPPING SURFACE AND ADJACENT SURFACES MUST BE FREE FROM SHARP OR ABRASIVE ELEMENTS AND MUST HAVE ROUNDED EDGES.
20. BOTTOM HANDRAIL EXTENSION MUST EXTEND ONE TREAD LENGTH MINIMUM PARALLEL TO THE SLOPE OF THE STAIR BEYOND BOTTOM STAIR NOSING.
21. TOP HANDRAIL EXTENSION MUST EXTEND HORIZONTALLY ABOVE LANDING 12" MINIMUM BEYOND TOP STAIR NOSING.
22. REBAR SIZING AND SPACING MAY CHANGE FOR WIDER OR NARROWER STAIRWAYS.
23. EXTERNAL VENT HOLES MUST BE AS CLOSE TO THE WELD AS POSSIBLE AND MUST BE 25% THE SIZE OF THE I.D. OF THE PIPE, BUT NOT LESS THAN ⅜" IN DIA.
24. VENT HOLES IN END SECTIONS OR IN SIMILAR SECTIONS MUST BE ½" IN DIA.
25. ENDS MUST BE LEFT COMPLETELY OPEN. ANY DEVICE USED FOR FIELD-ERECTION THAT PREVENTS FULL OPENINGS ON ENDS OF HORIZONTAL RAILS AND VERTICAL LEGS MUST BE GALVANIZED SEPARATELY AND ATTACHED AFTER GALVANIZING.

CEMENT CONCRETE STAIRWAY & HANDRAIL DETAILS

NOT TO SCALE

STAIRWAY HANDRAIL DETAILS

NOT TO SCALE

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MJS	5/25
Designed	KAH	5/25
Reviewed	VLS	5/25
Approved	KAH	5/25

BID SET

811 Know what's below. Call before you dig.

CITY OF LAKE FOREST PARK

Transportation Solutions
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16932 Woodinville-Redmond Road, Suite A206
Woodinville, WA 98072
(425) 883-4134 | www.tsinw.com

KIRK ANDREW HARRIS, STATE OF WASHINGTON, 34403, REGISTERED PROFESSIONAL ENGINEER
5/14/25

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SITE IMPROVEMENT DETAILS

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. SI04
SHEET 86 OF 89

C:\Users\MikeSchaefer\TSI Dropbox\Mike Schaefer\TSI Projects\2021\221007 SR 104 and 40th Place NE Roundabout\0400CAD\PS&E\221007-SI.dwg, 05/14/25 08:52:33am

NW 1/4 SECTION 10, TOWNSHIP 26 N, RANGE 4 E, W.M.

SECTION - SUBDIVISION

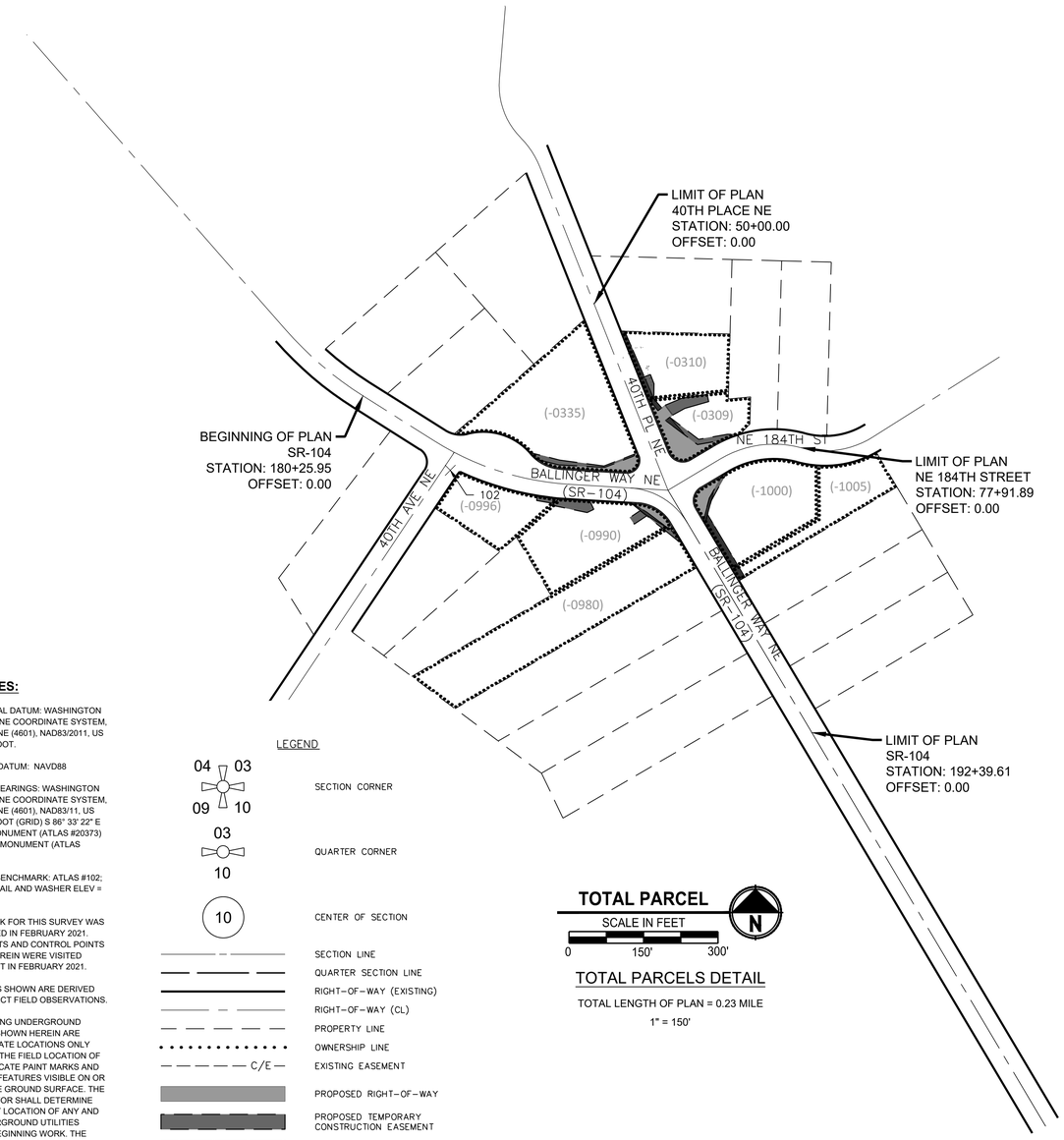
1" = 200'

SECTION SUBDIVISION

SCALE IN FEET

0 200' 400'

N



TOTAL PARCEL

SCALE IN FEET

0 150' 300'

N

TOTAL PARCELS DETAIL

TOTAL LENGTH OF PLAN = 0.23 MILE

1" = 150'

SURVEY NOTES:

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/2011, US SURVEY FOOT.
2. VERTICAL DATUM: NAVD88
3. BASIS OF BEARINGS: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (4601), NAD83/11, US SURVEY FOOT (GRID) S 86° 33' 22" E [FOUND MONUMENT (ATLAS #20373) TO FOUND MONUMENT (ATLAS 11430)]]
4. PROJECT BENCHMARK: ATLAS #102; SET MAG NAIL AND WASHER ELEV = 91.92'.
5. FIELD WORK FOR THIS SURVEY WAS PERFORMED IN FEBRUARY 2021. MONUMENTS AND CONTROL POINTS SHOWN HEREIN WERE VISITED AND/OR SET IN FEBRUARY 2021.
6. CONTOURS SHOWN ARE DERIVED FROM DIRECT FIELD OBSERVATIONS.
7. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREIN ARE APPROXIMATE LOCATIONS ONLY BASED ON THE FIELD LOCATION OF UTILITY LOCATE PAINT MARKS AND PHYSICAL FEATURES VISIBLE ON OR ABOVE THE GROUND SURFACE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND UTILITIES BEFORE BEGINNING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AN ALL DAMAGES ARISING OUT OF HIS/HER FAILURE TO EXACTLY LOCATE AND PROTECT ALL EXISTING UTILITY FACILITIES.
8. UTILITY LOCATES FOR THIS PROJECT WERE PERFORMED BY APPLIED PROFESSIONAL SERVICES (APS).

LEGEND

04 03 / 09 10	SECTION CORNER
03 / 10	QUARTER CORNER
10	CENTER OF SECTION
	SECTION LINE
	QUARTER SECTION LINE
	RIGHT-OF-WAY (EXISTING)
	RIGHT-OF-WAY (CL)
	PROPERTY LINE
	OWNERSHIP LINE
C/E	EXISTING EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED UTILITY EASEMENT
X	FENCE LINE
	EXISTING PAVEMENT / CURB / CONCRETE
	EXISTING BUILDING

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MM	4/25
Designed	MG	4/25
Reviewed	MG	4/25
Approved	VLS	4/25

BID SET

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CITY OF LAKE FOREST PARK

ATLAS

17619 NE 67TH CT #100
Redmond, Washington 98052
Ph: (425) 429-7800

MARK A. GROOT, STATE OF WASHINGTON, 44341, REGISTERED PROFESSIONAL LAND SURVEYOR

4/03/2025

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

SECTION SUBDIVISION AND TOTAL PARCEL DETAIL

PROJECT NO. 221007

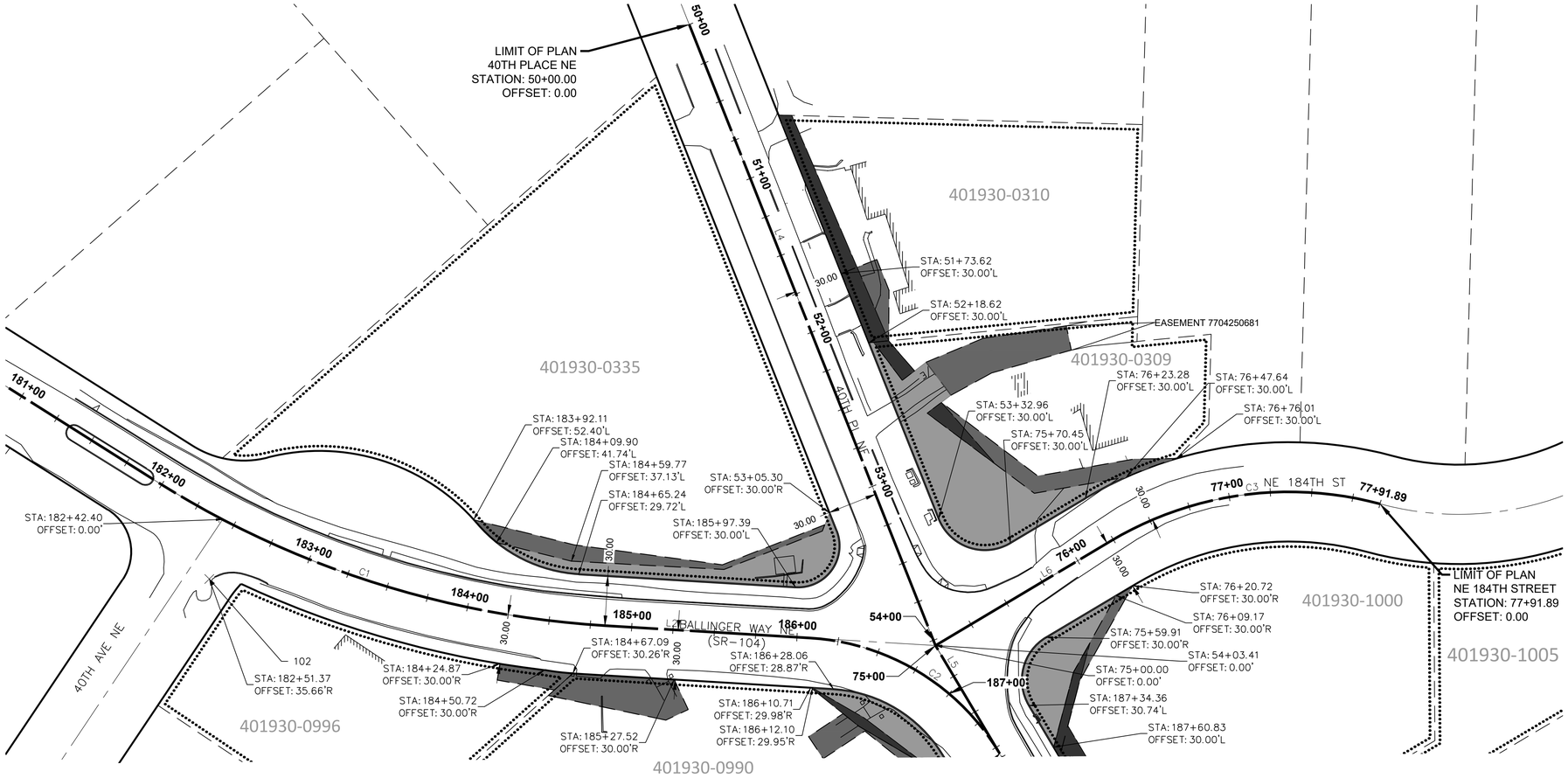
CONTRACT NO. -

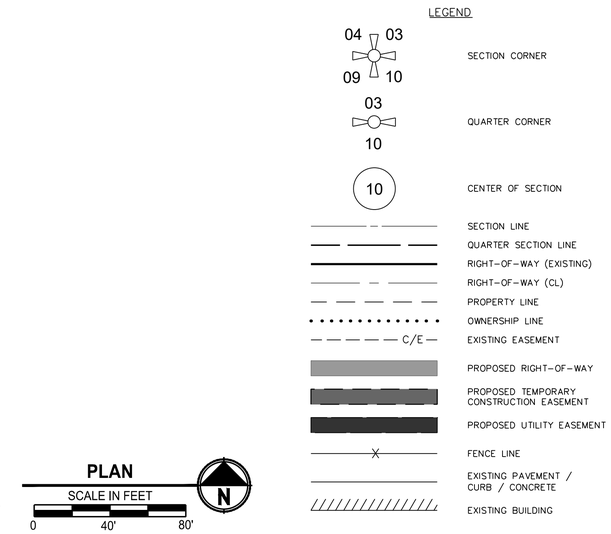
DRAWING NO. TP01

SHEET 87 OF 89

L:\TSIX_20-139 SR 104 Roundabout\0300CAD\BASES\right-of-way plan\20139-SV-ROW-PLAN.dwg, 05/15/25 06:00:21pm

NW 1/4 SECTION 10, TOWNSHIP 26 N, RANGE 4 E, W.M.





ALIGNMENT TABLE					
LINE/CHORD NUMBER	RADIUS	LENGTH	LINE/CHORD BEARING	START STATION	END STATION
L1		169.43	S57° 42' 52"E	180+25.95	181+95.38
C1	572.96	288.42	S72° 08' 07"E	181+95.38	184+83.80
L2		124.14	S86° 33' 22"E	184+83.80	186+07.94
C2	143.23	139.62	S58° 37' 52"E	186+07.94	187+47.56
L3		492.05	S30° 42' 22"E	187+47.56	192+39.61
L4		403.41	S21° 38' 07"E	50+00.00	54+03.41
L5		75.92	S30° 42' 22"E	54+03.41	54+79.33
L6		123.29	N59° 12' 18"E	75+00.00	76+23.29
C3	210.38	168.60	N82° 09' 48"E	76+23.29	77+91.89

ATLAS MONUMENT/CONTROL TABLE						
POINT	RIGHT-OF-WAY C/L		PROJECT COORDINATES		ELEVATION	DESCRIPTION
	STATION	OFFSET	NORTHING	EASTING		
102	182+51.37	35.66 RT.	280650.32	1283239.61	91.92	MAG NAIL SET AT SE CORNER OF INTERSECTION OF 40TH AVE NE AND BALLINGER WAY NE 5' WEST OF STOP SIGN
302	SUBD		277723.20	1284531.59	33.50	3" BRASS DISK WITH PUNCH MARKED "WASH DOT MON GP 17522-236" ON NE CORNER INTERSECTION OF BOTHELL WAY NE AND NE 170TH ST
317	SUBD		279330.83	1284438.81	68.04	PIN IN CONC IN 2" IRON PIPE DOWN 1.4' IN CASE AT INTERSECTION OF BALLINGER WAY NE AND NE 178TH ST
318	SUBD		281527.11	1282386.46	136.33	2" IRON PIPE WITH PIN DOWN 1.15' IN CASE AT INTERSECTION OF BALLINGER WAY NE AND 37TH AVE NE
322	SUBD		281585.30	1283350.02	183.64	4" CONC MON WITH NAIL DOWN 1.15' IN CASE AT INTERSECTION OF 40TH PL NE AND NE 185TH ST
10783	54+79.30	0.03 LT.	280544.93	1283717.01	113.85	PIN IN CONC IN 2.5" IRON PIPE IN CASE IN TURN LANE OF BALLINGER WAY NE +/- 30' SE OF INTERSECTION WITH NE 184TH ST
11430	75+00.00	0.00 LT.	280610.16	1283678.23	116.00	PIN IN CONC IN 2.5" IRON PIPE DOWN 0.5' IN CASE AT INTERSECTION OF 40TH PL NE AND NE 184TH ST
20372	182+41.16	2.27 RT.	280684.84	1283245.49	92.44	NAIL IN CONC IN 2.5" IRON PIPE DOWN 0.95' IN CASE AT INTERSECTION OF BALLINGER WAY NE AND 40TH AVE NE
20373	184+83.49	0.00 RT.	280622.20	1283478.23	104.41	2" BRASS DISK AND NAIL DOWN 1.6' IN CASE IN TURN LANE ON CENTERLINE BALLINGER WAY NE +/- 120' WEST OF INTERSECTION WITH 40TH PL NE

ACQUISITION DOCUMENT (AUDITOR FILE NO.)	OWNERSHIP							
	PARCEL NO.	NAME	PROPERTY ADDRESS*	TOTAL AREA	R/W REQ'D.	EASEMENT TYPE	EASEMENT AREA	REMAINDER
	401930-0335	WRIGHT, VONNA & JONES, MICHAEL	18411 40TH PL NE	56,380 SF	2,547 SF			52,505 SF
						TEMP. CONSTRUCTION	1,328 SF	
	401930-0310	SUPAKUL, NATHAN & HUANG, BETTY	18420 40TH PL NE	24,344 SF		TEMP. CONSTRUCTION	930 SF	
						UTILITY	1,391 SF	
	401930-0309	CAMPBELL, ERIN	18410 40TH PL NE	19,399 SF	5,189 SF			14,210 SF
						TEMP. CONSTRUCTION	3,357 SF	
						UTILITY	494 SF	
	401930-1000	TAYLOR, CHRISTINA J & PATRICK	18242 BALLINGER WAY NE	37,078 SF	1,849 SF			35,229 SF
						TEMP. CONSTRUCTION	579 SF	
						UTILITY	1,893 SF	
	401930-1005	ORTHEL, JASON P & ANGIE F	4029 NE 184TH ST	20,105 SF		UTILITY	371 SF	
	401930-0980	NICKLES, DANITA M	18251 BALLINGER WAY NE	58,454 SF	115 SF			58,339 SF
						TEMP. CONSTRUCTION	295 SF	
	401930-0990	MATTOX, BARNEY	18403 BALLINGER WAY NE	33,941 SF	1,103 SF			32,838 SF
						TEMP. CONSTRUCTION	2,114 SF	
						UTILITY	277 SF	
	401930-0996	AKERSTROM, GALE E	18250 40TH AVE NE	19,777 SF		TEMP. CONSTRUCTION	417 SF	
			*LAKE FOREST PARK, WA 98155					

NO.	BY	DATE	REVISION

	BY:	DATE:
Drawn	MM	4/25
Designed	MG	4/25
Reviewed	MG	4/25
Approved	VLS	4/25

BID SET

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CITY OF LAKE FOREST PARK

ATLAS
17619 NE 67TH CT #100
Redmond, Washington 98052
Ph: (425) 429-7800

MARK A. GROOT STATE OF WASHINGTON 14343 REGISTERED PROFESSIONAL LAND SURVEYOR
4/03/2025

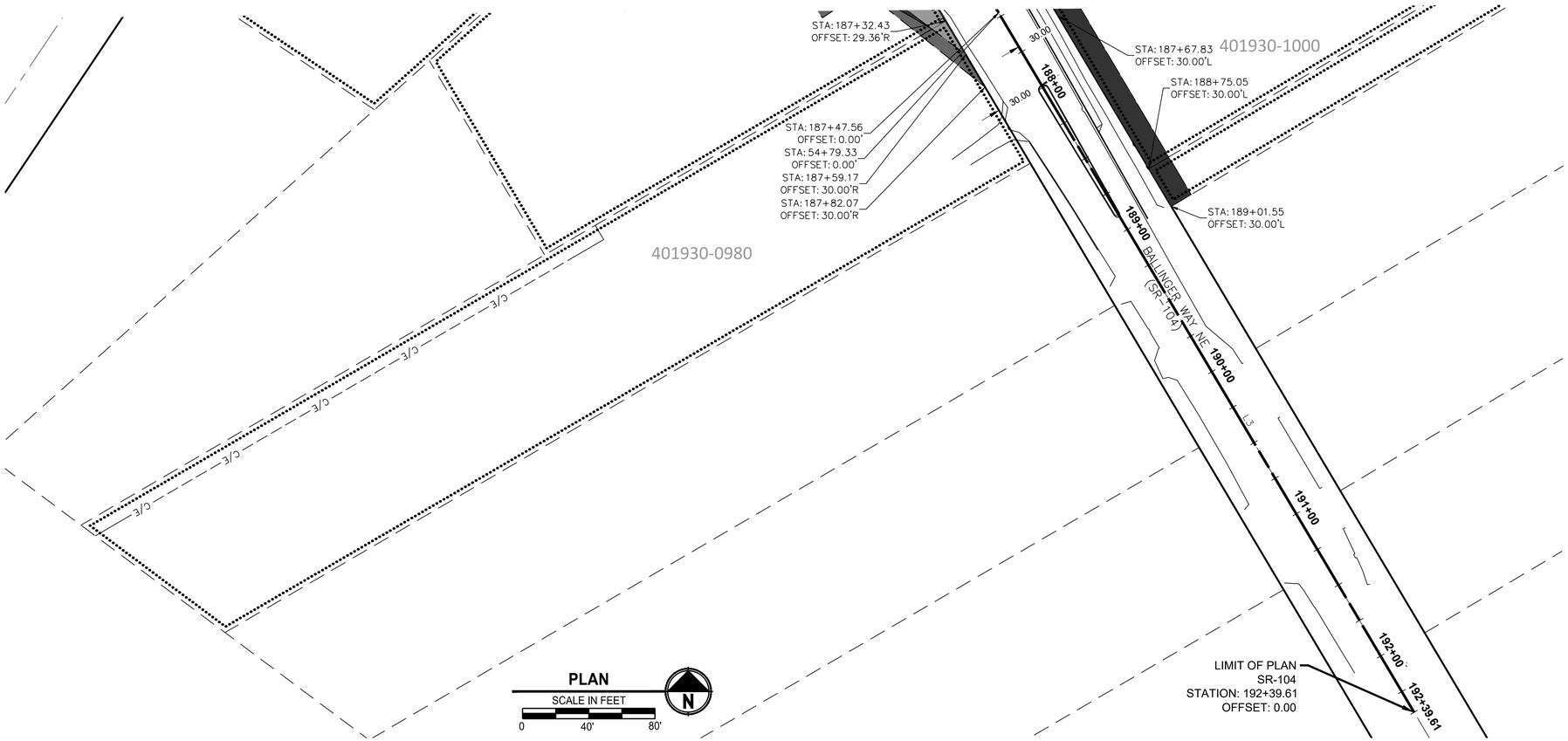
CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

RIGHT-OF-WAY PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. RW01
SHEET 88 OF 89

L:\TSIX_20-139 SR 104 Roundabout\0300CAD\BASES\right-of-way plan\20139-SV-ROW-PLAN.dwg, 05/15/25 06:00:47pm

NW 1/4 SECTION 10, TOWNSHIP 26 N, RANGE 4 E, W.M.



LEGEND

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03 10	QUARTER CORNER
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	RIGHT-OF-WAY (CL)
	PROPERTY LINE
	OWNERSHIP LINE
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BID SET

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Redmond, Washington 98052
Ph: (425) 429-7800

MARK A. GROOT, STATE OF WASHINGTON, REGISTERED PROFESSIONAL LAND SURVEYOR 43343
4/03/2025

CITY OF LAKE FOREST PARK
SR 104 AND 40TH PLACE NE
ROUNDABOUT PROJECT

RIGHT-OF-WAY PLAN

PROJECT NO. 221007
CONTRACT NO. -
DRAWING NO. RW02
SHEET 89 OF 89

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