



LACEY

SLEATER KINNEY ROAD AND PACIFIC AVENUE SIGNAL POLE RELOCATION

LACEY CONTRACT # PW 2018-07
SEC. 20, T18N, R1W, W.M.

LACEY CITY OFFICIALS

MAYOR: Andy Ryder
DEPUTY MAYOR: Malcolm Miller
CITY COUNCIL: Lenny Greenstein
Michael Steadman
Carolyn Cox
Ed Kunkel
Robin Vazquez

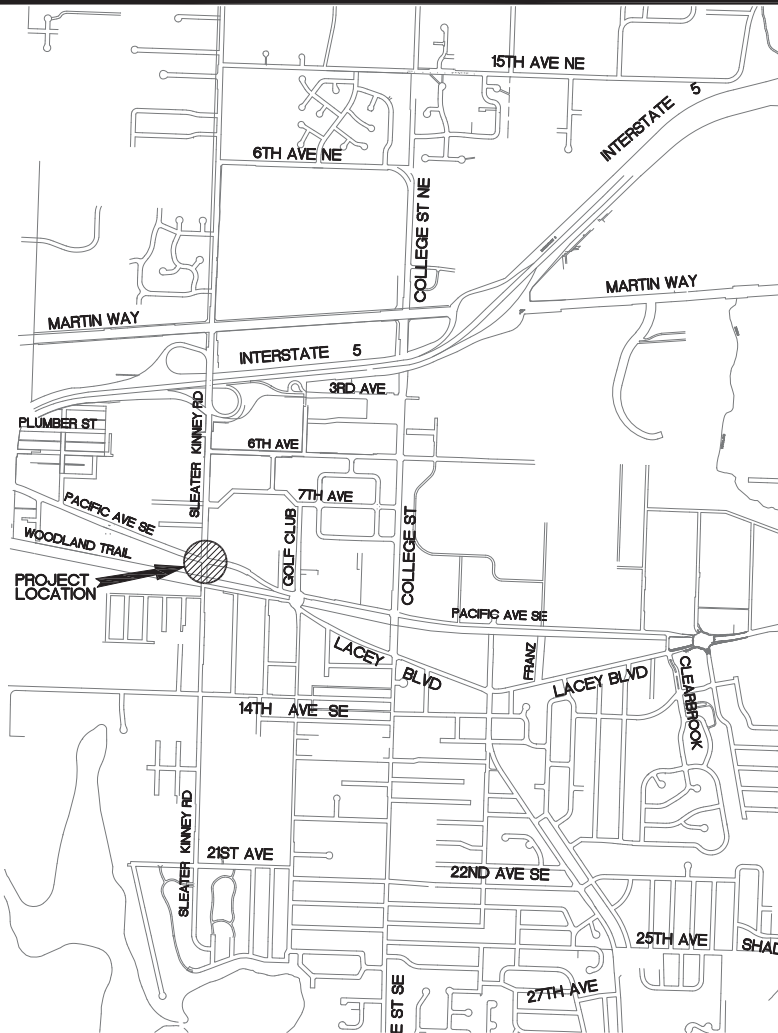
INTERIM CITY MANAGER: Rick Walk
CITY ATTORNEY: David S. Schneider
CITY ENGINEER: Aubrey Collier, P.E.

DIRECTOR OF PUBLIC WORKS: Scott Egger, P.E.

 1/13/23
DATE

SHEET INDEX

NO.	DESCRIPTION
1	COVER SHEET
2	SIGNAL PLAN
3	SIGNAL STANDARD
4	SIGNAL DETAILS



LACEY

VICINITY MAP
CITY OF LACEY, WASHINGTON
SCALE : AS SHOWN

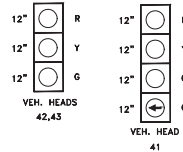


Lacey Dwg. Number :
D-18-20

CONSTRUCTION NOTES:

- SIGNAL STANDARD NO. 1
INSTALL SIGNAL STANDARD FOUNDATION AT STATION 10+57.56 (SLEATER KINNEY) 41.00 FT RIGHT.
INSTALL CITY SUPPLIED TYPE III SIGNAL STANDARD, WITH 29.5 FT MAST ARM, THREE NEW VEHICLE SIGNAL HEADS USING CABLE ASTRO-BRAC SYSTEM, EXISTING INTERNALLY ILLUMINATED STREET NAME SIGN "PACIFIC AVE SE" AND MOUNTING BRACKET, EXISTING EMERGENCY PREEMPT DETECTOR, EXISTING VEHICLE DETECTION CAMERA AND ONE NEW TERMINAL CABINET. (SEE SPECIAL PROVISIONS)
- REMOVE EXISTING SIGNAL STANDARD, MAST ARM, CONDUIT, CONDUCTORS AND ASSOCIATED EQUIPMENT (AFTER NEW STANDARD IS IN PLACE). REMOVE EXISTING CONCRETE SIGNAL STANDARD FOUNDATION COMPLETELY PER STANDARD SPECIFICATIONS AND RESTORE PER TRENCH RESTORATION DETAIL. (SEE SPECIAL PROVISIONS)
- EMERGENCY PREEMPT DETECTOR SHALL BE FIELD LOCATED BY THE ENGINEER PRIOR TO INSTALLATION.
- ALL SIGNAL HEADS AND TENONS SHALL BE SEPARATELY WIRED BETWEEN THE SIGNAL HEAD AND THE TERMINAL BOX. SEE SPECIAL PROVISIONS.
- INSTALL NEW 4" CONDUIT RUN FROM EXISTING J-BOX TO NEW SIGNAL STANDARD NO. 1 AND ROUTE NEW CONDUCTORS BACK TO CONTROLLER CABINET.
- REMOVE EXISTING CEMENT CONCRETE SIDEWALK AT EXPANSION JOINTS AND REPLACE WITH CEMENT CONCRETE SIDEWALK.

SIGNAL FACE SCHEDULE



- NOTES:
- ALL VEHICLE SIGNAL HEADS SHALL BE LED HEADS WITH 12" FACES, ALUMINUM BACKPLATES AND ALUMINUM TUNNEL VISORS.
 - ALL VEHICLE SIGNAL HEADS SHALL USE MOUNTING TYPE M USING CABLE ASTRO-BRAC.

VIDEO LOOP SCHEDULE

LOOP NUMBER	STATION OF END OF LOOP CLOSEST TO INTERSECTION
41	9+50 (SLEATER KINNEY)
42	9+44 (SLEATER KINNEY)
43	9+38 (SLEATER KINNEY)

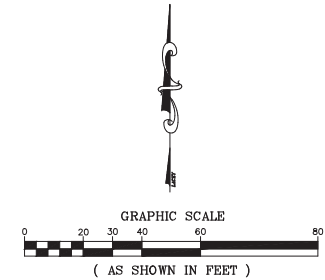
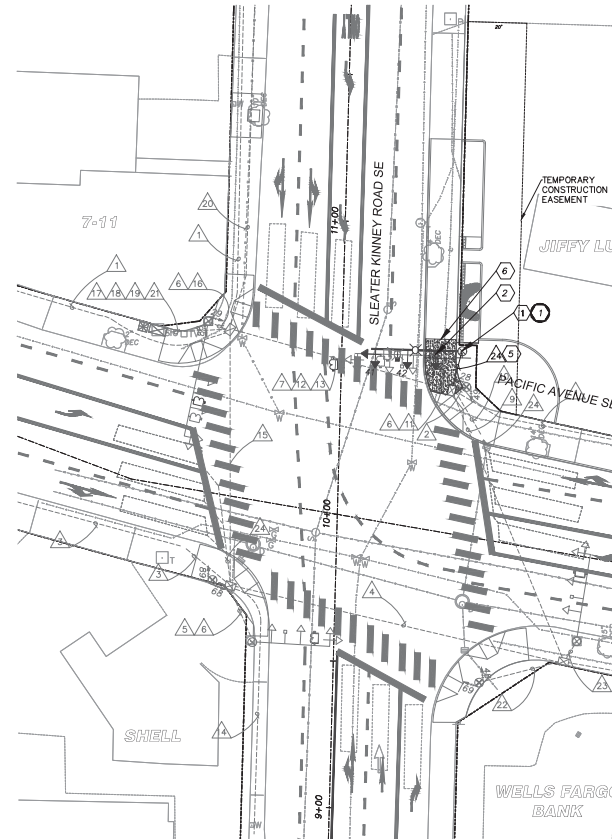
EXISTING WIRING SCHEDULE

RUN	CONDUIT SIZE	CONDUCTORS						
		2CS #12	3C WCS	7C #14	5C #14	#B USE	#B BARE	6PCC
1	1-1 1/2" PVC	2						1
2	1-1 1/2" PVC	1			2			
3	1-1 1/2" PVC	2						
4	1-3" PVC					3	1	
5	1-3" PVC	3	1		4			
6	1-2" PVC					3	1	1
7	1-1 1/2" PVC					3	1	
8	1-3" PVC	3			4			2
9	1-3" PVC		2		4			1
10	1-1" PVC	2						
11	1-3" PVC				3			
12	1-2" PVC							
13	1-3" PVC		3		7			
14	1-1 1/2" PVC	1						
15	1-3" PVC	2			4			1
16	1-3" PVC	2			4			
17	1-1 1/2" PVC					2	1	
18	1-3" PVC	4	4		8			2
19	1-3" PVC	5			7			
20	1-1 1/2" PVC					5	1	4
21	1-1 1/2" PVC							1
22	1-2" PVC				2			
23	1-3" PVC		1		3	2	1	

PROPOSED WIRING SCHEDULE

RUN	CONDUIT SIZE	CONDUCTORS						
		2CS #12	3C WCS	7C #14	5C #14	#B USE	#B BARE	6PCC
24	1-4" PVC		1		1	3	1	1

2CS ~ TWO CONDUCTOR SHIELDED CABLE
 3CS ~ THREE CONDUCTOR SHIELDED CABLE (PRE-EMPTION)
 5C ~ FIVE CONDUCTOR CABLE
 7C ~ SEVEN CONDUCTOR CABLE
 6PCC ~ SIX PAIR COMMUNICATION CABLE
 CPC ~ COAXIAL / POWER CABLE (VIDEO DETECTION)
 (0) DENOTES PROPOSED CONDUCTORS ADDED TO CONDUIT



LEGEND:

- SIGNAL STANDARD NO.
- CONSTRUCTION NOTE
- PROPOSED CONDUIT WIRE RUN NUMBER
- EXISTING CONDUIT WIRE RUN NUMBER
- PROPOSED SIGNAL STANDARD
- EXISTING SIGNAL STANDARD
- LUMINAIRE
- VEHICLE DETECTION CAMERA
- OPTICOM SENSOR
- VEHICLE SIGNAL HEAD
- VEHICLE SIGNAL HEAD W/TURN ARROW
- INTERNALLY ILLUMINATED STREET NAME SIGN
- EXISTING SIGNAL CABINET
- EXISTING SERVICE DISCONNECT
- EXISTING TYPE 1 J-BOX
- EXISTING TYPE 3 J-BOX
- EXISTING CONDUIT RUN
- PROPOSED CONDUIT RUN
- CEMENT CONCRETE SIDEWALK REMOVAL AND REPLACEMENT

CITY OF LACEY, WASHINGTON
 DEPARTMENT OF PUBLIC WORKS
 420 COLLEGE STREET S.E.
 LACEY, WA 98503-1238 (360) 491-5600



DESIGNED: P.D.M.
 DRAFTED: P.D.M.
 CHECKED: M.A.H.
 HORIZ SCALE AS SHOWN
 VERT SCALE: NTS
 FILE: SLEATER AND*

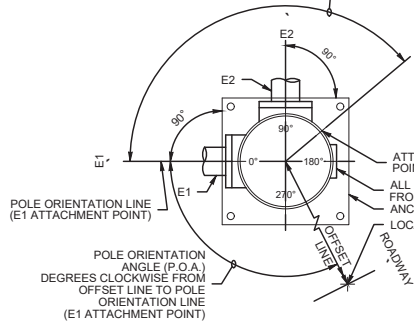
SLEATER KINNEY ROAD & PACIFIC AVENUE
 SIGNAL POLE RELOCATION
 SIGNAL PLAN

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LEGEND

- a. VEHICLE DISPLAY f. LUMINAIRE
- b. MAST ARM MTD. SIGN g. PEDESTRIAN DISPLAY
- c. STREET NAME SIGN h. TERMINAL CABINET
- d. PRE-EMPTY DETECTOR i. APS PPB-M
- e. POST MTD. SIGN j. HANDHOLE

MEASURE ATTACHMENT POINT ANGLES CLOCKWISE FROM POLE ORIENTATION LINE (E1 ATTACHMENT POINT) TO THE ATTACHMENT POINT LOCATION



POLE ORIENTATION AND ATTACHMENT POINT DETAIL

NOTE:
TYPE E MOUNTS SHALL BE USED FOR PEDESTRIAN DISPLAYS ON TYPE II OR III SIGNAL STANDARDS, WITH THE FOLLOWING EXCEPTION: PEDESTRIAN DISPLAYS MOUNTED ON OCTAGONAL (8 SIDED) SIGNAL STANDARDS AT AN ANGLE OTHER THAN A 45 DEGREE INCREMENT SHALL USE A TYPE A MOUNT FOR TWO PEDESTRIAN DISPLAYS, OR A TYPE B MOUNT FOR A SINGLE PEDESTRIAN DISPLAY.

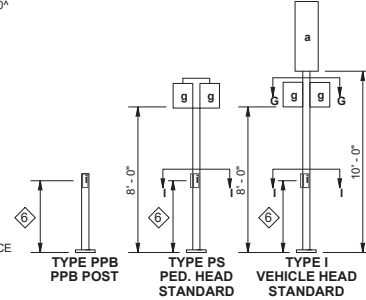
SIGNAL STANDARD IDENTIFICATION TAG DETAIL

STD. NO. XX	SIGNAL STANDARD NO.	STD. NO. 02
SRXXX, MP XXX.XX	STATE ROUTE AND MILE POST NO.	SR97, MP 089.09
MANUFACTURER APPROVED DWG. XXXXXX	APPROVED DRAWING NO.	MANUFACTURER APPROVED DWG. AB12345
FAB. XXXXXXXX	FABRICATION DATE	FAB. 6/14/2002

TAG NOTES:
CORROSION RESISTANT METAL TAG SECURED WITH (2) 0.125" RIVETS AS FOLLOWS:
- POLE SHAFT - LOCATED WITHIN 6" ABOVE HOLE (TYPE II & III).
- SIGNAL AND LUMINAIRE MAST ARM (TYPE II & III) - LOCATED WITHIN 6" OF THE LUMINAIRE ARM AND THE POLE SHAFT CONNECTION POINT (TYPE III).
TEXT SHALL BE A MINIMUM OF 3/16" HIGH, STAMPED OR EMBOSSED.

LUMINAIRE MAST ARM XYZ (ft)	MAST ARM LENGTH
5'	19.8
8'	26.4
10'	33.0
12'	39.6
14'	46.2
16'	52.8

STANDARD TYPE	POLE	FOUNDATION STANDARD	ELECTRICAL CURB
FIXED	J-20.10	J-20.10	J-20.10
PPB BREAKAWAY	J-20.15	J-20.15	J-20.15
PS	J-20.16	J-21.10	J-20.20
I	J-21.15	J-21.10	J-21.20
II, III, SD	N/A	J-26.10, J-26.15	N/A



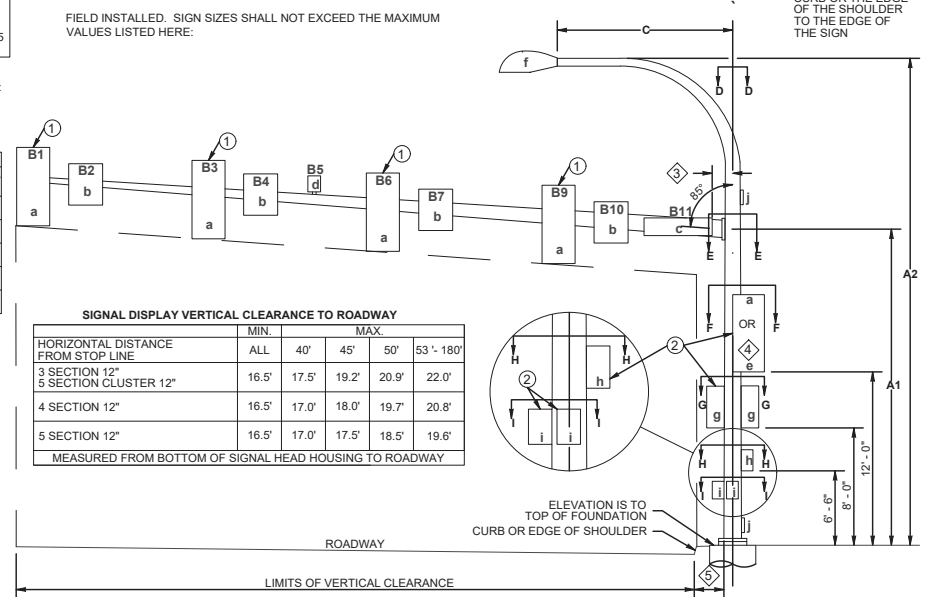
NOTES

① MOUNTING COUPLING INSTALLED AT OFFSET DISTANCE INDICATED IN CHART. FOR TYPE N MOUNTS ONLY, DRILL 1" DIA. HOLE IN MAST ARM AND INSTALL PLASTIC SPLIT BUSHING FOR CABLE ENTRANCE.

FIELD INSTALLED. SIGN SIZES SHALL NOT EXCEED THE MAXIMUM VALUES LISTED HERE:

③ 1' - 0" MIN. TO 2' - 6" MAX. FROM POLE CENTERLINE TO SIGN EDGE

④ FOR POST MOUNTED SIGNS THERE SHALL BE 2' - 0" MIN. FROM THE FACE OF THE CURB OR THE EDGE OF THE SHOULDER TO THE EDGE OF THE SIGN



SIGNAL DISPLAY VERTICAL CLEARANCE TO ROADWAY

	MIN.	MAX.
HORIZONTAL DISTANCE FROM STOP LINE	ALL	40' 45' 50' 53' - 180'
3 SECTION 12"	16.5'	17.5' 19.2' 20.9' 22.0'
4 SECTION 12"	16.5'	17.0' 18.0' 19.7' 20.8'
5 SECTION 12"	16.5'	17.0' 17.5' 18.5' 19.6'

MEASURED FROM BOTTOM OF SIGNAL HEAD HOUSING TO ROADWAY

TYPE II, III & SD SIGNAL STANDARD

⑦ DMS OR VMS IS NOT ALLOWED ON THESE POLES.

⑤ PLACEMENT SHALL BE 2' - 0" MIN. FROM FACE OF CURB OR EDGE OF SHOULDER; 3' - 0" MIN. FROM FACE OF GUARDRAIL; 4' - 0" MIN. FROM CONC. BARRIER TYPE 2 (MEASURED FROM A POINT WHERE THE BARRIER BASE MEETS THE SHOULDER SURFACE (TOE). MEASUREMENT TAKEN FROM TRAFFIC SIDE OF BARRIER; TO FACE OF POLE)

SIGNAL STANDARD DETAIL CHART

STD. No. <div>○</div>	FIELD LOCATION						POLE TYPE	MOUNTING HEIGHT (FT)		SIGNAL MAST ARM DATA																						LUMINAIRE ARM (FT)	CALCULATED POLE XYZ (FT)	POLE ATTACHMENT POINT ANGLES (deg.)												FOUNDATION DESIGN XYZ (FT)	SOIL BEARING PRESSURE (PSF)	FOUNDATION DEPTH (FT)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	ALIGNMENT	STATION	OFFSET	LT	RT	ELEV. <div>★</div>				P.O.A.	OFFSETS (FT) (Z) (POLE TO ATTACHMENT POINT)											WINDLOAD AREAS (FT) $\frac{1}{2}$ (X)(Y)												POLE ATTACHMENT POINT ANGLES (deg.)														ALTERNATE 1	ALTERNATE 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
								A1	A2		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10			B11	C	★	★	D	E1	E2	F	G1	G2	H	I1					I2	3' RD.	3' SQ.	4' RD.	3' RD.	4' RD.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
1	SLEATER	10+56.70	41.00		X		0°	III	18	40	23.5	18.5	22	9			4	9.2	9.2	1	9.2				12	16	595	0	0	0			180			595			10	8	8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

* ELEVATION IS TO TOP OF FOUNDATION. FIELD VERIFY ELEVATION PRIOR TO ORDERING SIGNAL STANDARDS.

** CALCULATED POLE XYZ (FT) IS THE SUM OF THE TOTAL XYZ (FT) FOR 3 THE SIGNAL ARM AND THE XYZ (FT) FOR THE LUMINAIRE ARM (IF PRESENT).

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LACEY, WA 98503-1238 (360) 491-5600



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DRAFTED: P.D.M./C.R.S.
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HORIZ. SCALE: AS SHOWN
VERT. SCALE: NTS
FILE: SLEATER AND*

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SIGNAL POLE RELOCATION
SIGNAL STANDARD

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