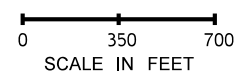
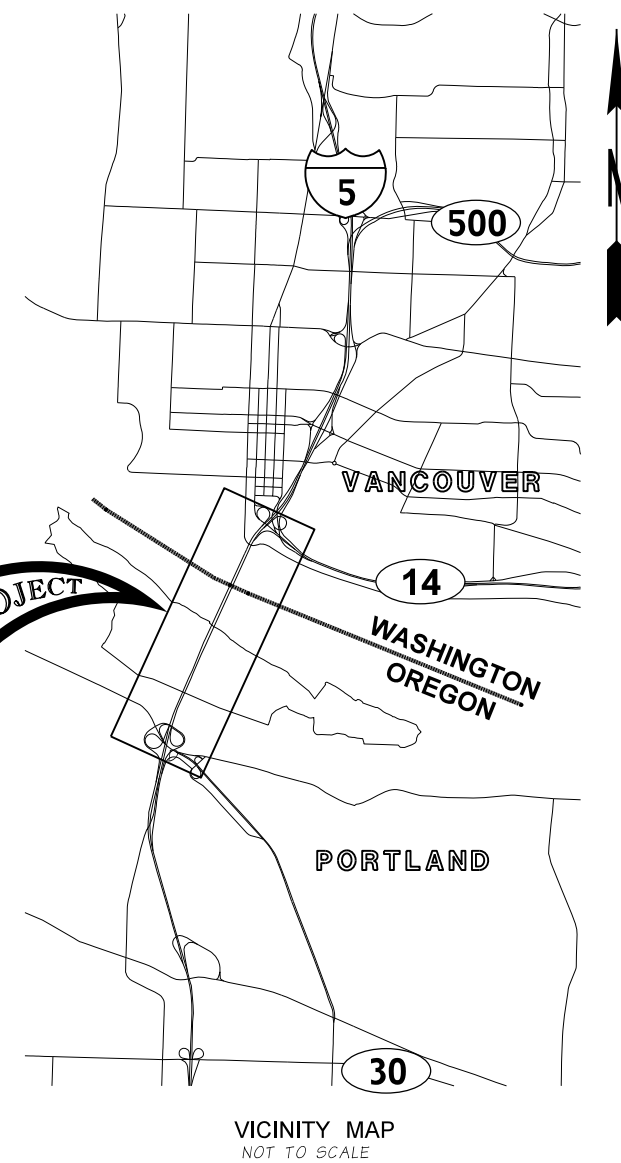
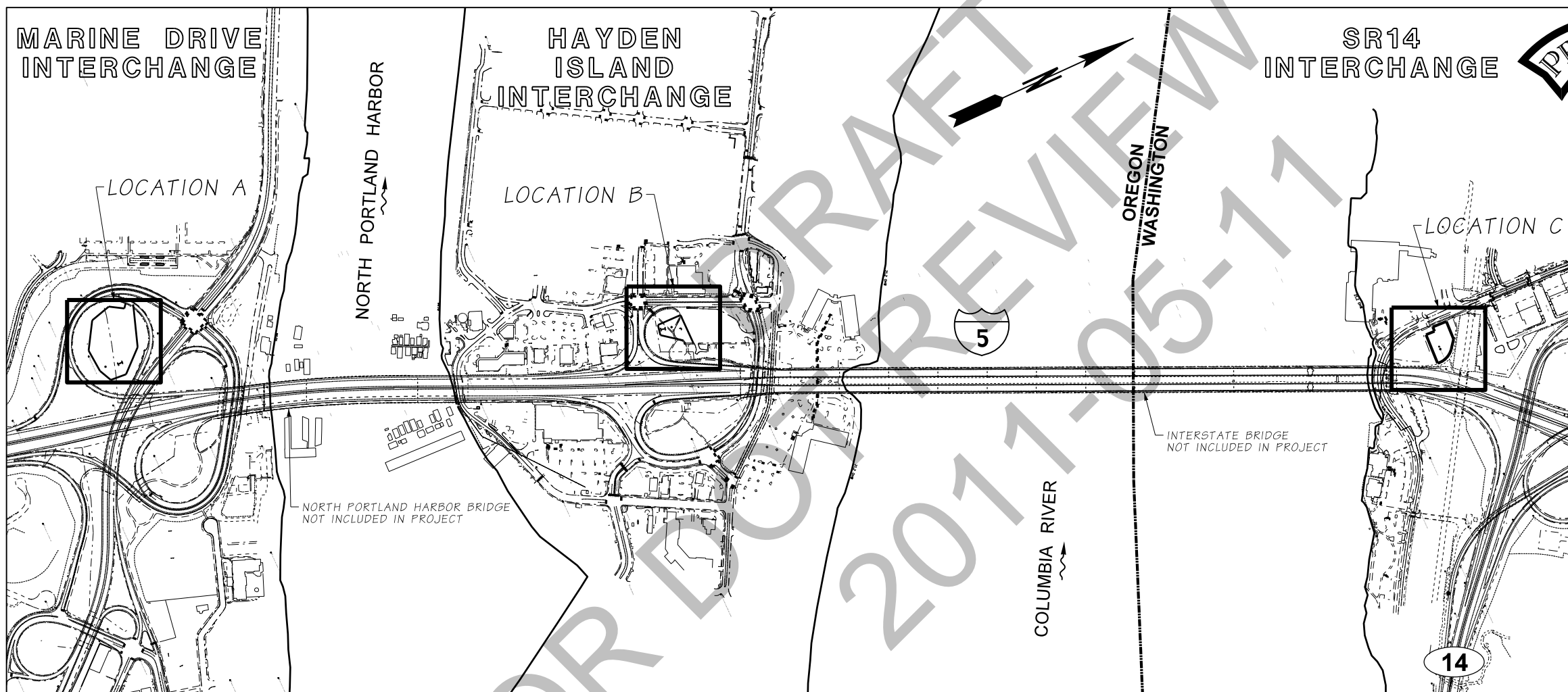


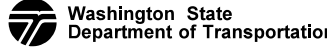


MULTNOMAH COUNTY

CLARK COUNTY



FILE NAME c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	 Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM VICINITY MAP	Plot 2 Ref. Sht. Number A2
TIME 9:42:00 AM	DATE 5/11/2011	JOB NUMBER JOB NO		LOCATION NO. LOC NO	DATE			
PLOTTED BY burkej	DESIGNED BY M. DEML	ENTERED BY J. BURKE	CHECKED BY	CONTRACT NO. CON NO	REVISION	DATE	BY	
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER							

FOR DOT REVIEW ONLY
DRAFT
2011-05-11

FILE NAME c:\aawork\pw_work\rcr\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. STATE		FED.AID PROJ.NO.		  		I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM		Plot 3 Ref. Sht. Number B1	
TIME 9:42:07 AM	DATE 5/11/2011	10	WASH								
PLOTTED BY burkej	DESIGNED BY M. DEML	JOB NUMBER				LOCATION NO.		SHEET 3 OF 38 SHEETS			
ENTERED BY J. BURKE	CHECKED BY	JOB NO		LOC NO							
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	CONTRACT NO.	CON NO			P.E. STAMP BOX DATE		SUMMARY OF QUANTITIES			
REVISION		DATE	BY	P.E. STAMP BOX DATE							

GENERAL ITEMS

	HIGH VIS SILT FENCE		CLEAR AND GRUB
	INLET PROTECTION		TEMP. CONSTRUCTION FENCE
	EXISTING FENCE		TEMP. PEDESTRIAN PATHWAY
	EXISTING BRUSH LINE		SEEDING AREA
	EXISTING SIGN		STABILIZED CONSTRUCTION ENTRANCE
	EXISTING MONUMENT		
	EXISTING PIEZOMETER		
	CONSTRUCTION NOTES		
	QUANTITY TABULATION NOTES		
	GEOTECHNICAL BORING		

UTILITY SYMBOLS

	UNDERGROUND POWER VAULT		STORM WATER MANHOLE
	POWER MANHOLE		STORM WATER CLEANOUT
	UNDERGROUND POWER BOX		CATCH BASIN
	UNDERGROUND POWER ELECT BOX		DRY WELL
	POWER METER		DROP INLET
	POWER POLE		GRATE INLET
	GAS VALVE BOX		CONCRETE INLET
	GAS METER BOX		UNDERGROUND TELEPHONE BOX
	WATER METER BOX		TELEPHONE RISER
	WATER MANHOLE		TELEPHONE BOX
	UNDERGROUND WATER VAULT		TELEPHONE BOOTH
	WATER VALVE BOX		TELEPHONE MANHOLE
	FIRE HYDRANT		TELEPHONE POLE
	SANITARY SEWER MANHOLE		UNDERGROUND COMMUNICATION VAULT
	SANITARY SEWER CLEANOUT		CATV BOX
	SANITARY SEWER VALVE BOX		LUMINAIR
			IRRIGATION CONTROLLER BOX

UTILITY LINETYPES

	OVERHEAD POWER LINE
	BURIED POWER LINE
	BURIED CONDUIT
	HIGH PRESSURE GAS LINE
	GAS LINE
	WATER LINE
	FORCEMAIN SEWER LINE
	SEWER LINE
	STORM LINE
	OVERHEAD TELEPHONE LINE
	BURIED TELEPHONE LINE
	OVERHEAD CATV LINE
	BURIED CATV LINE
	OVERHEAD FIBER OPTIC LINE
	BURIED FIBER OPTIC LINE
	ABANDONED UTILITY LINE (DRAWN OVER UTILITY)

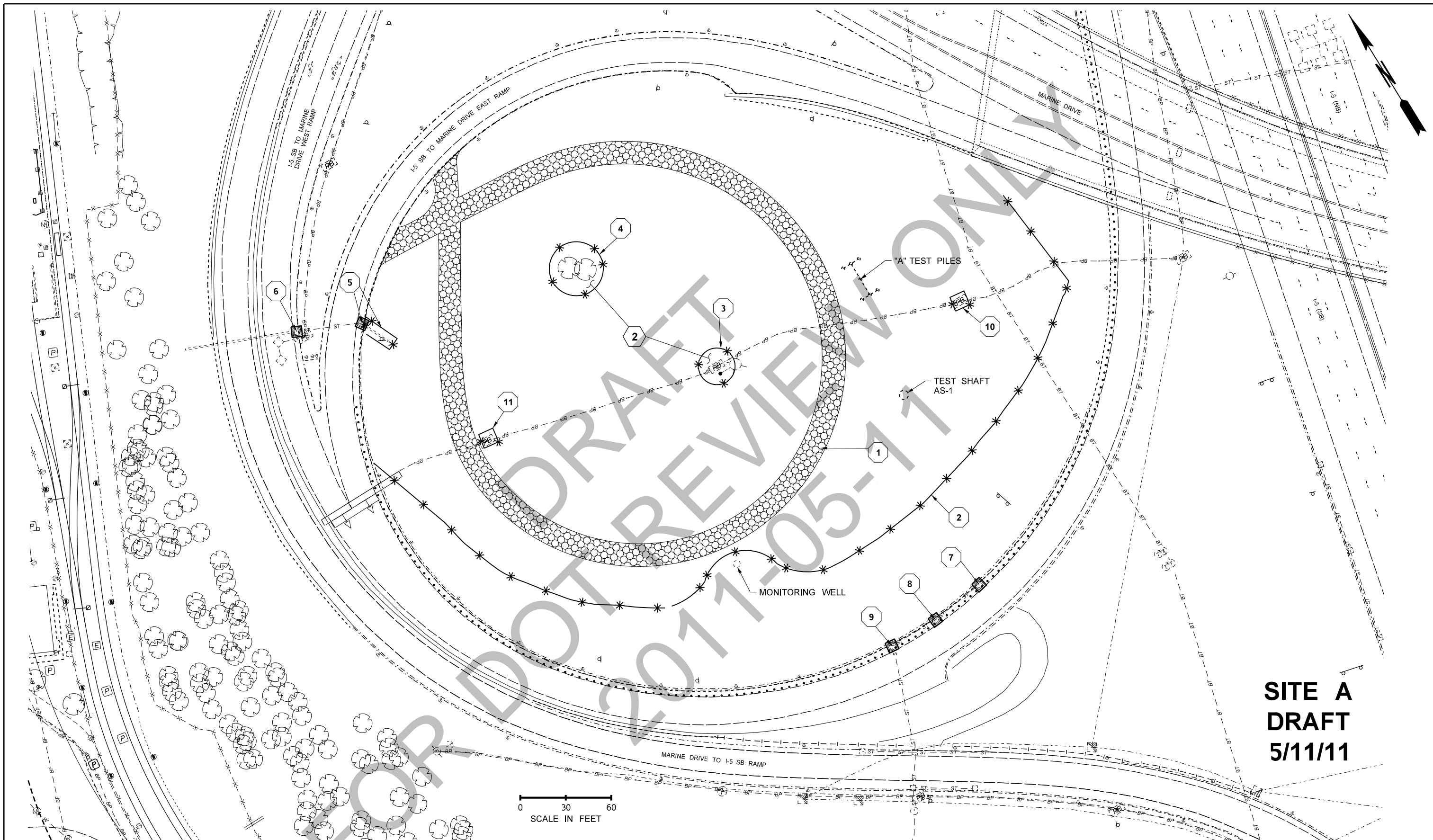
CONSTRUCTION NOTES

- TREE TO BE REMOVED.
- BUFFER ZONE
-

GENERAL NOTES:

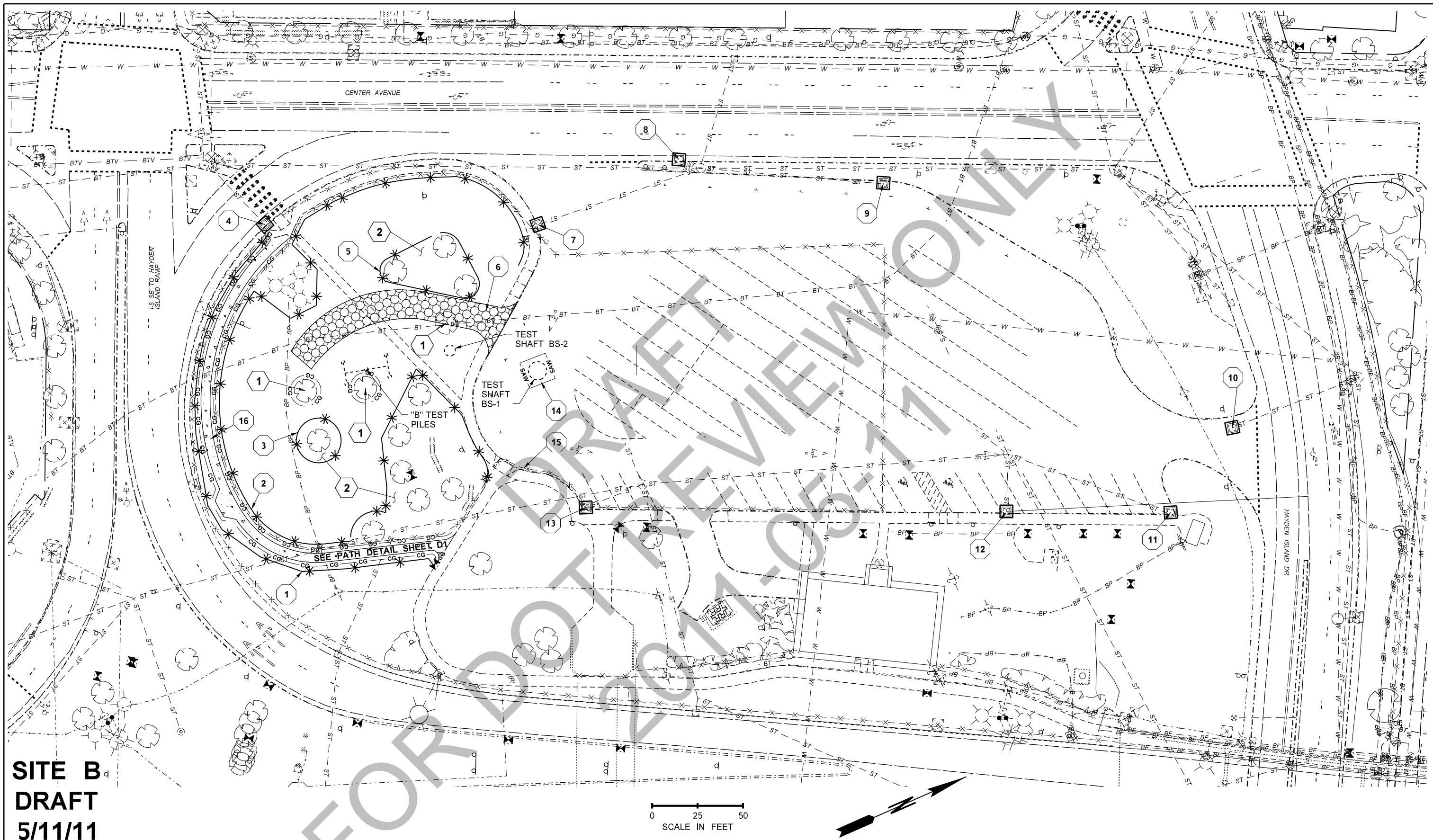
1. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
2. UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATIONS PRIOR TO CONSTRUCTION.

FILE NAME c:\aawork\pw_work\crctburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM LEGEND	Plot 4 Ref. Sht. Number C1
TIME 9:42:09 AM	DATE 5/11/2011	JOB NO		CONTRACT NO.	LOCATION NO.			
PLOTTED BY burkej	DESIGNED BY D. TERAN	ENTERED BY D. TERAN	CHECKED BY	PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY
SHEET 4 OF 38 SHEETS		DATE		DATE		DATE		



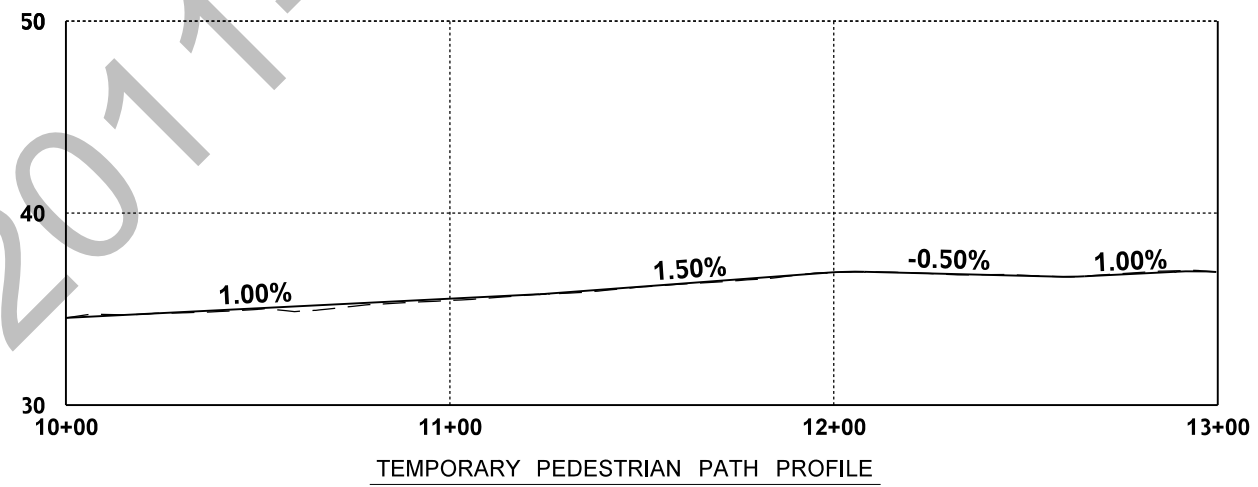
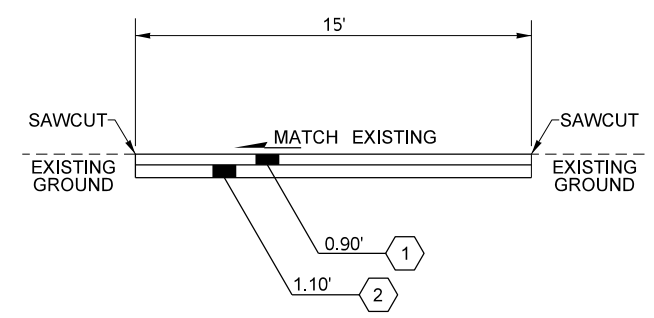
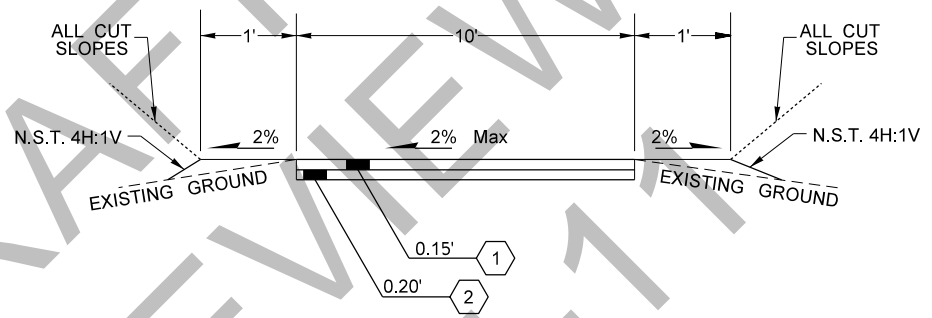
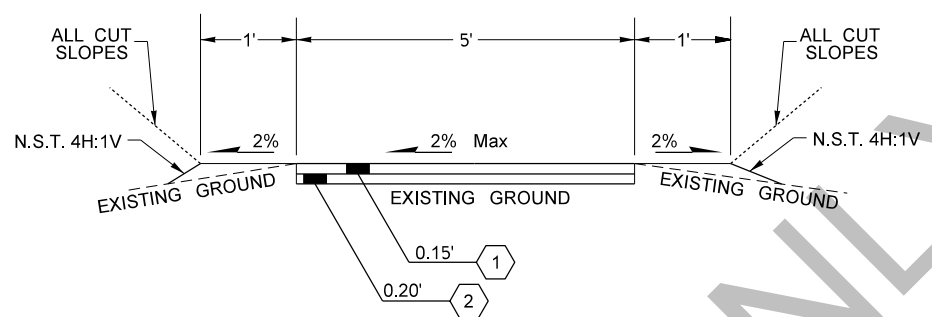
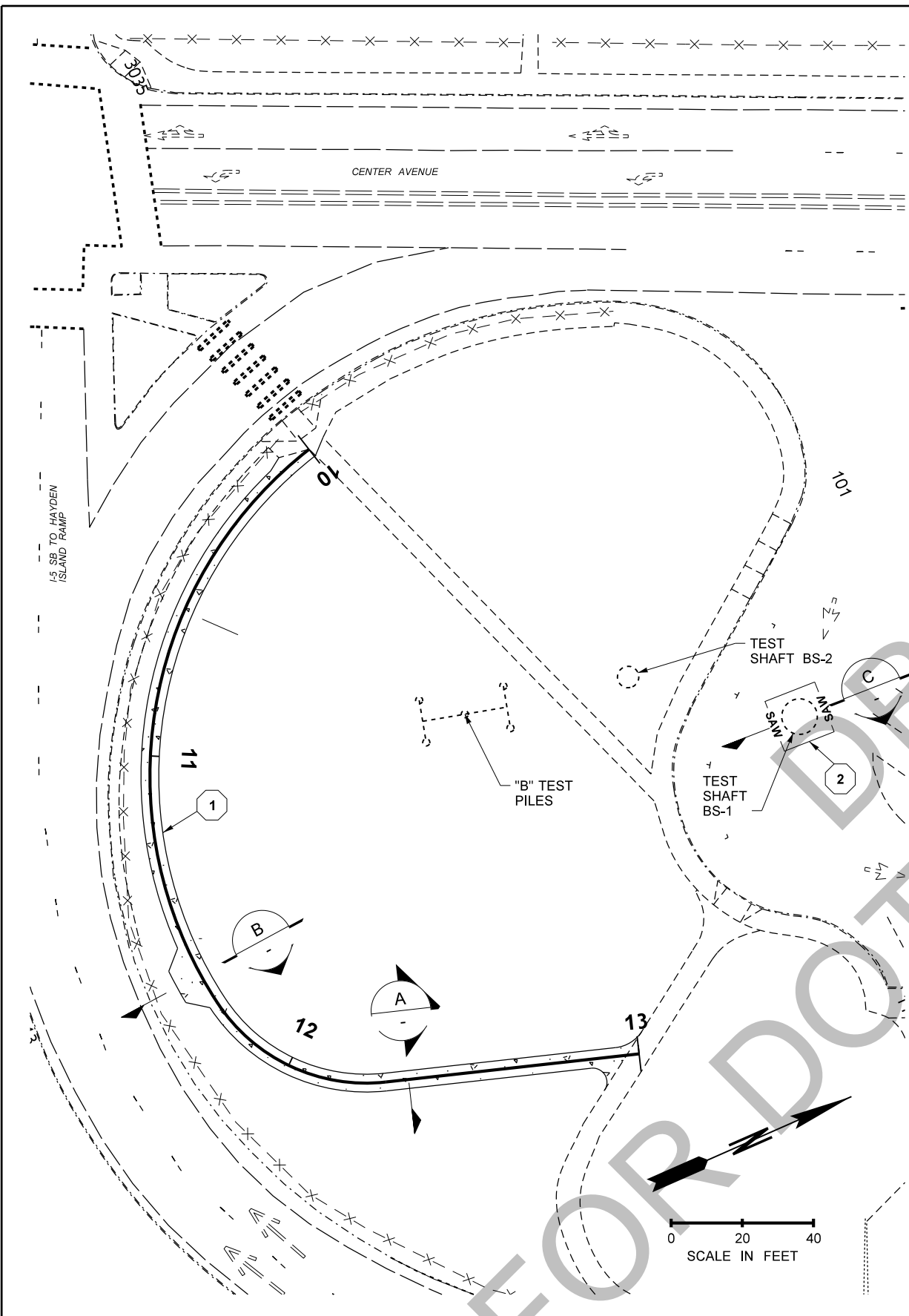
**SITE A
DRAFT
5/11/11**

FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	 Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 5
TIME 9:42:11 AM	DATE 5/11/2011	JOB NUMBER		LOCATION NO.	Ref. Sht. Number C2			
PLOTTED BY burkej	DESIGNED BY A. MUEHLECK	CONTRACT NO.		LOC NO	DATE		SITE PREPARATION/UTILITIES/TESC A	SHEET 5
ENTERED BY D. TERAN	CHECKED BY	JOB NO		DATE	DATE			OF 38
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY	CON NO			SHEETS



SITE B
DRAFT
5/11/11

FILE NAME	c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.		Washington State Department of Transportation	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 6 Ref. Sht. Number C3
TIME	9:42:19 AM			10	WASH					
DATE	5/11/2011			JOB NUMBER				Oregon Department of Transportation	SHEET 6 OF 38 SHEETS	
PLOTTED BY	burkej			JOB NO						
DESIGNED BY	A. MUEHLECK			CONTRACT NO.		LOCATION NO.		Columbia River CROSSING	SITE PREPARATION/UTILITIES/TESC B	
ENTERED BY	D. TERAN			CON NO		LOC NO				
CHECKED BY										
PROJ. ENGR.	F. GREEN									
REGIONAL ADM.	D. WAGNER			REVISION		DATE				
				DATE		BY		P.E. STAMP BOX		



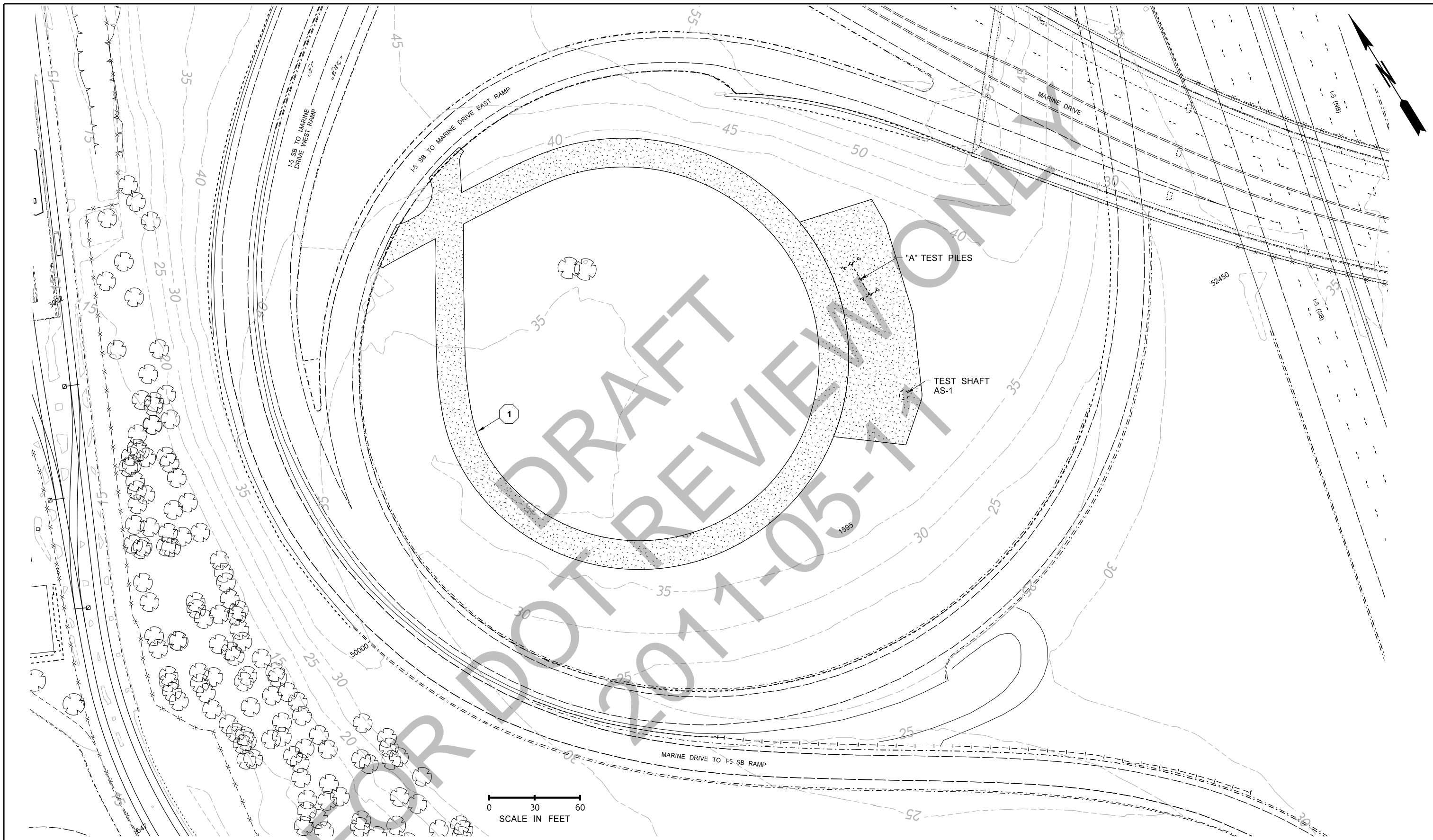
LEGEND

- ① HMA CL. 1#2 IN. PG 64-22
- ② CRUSHED SURFACING BASE COURSE

NOTES:

1. ALL DEPTHS SHOWN ARE COMPACTED DEPTHS.
2. N.S.T = NOT STEEPER THAN.
3. NTS = NOT TO SCALE.

FILE NAME: c:\aawork\pw_work\crc\burkej\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM TEMP PATH & PAVING DETAILS	Plot 8 Ref. Sht. Number D1 SHEET 8 OF 38 SHEETS
TIME: 9:42:25 AM	DATE: 5/11/2011	JOB NO		CONTRACT NO.	LOCATION NO.			
PLOTTED BY: burkej	DESIGNED BY: D. TERAN	JOB NO		CONTRACT NO.	LOCATION NO.	P.E. STAMP BOX		
ENTERED BY: D. TERAN	CHECKED BY:	CON NO						
PROJ. ENGR.: F. GREEN	REGIONAL ADM.: D. WAGNER	REVISION	DATE	BY				



FILE NAME	c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn		
TIME	9:42:27 AM		
DATE	5/11/2011		
PLOTTED BY	burkej		
DESIGNED BY	D. TERAN		
ENTERED BY	D. TERAN		
CHECKED BY			
PROJ. ENGR.	F. GREEN		
REGIONAL ADM.	D. WAGNER		

REVISION	DATE	BY

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER	JOB NO	LOCATION NO.
CONTRACT NO.	CON NO	LOC NO

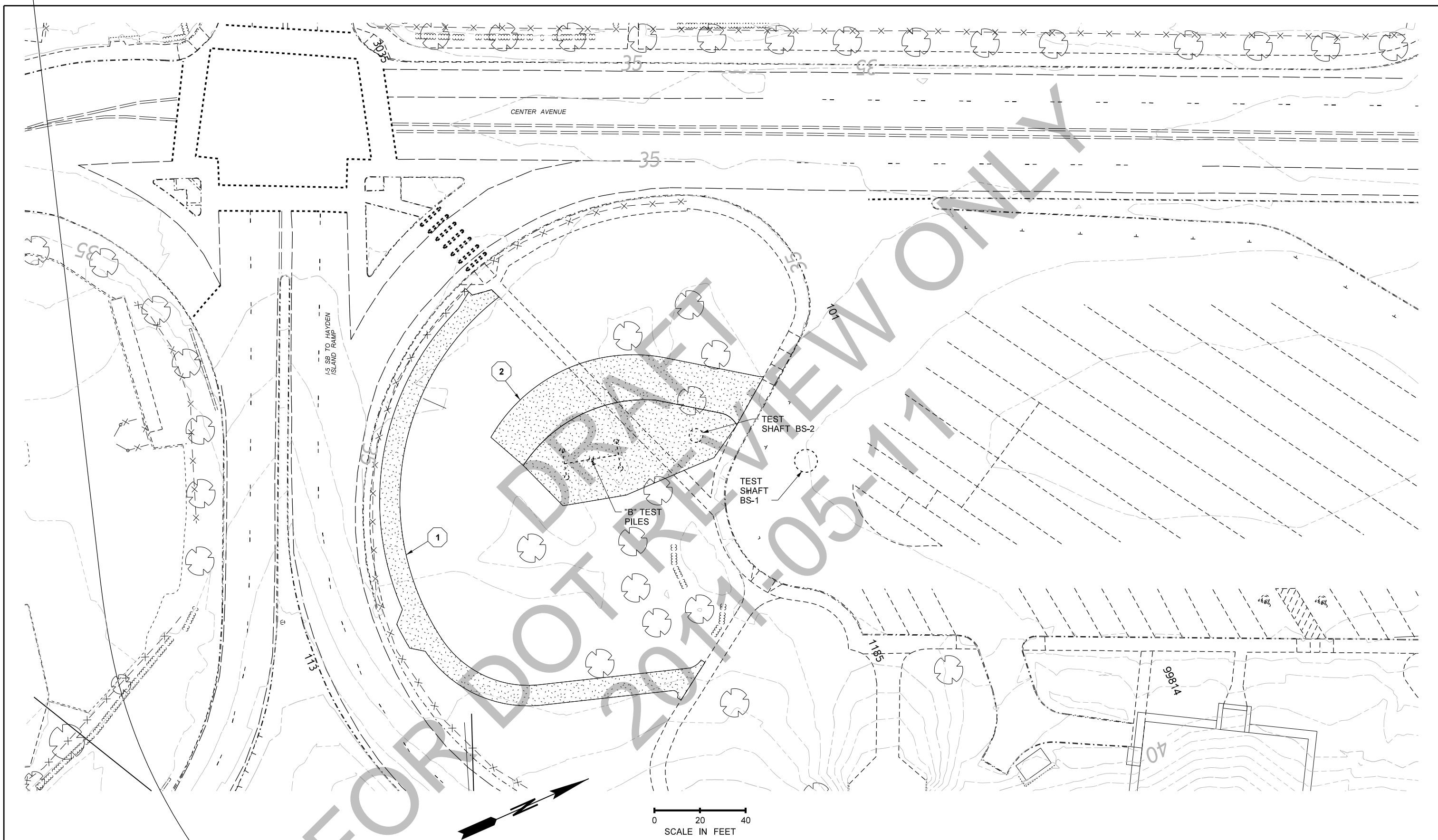
P.E. STAMP BOX	DATE

P.E. STAMP BOX	DATE

 Washington State Department of Transportation
 Oregon Department of Transportation
 Columbia River CROSSING

I-5
COLUMBIA RIVER CROSSING
DRILLED SHAFT & DRIVEN PILE
TEST PROGRAM
ROADSIDE RESTORATION SITE A

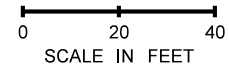
Plot 9
Ref. Sht. Number
E1
SHEET
9
OF
38
SHEETS



FILE NAME c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation		I-5		Plot 10
TIME 9:42:35 AM						Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number E2
DATE 5/11/2011						Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 10
PLOTTED BY burkej								TEST PROGRAM		OF 38
DESIGNED BY D. TERAN								ROADSIDE RESTORATION SITE B		SHEETS
ENTERED BY D. TERAN										
CHECKED BY										
PROJ. ENGR. F. GREEN										
REGIONAL ADM. D. WAGNER	REVISION	DATE	BY	CON NO	LOC NO	DATE	DATE			



FILE NAME		c:\aawork\pw_work\rcrc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO.	STATE	FED.AID PROJ.NO.
TIME	9:42:39 AM			10	WASH	
DATE	5/11/2011			JOB NUMBER		
PLOTTED BY	burkej			JOB NO		
DESIGNED BY	D. TERAN			CONTRACT NO.		LOCATION NO.
ENTERED BY	D. TERAN			CON NO		LOC NO
CHECKED BY						
PROJ. ENGR.	F. GREEN	REVISION	DATE	BY		
REGIONAL ADM.	D. WAGNER					



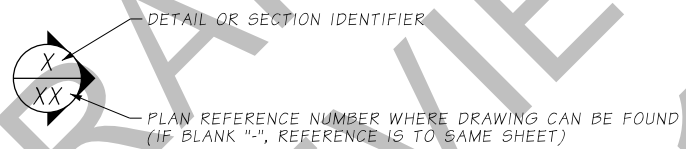
I-5
COLUMBIA RIVER CROSSING
DRILLED SHAFT & DRIVEN PILE
TEST PROGRAM
ROADSIDE RESTORATION SITE C

Plot 11
 Ref. Sht. Number
E3
 SHEET
11
 OF
38
 SHEETS

GENERAL NOTES:

1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGES, AND MUNICIPAL CONSTRUCTION - DATED 2010, AMENDMENTS, AND PROJECT SPECIAL PROVISIONS.
2. DESIGN HAS BEEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FIFTH EDITION - 2010.
3. HORIZONTAL COORDINATES ARE ON A LOCAL DATUM PLANE (SEE SPECIFICATIONS). VERTICAL DATUM IS NAVD 88.
4. THE CONCRETE IN THE SHAFTS SHALL BE CLASS 4000P.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
6. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

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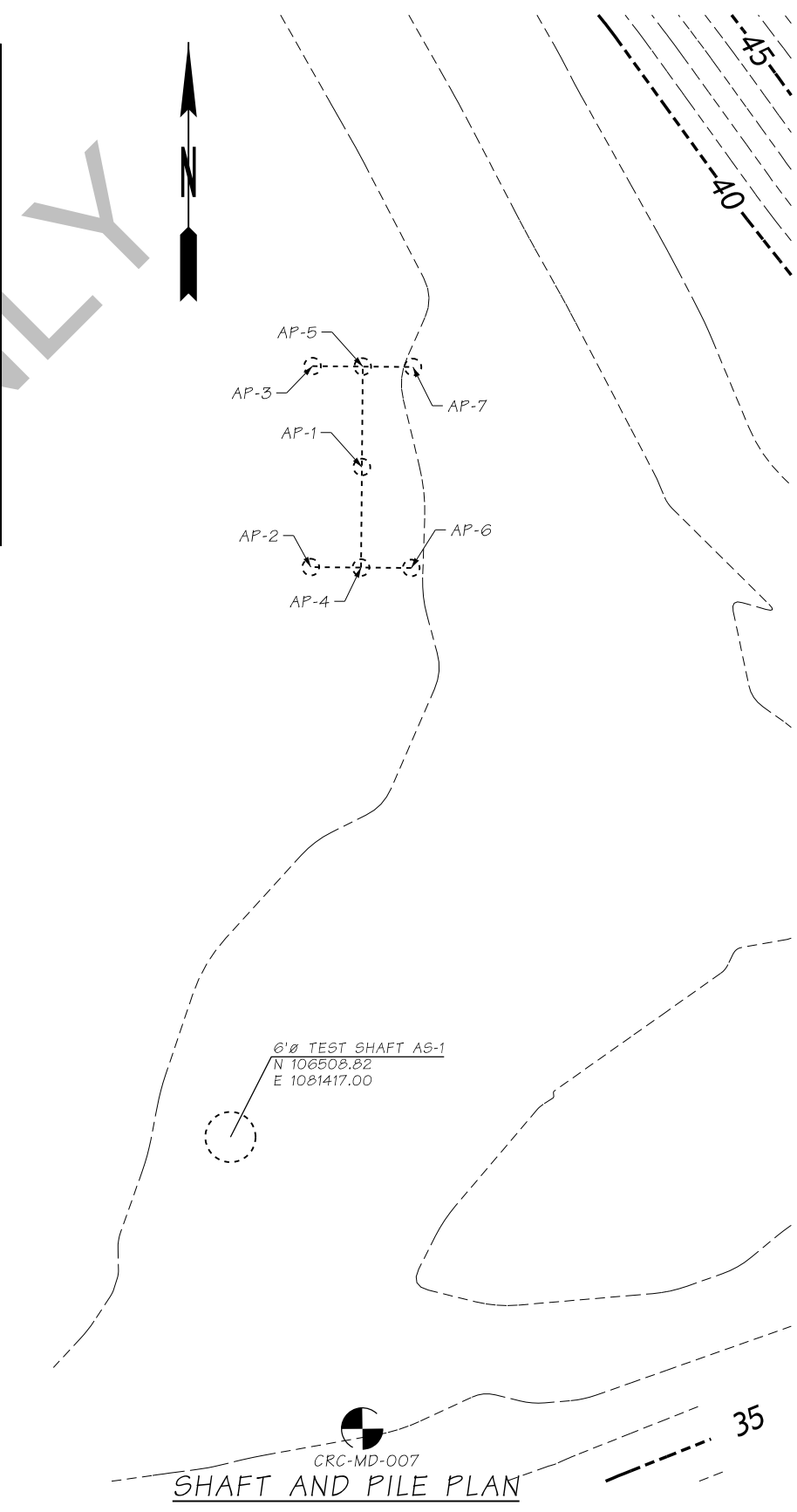


FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. STATE		FED.AID PROJ.NO.		 		I-5		Plot 12	
TIME 9:42:41 AM	DATE 5/11/2011	10	WASH					COLUMBIA RIVER CROSSING		Ref. Sht. Number	
PLOTTED BY burkej	DESIGNED BY M. DEML	JOB NUMBER						DRILLED SHAFT & DRIVEN PILE		F1	
ENTERED BY J. BURKE	CHECKED BY	JOB NO						TEST PROGRAM		SHEET	
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	CONTRACT NO.		LOCATION NO.		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>P.E. STAMP BOX</p> <p>DATE</p> </div> <div style="text-align: center;"> <p>P.E. STAMP BOX</p> <p>DATE</p> </div> </div>		STRUCTURAL GENERAL NOTES		12	
REVISION	DATE	BY	CON NO	LOC NO				CROSSING		OF	
SHEETS											

STEEL PILE SCHEDULE							
PILE NO.	AP-1	AP-2	AP-3	AP-4	AP-5	AP-6	AP-7
NORTHING	106588.82	106576.87	106600.87	106576.82	106600.82	106576.77	106600.77
EASTING	1081432.70	1081426.60	1081426.81	1081432.60	1081432.81	1081438.60	1081438.81
DESIGNATION	TEST PILE	REACTION PILE	REACTION PILE	REACTION PILE	REACTION PILE	REACTION PILE	REACTION PILE
OUTSIDE DIAMETER (IN)	24	24	24	24	24	24	24
WALL THICKNESS (IN)	0.625	0.625	0.625	0.625	0.625	0.625	0.625
PILE TIP	CLOSED	OPEN	OPEN	CLOSED	CLOSED	OPEN	OPEN
MATERIAL	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3
MINIMUM YIELD STRENGTH (KSI)	45	45	45	45	45	45	45
SEAM TYPE	STR/VERT	STR/VERT	STR/VERT	STR/VERT	STR/VERT	STR/VERT	STR/VERT
NOMINAL COMPRESSIVE RESISTANCE (KIPS)	1600	600	600	1850	1850	600	600
NOMINAL UPLIFT RESISTANCE (KIPS)	750	600	600	900	900	600	600
ESTIMATED MINIMUM PILE LENGTH (FT)	132	142	142	142	142	142	142
MINIMUM PILE TIP ELEVATION (FT)	-90	-100	-100	-100	-100	-100	-100
PILE LOAD TEST PROGRAM:							
DYNAMIC CAPWAP PILE TEST	X	X	X	X	X	X	X
DYNAMIC RESTRIKE (7-DAY)	X	X	X	X	X	X	X

NOTES:

- FOR CLOSED PILE TIP DETAIL SEE DETAIL 2, SHEET H10.
- SEE SHEET H5 FOR TEST PILE AP-1 INSTRUMENTATION.
- SEE SPECIAL PROVISIONS FOR GEOTECHNICAL BORINGS.

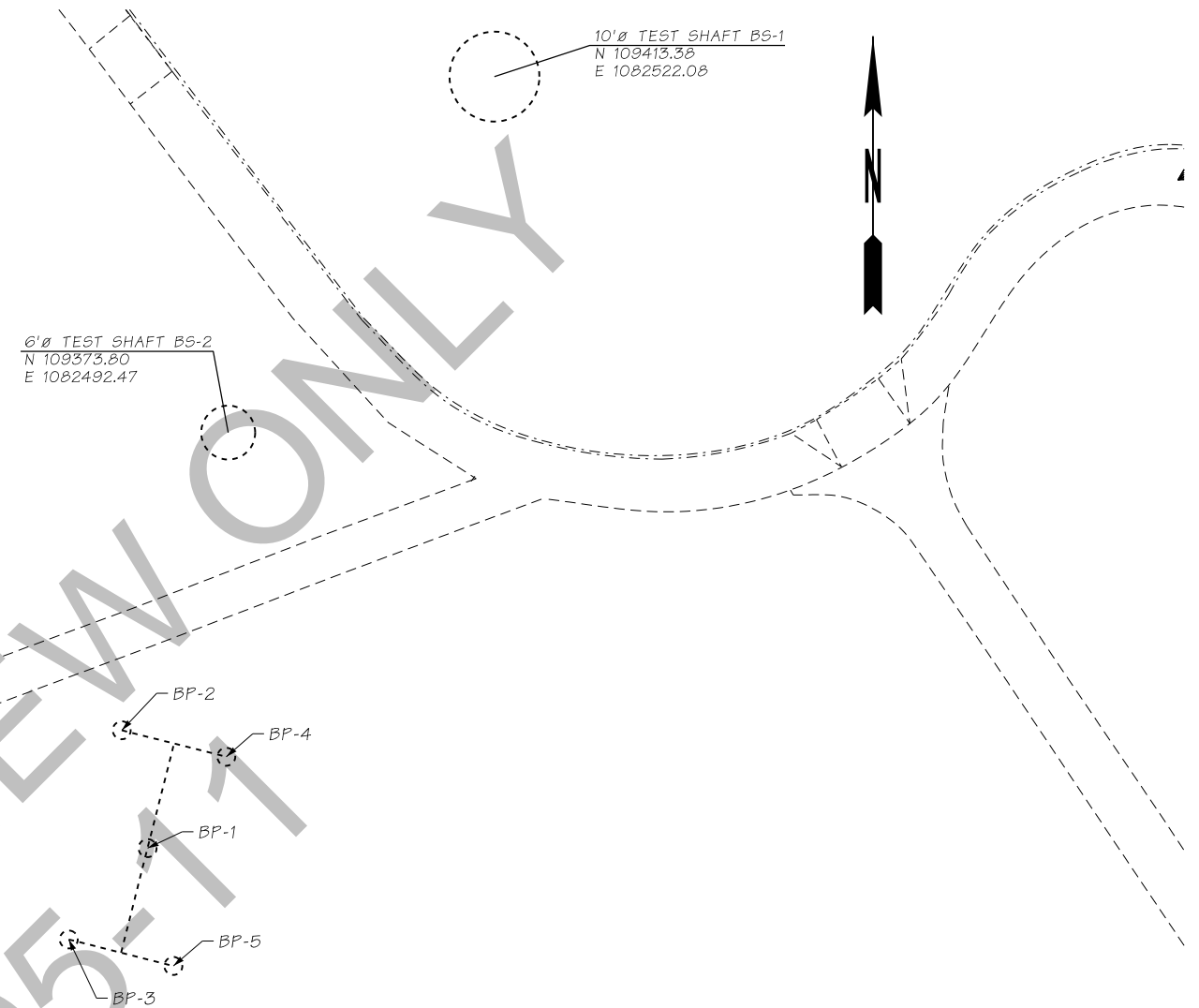


FILE NAME	c:\aawork\pw_work\rcr\burke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM LOCATION A PLAN	Plot 13 Ref. Sht. Number F2
TIME	2:56:31 PM			10	WASH				
DATE	5/11/2011			JOB NUMBER		LOCATION NO.			SHEET 13 OF 38 SHEETS
PLOTTED BY	burkej			JOB NO		LOC NO			
DESIGNED BY	M. DEML			CONTRACT NO.					
ENTERED BY	J. BURKE								
CHECKED BY									
PROJ. ENGR.	F. GREEN								
REGIONAL ADM.	D. WAGNER			REVISION	DATE	BY	DATE		

STEEL PILE SCHEDULE					
PILE NO.	BP-1	BP-2	BP-3	BP-4	BP-5
NORTHING	109327.58	109340.69	109317.43	109337.74	109314.48
EASTING	1082483.5	1082480.63	1082474.74	1082492.27	1082486.37
DESIGNATION	TEST PILE	REACTION PILE	REACTION PILE	REACTION PILE	REACTION PILE
OUTSIDE DIAMETER (IN)	24	24	24	24	24
WALL THICKNESS (IN)	0.625	0.625	0.625	0.625	0.625
PILE TIP	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
MATERIAL	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3	ASTM A252 GRADE 3
MINIMUM YIELD STRENGTH (KSI)	45	45	45	45	45
SEAM TYPE	STR/VERT	STR/VERT	STR/VERT	STR/VERT	STR/VERT
NOMINAL COMPRESSIVE RESISTANCE (KIPS)	1500	1300	1300	1300	1300
NOMINAL UPLIFT RESISTANCE (KIPS)	1150	1000	1000	1000 </td <td>1000</td>	1000
ESTIMATED MINIMUM PILE LENGTH (FT)	136	126	126	126	126
MINIMUM PILE TIP ELEVATION (FT)	-95	-85	-85	-85	-85
PILE LOAD TEST PROGRAM:					
DYNAMIC CAPWAP PILE TEST	X	X	X	X	X
DYNAMIC RESTRIKE	X	X	X	X	X

NOTES:

- FOR CLOSED PILE TIP DETAIL SEE DETAIL 2, SHEET H10.
- SEE SHEET H6 FOR TEST PILE BP-1 INSTRUMENTATION.
- SEE SPECIAL PROVISIONS FOR GEOTECHNICAL BORINGS.

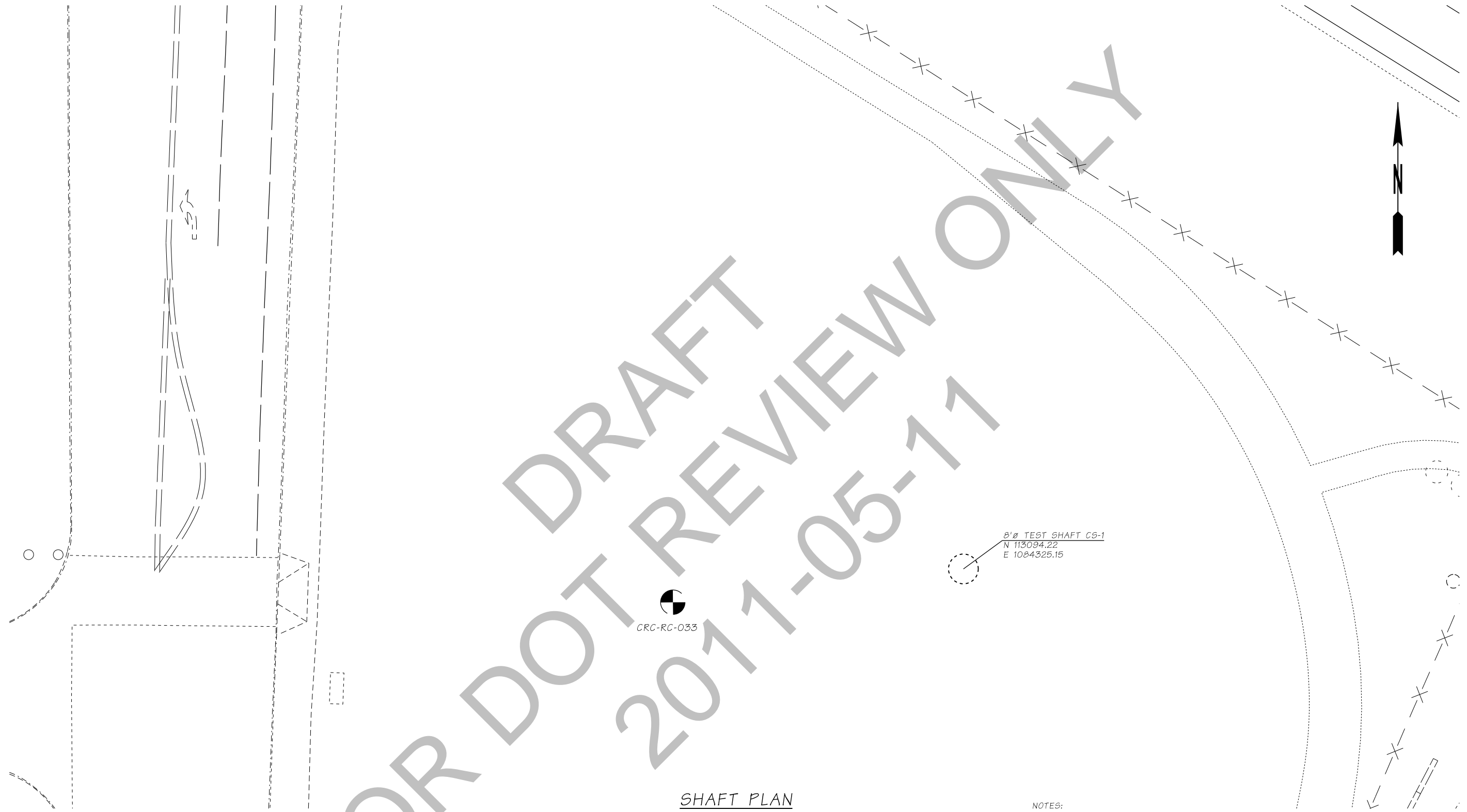


SHAFT AND PILE PLAN



FILE NAME	c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM LOCATION B PLAN	Plot 14 Ref. Sht. Number F3 SHEET 14 OF 38 SHEETS
TIME	2:56:33 PM			10	WASH				
DATE	5/11/2011			JOB NUMBER		LOCATION NO.			
PLOTTED BY	burkej			JOB NO		CONTRACT NO.			
DESIGNED BY	M. DEML			CON NO		LOC NO			
ENTERED BY	J. BURKE								
CHECKED BY									
PROJ. ENGR.	F. GREEN								
REGIONAL ADM.	D. WAGNER			REVISION	DATE	BY			

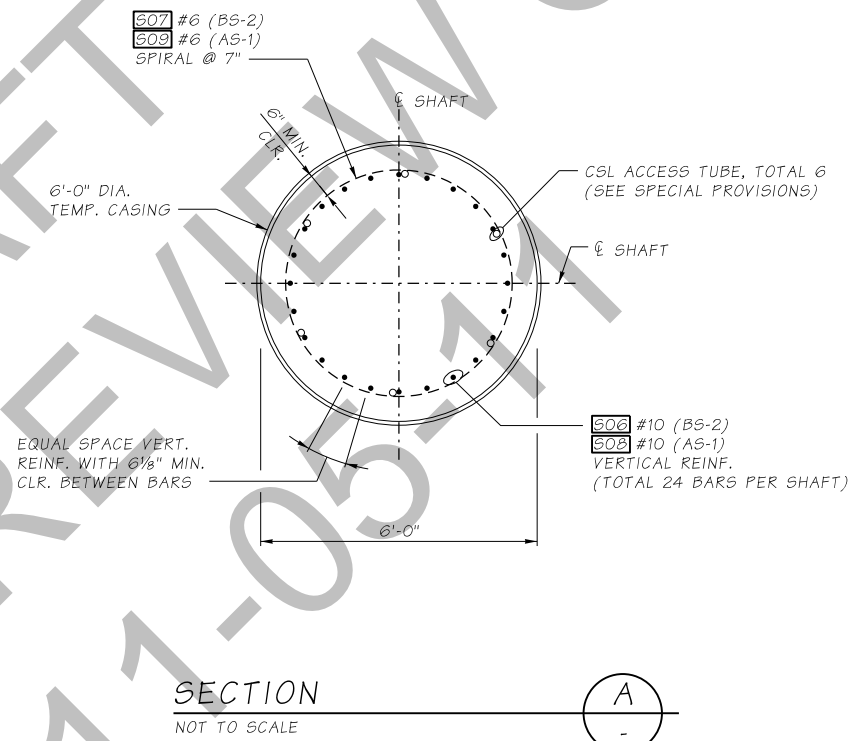
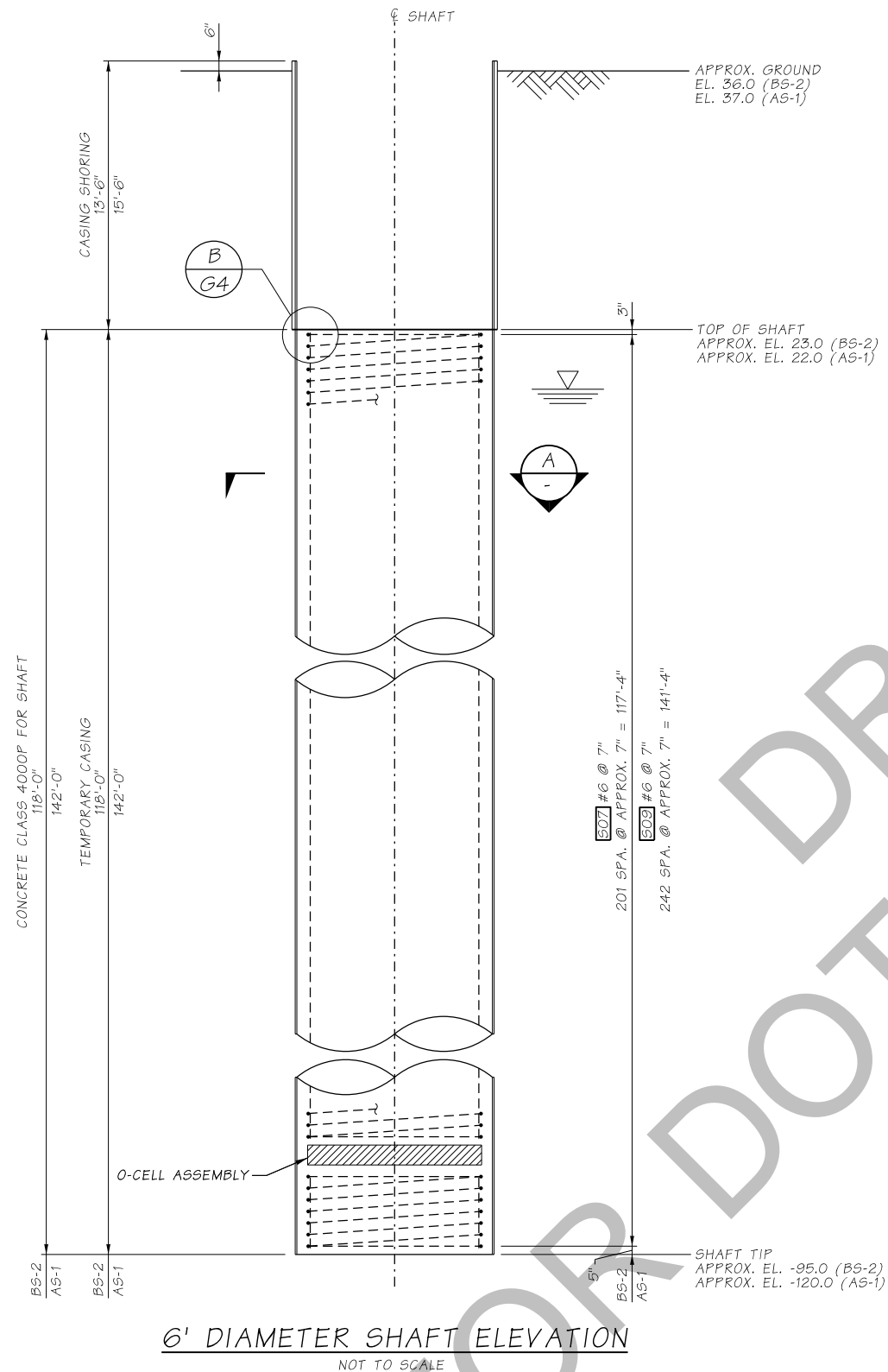
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2011-05-11



SHAFT PLAN

NOTES:
1. SEE SPECIAL PROVISIONS FOR GEOTECHNICAL BORING LOGS.

FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.		 	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 15 Ref. Sht. Number F4
TIME 1:29:47 PM	DATE 5/11/2011	JOB NUMBER		LOCATION NO.					
PLOTTED BY burkej	DESIGNED BY M. DEML	CONTRACT NO.		LOC NO			LOCATION C PLAN		
ENTERED BY J. BURKE	CHECKED BY	JOB NO		DATE		P.E. STAMP BOX			
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY	CON NO	DATE	P.E. STAMP BOX		

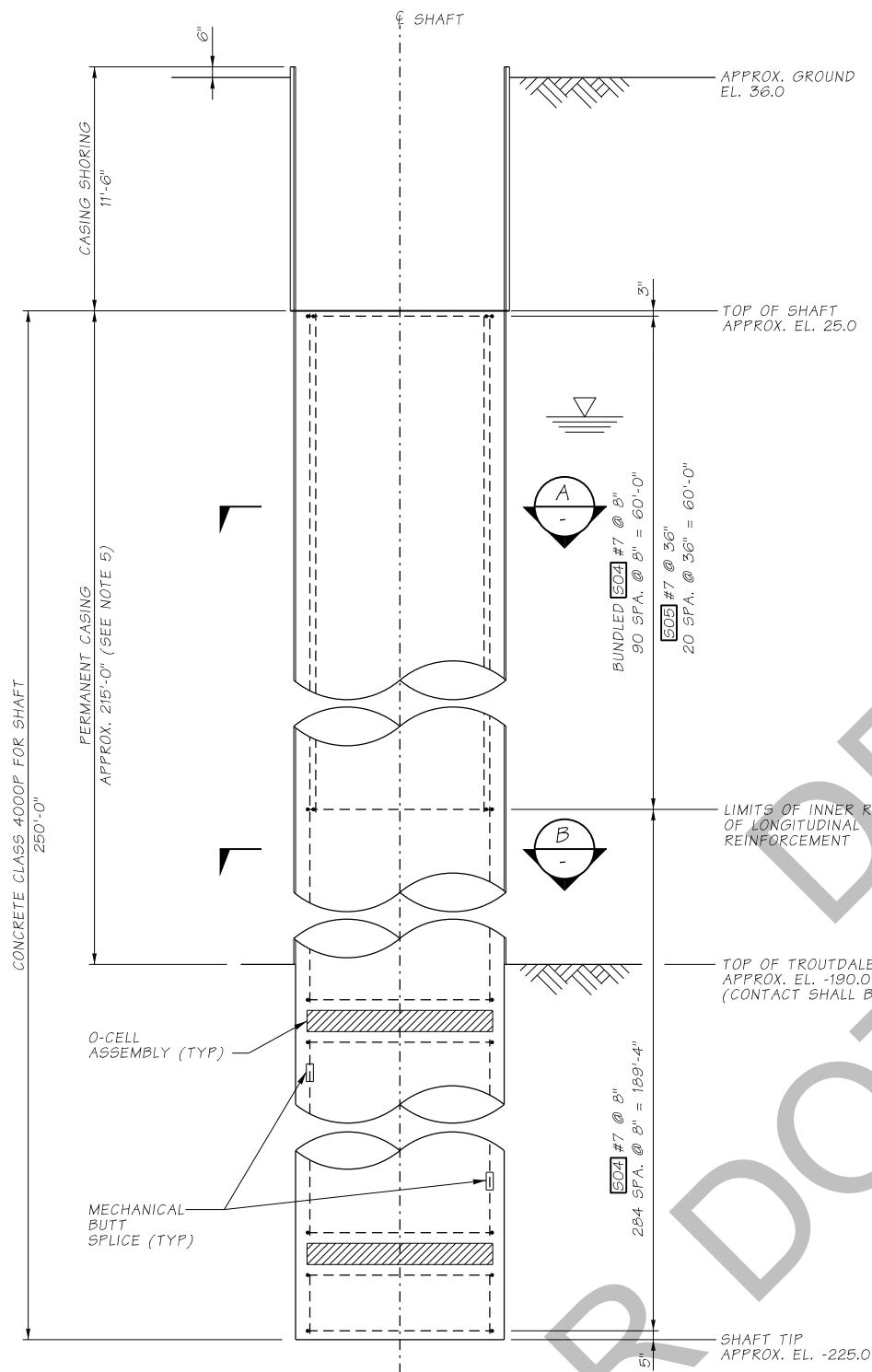


SHAFT BAR LIST
QUANTITIES ARE PER SHAFT

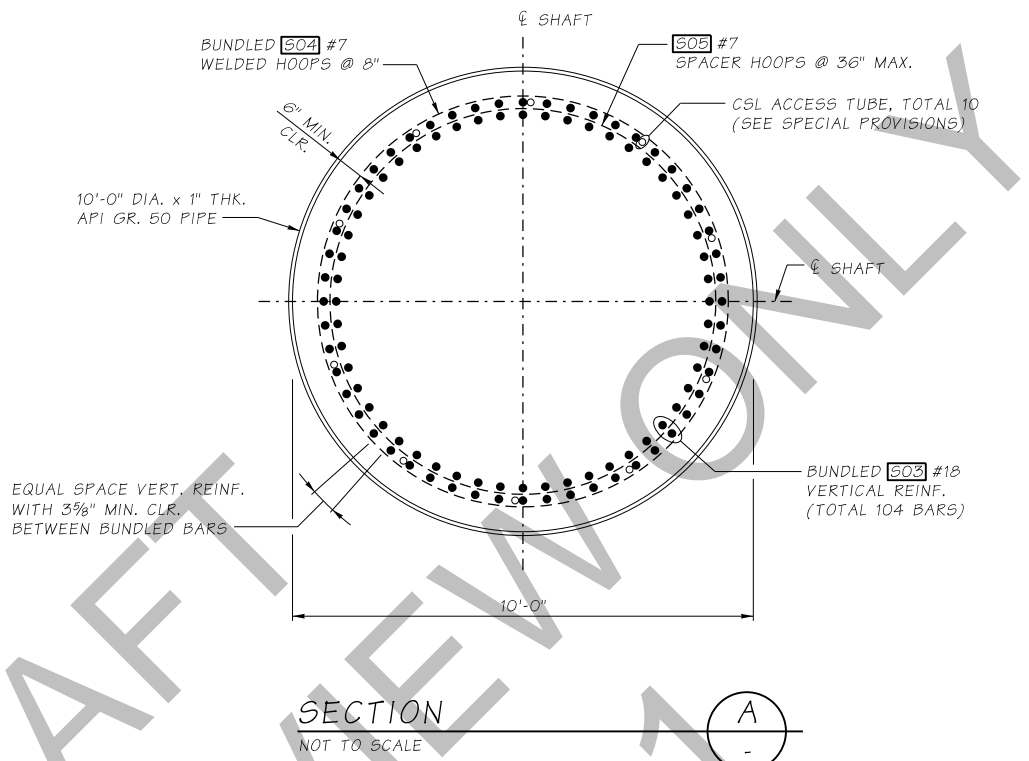
MARK	DESCRIPTION	QUANTITY	WT (LB)
S06	ASTM A706 #10 BAR	48	12970
S07	ASTM A706 #6 SPIRAL 5'-0" O.D.	53	4689
S08	ASTM A706 #10 BAR	72	16258
S09	ASTM A706 #6 SPIRAL 5'-0" O.D.	63	5648

- NOTES:
1. REMOVE CASING SHORING AFTER LOAD TESTING IS COMPLETE AND BACKFILL PER SPECIAL PROVISIONS.
 2. SEE SHEET H1 AND H3 FOR INSTRUMENTATION DETAILS.
 3. CUT REINF. AS REQUIRED FOR O-CELL ASSEMBLIES. MAINTAIN 7" SPACING OF TRANSVERSE REINFORCING
 4. SEE SHEET G4 FOR SPIRAL END DETAILS, WELDED LAP SPLICE DETAILS AND CENTRALIZER DETAILS.

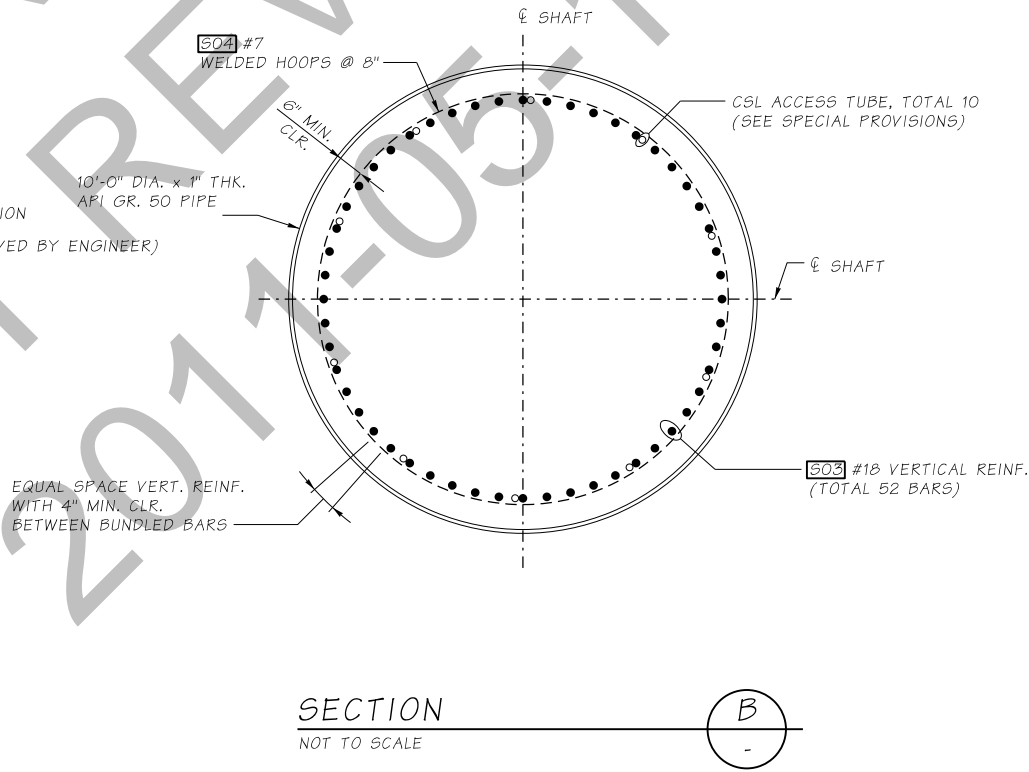
FILE NAME: c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 16	
TIME: 9:30:38 AM		CONTRACT NO.		JOB NO		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number G1	
DATE: 5/11/2011		CONTRACT NO.		CON NO		LOC NO		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 16 OF 38 SHEETS	
PLOTTED BY: burkej		REVISION		DATE		BY		DATE		TEST PROGRAM		AS-1&BS-2 DRILLED SHAFT REINFORCING	
DESIGNED BY: C. WERTS		DATE		BY		DATE		DATE		DATE		DATE	
ENTERED BY: N. HATINGER, T. KING		DATE		BY		DATE		DATE		DATE		DATE	
CHECKED BY:		DATE		BY		DATE		DATE		DATE		DATE	
PROJ. ENGR.: F. GREEN		DATE		BY		DATE		DATE		DATE		DATE	
REGIONAL ADM.: D. WAGNER		DATE		BY		DATE		DATE		DATE		DATE	



10' DIAMETER SHAFT ELEVATION
NOT TO SCALE



SECTION A
NOT TO SCALE



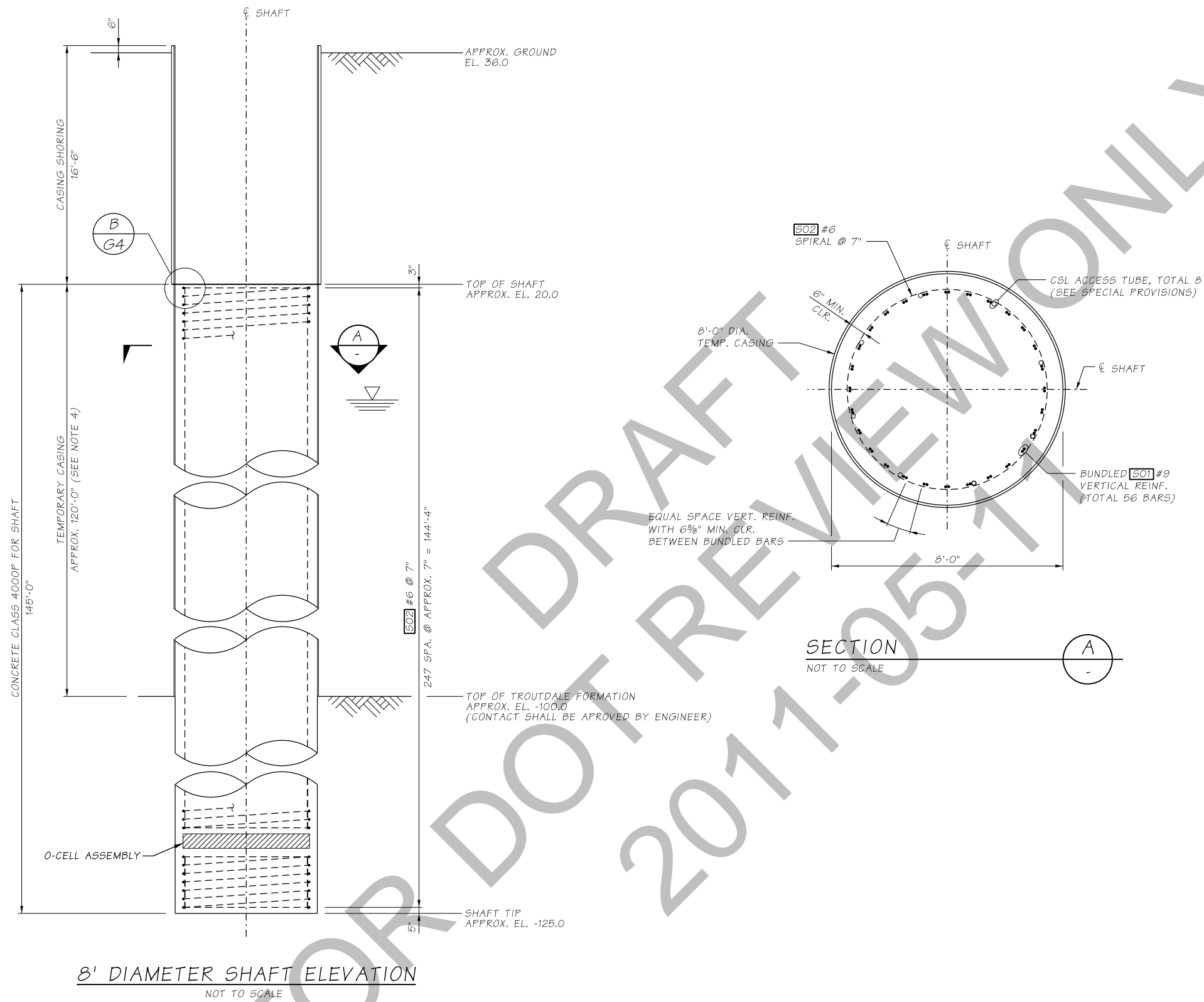
SECTION B
NOT TO SCALE

SHAFT BAR LIST
QUANTITIES ARE PER SHAFT

MARK	DESCRIPTION	QUANTITY	WT (LB)
S03	ASTM A706 #18 BAR	260	212160
S03A	ASTM A706 #18 BAR	52	6895
S04	ASTM A706 #7 H00P 9'-0" O.D.	466	26715
S05	ASTM A706 #7 H00P 8'-5" O.D.	21	1125

- NOTES:
1. REMOVE CASING SHORING AFTER LOAD TESTING IS COMPLETE AND BACKFILL PER SPECIAL PROVISIONS.
 2. DEPTH TO TROUTDALE FORMATION IS APPROXIMATE. LENGTH OF PERMANENT CASING AND EMBEDMENT IN TROUTDALE FORMATION MAY VARY.
 3. SEE SHEET H2 FOR INSTRUMENTATION DETAILS.
 4. CUT REINF. AS REQUIRED FOR O-CELL ASSEMBLIES. MAINTAIN 8" SPACING OF TRANSVERSE REINFORCING
 5. PERMANENT CASING SHALL BE SEATED INTO THE TOP OF TROUTDALE FORMATION.
 6. SEE SHEET G4 FOR WELDED HOOP BUTT JOINT DETAILS AND CENTRALIZER DETAILS.

FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 17 Ref. Sht. Number G2
TIME 9:30:41 AM	DATE 5/11/2011	JOB NO		CONTRACT NO.	LOCATION NO.			
PLOTTED BY burkej	DESIGNED BY C. WERTS	ENTERED BY N. HATINGER, T. KING	CHECKED BY	PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY
DATE		DATE		DATE		DATE		



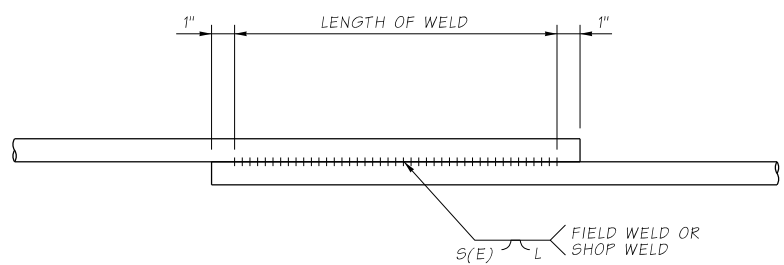
8' DIAMETER SHAFT ELEVATION
NOT TO SCALE

SHAFT BAR LIST
QUANTITIES ARE PER SHAFT

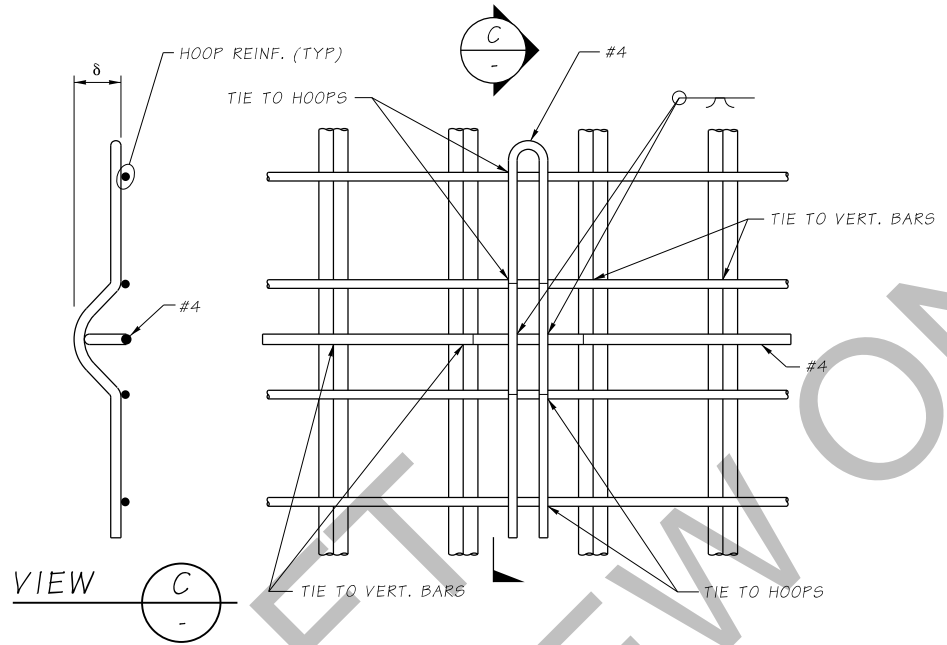
MARK	DESCRIPTION	QUANTITY	WT (LB)
S01	ASTM A706 #9 BAR	168	29910
S02	ASTM A706 #6 SPIRAL 7'-0" O.D.	90	8102

- NOTES:
- REMOVE CASING SHORING AFTER LOAD TESTING IS COMPLETE AND BACKFILL PER SPECIAL PROVISIONS.
 - SEE SHEET H4 FOR INSTRUMENTATION DETAILS.
 - CUT REINF. AS REQUIRED FOR O-CELL ASSEMBLIES. MAINTAIN 7" SPACING OF TRANSVERSE REINFORCING
 - DEPTH TO TROUTDALE FORMATION IS APPROXIMATE. TEMPORARY CASING SHALL BE SEATED INTO THE TOP OF THE TROUTDALE FORMATION.
 - SEE SHEET G4 FOR SPIRAL END DETAILS, WELDED LAP SPLICE DETAILS AND CENTRALIZER DETAILS.

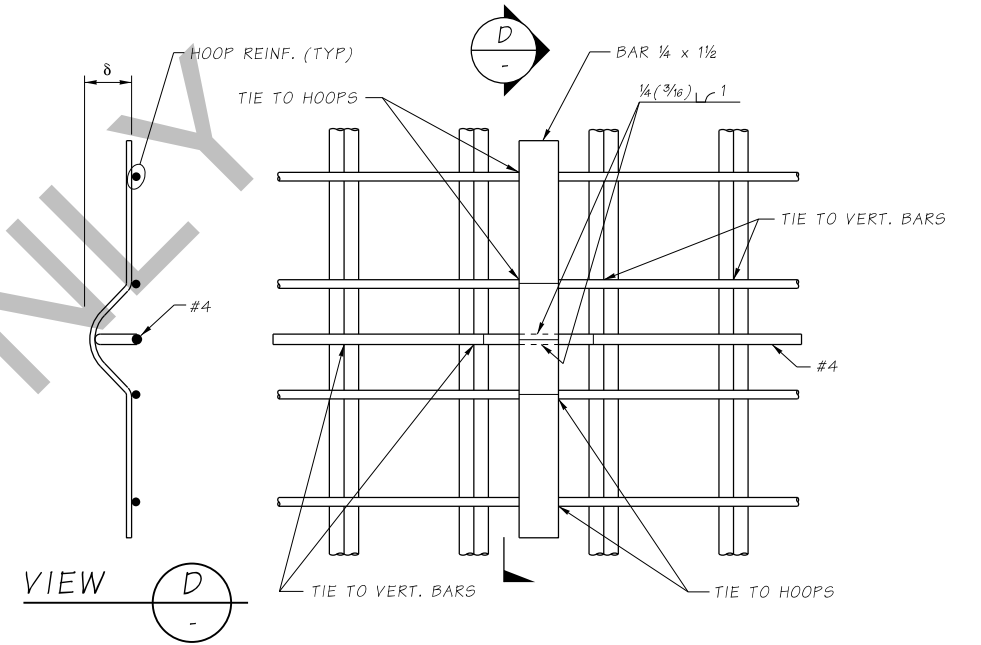
FILE NAME: c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 18	
TIME: 9:30:43 AM		JOB NO.		CONTRACT NO.		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number G3	
DATE: 5/11/2011		CONTRACT NO.		JOB NO.		LOC NO.		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 18 OF 38 SHEETS	
PLOTTED BY: burkej		DATE		BY		DATE		P.E. STAMP BOX		TEST PROGRAM		CS-1 DRILLED SHAFT REINFORCING	
DESIGNED BY: C. WERTS		REVISION		DATE		BY		P.E. STAMP BOX		DATE		DATE	
ENTERED BY: N. HATINGER, T. KING		DATE		BY		DATE		P.E. STAMP BOX		DATE		DATE	
CHECKED BY:		DATE		BY		DATE		P.E. STAMP BOX		DATE		DATE	
PROJ. ENGR.: F. GREEN		DATE		BY		DATE		P.E. STAMP BOX		DATE		DATE	
REGIONAL ADM.: D. WAGNER		DATE		BY		DATE		P.E. STAMP BOX		DATE		DATE	



WELDED LAP SPLICE DETAIL
 WELDING SHALL MEET THE REQUIREMENTS OF STD. SPEC. 6-02.3(24)E FOR WELDING DIMENSIONS, SEE TABLE BELOW

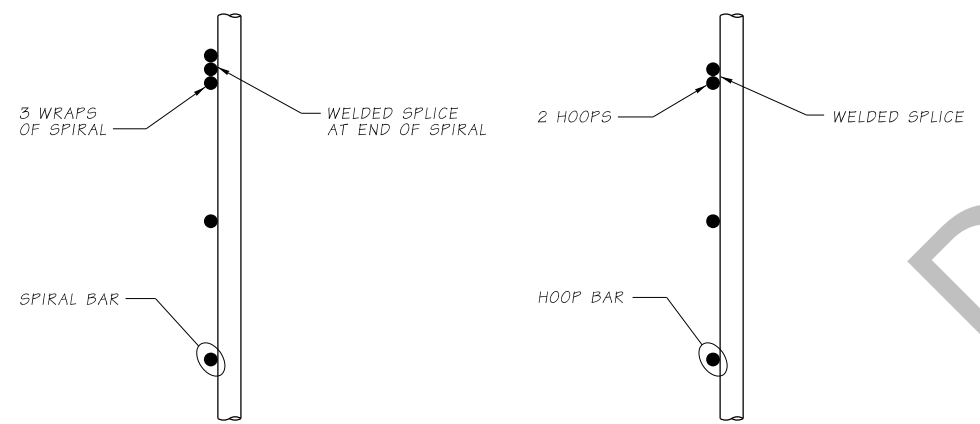


CENTRALIZER DETAIL (OPTION 1)



CENTRALIZER DETAIL (OPTION 2)

NOTES:
 1. EACH LEG SHOULD BE TIED TO TWO VERTICAL BAR BUNDLES OR TWO HOOPS.
 2. SEE SPECIAL PROVISIONS FOR SPACING REQUIREMENTS.

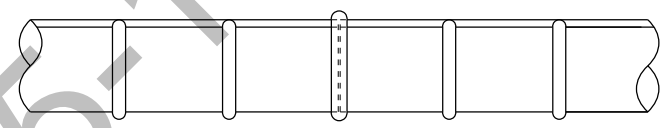


DETAIL B SPIRAL TERMINATION

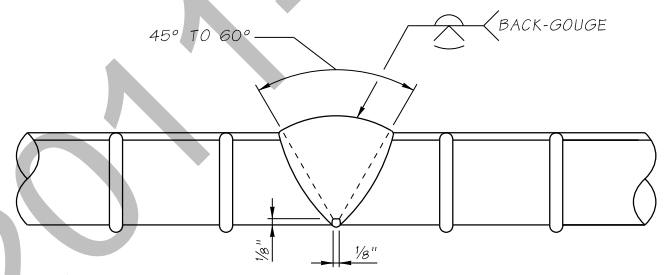
DETAIL B HOOP TERMINATION

SHAFT SPIRAL OPTIONS

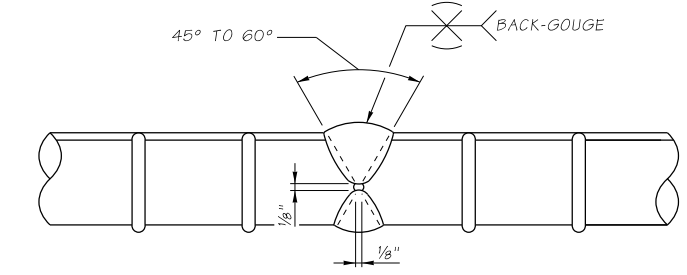
	WELD DIMENSIONS (IN.)		
	S	E	LENGTH (L)
#4	1/4	1/8	4
#5	5/16	3/16	6
#6	3/8	3/16	6



RESISTANCE BUTT JOINT DETAIL FOR HOOPS
 SEE SPECIAL PROVISIONS FOR APPROVAL AND TESTING REQUIREMENTS



SINGLE Y-GROOVE WELD
 AWS D1.4 FIGURE 3.2(A)

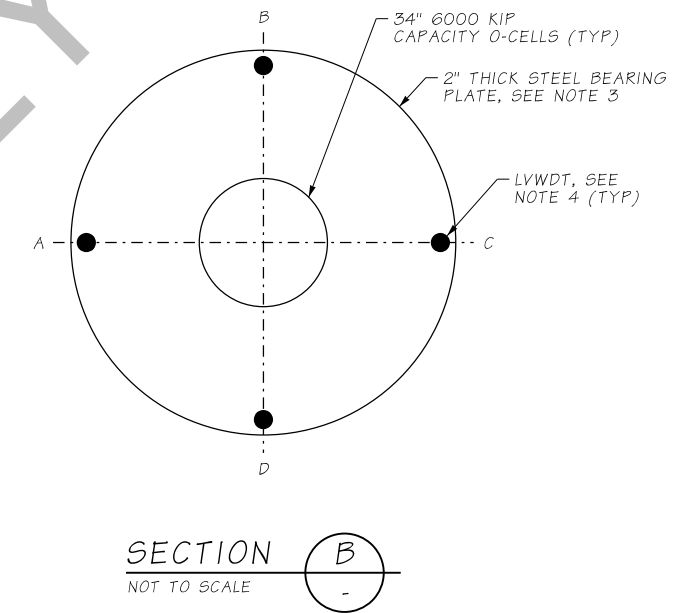
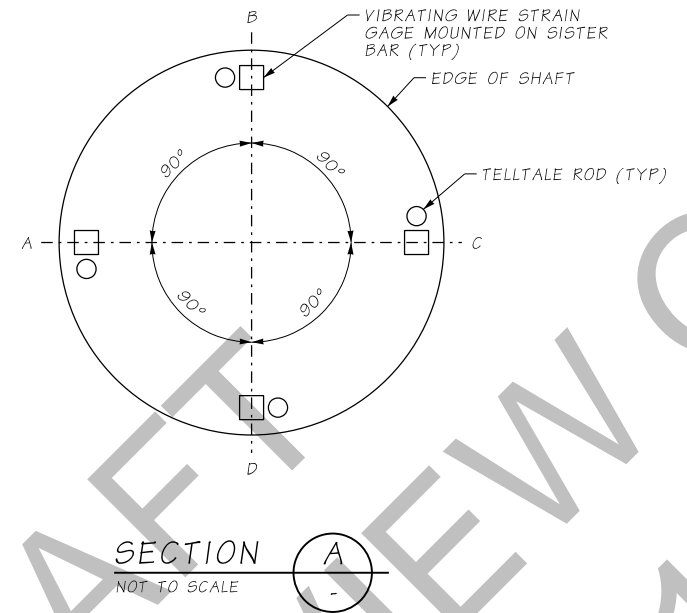
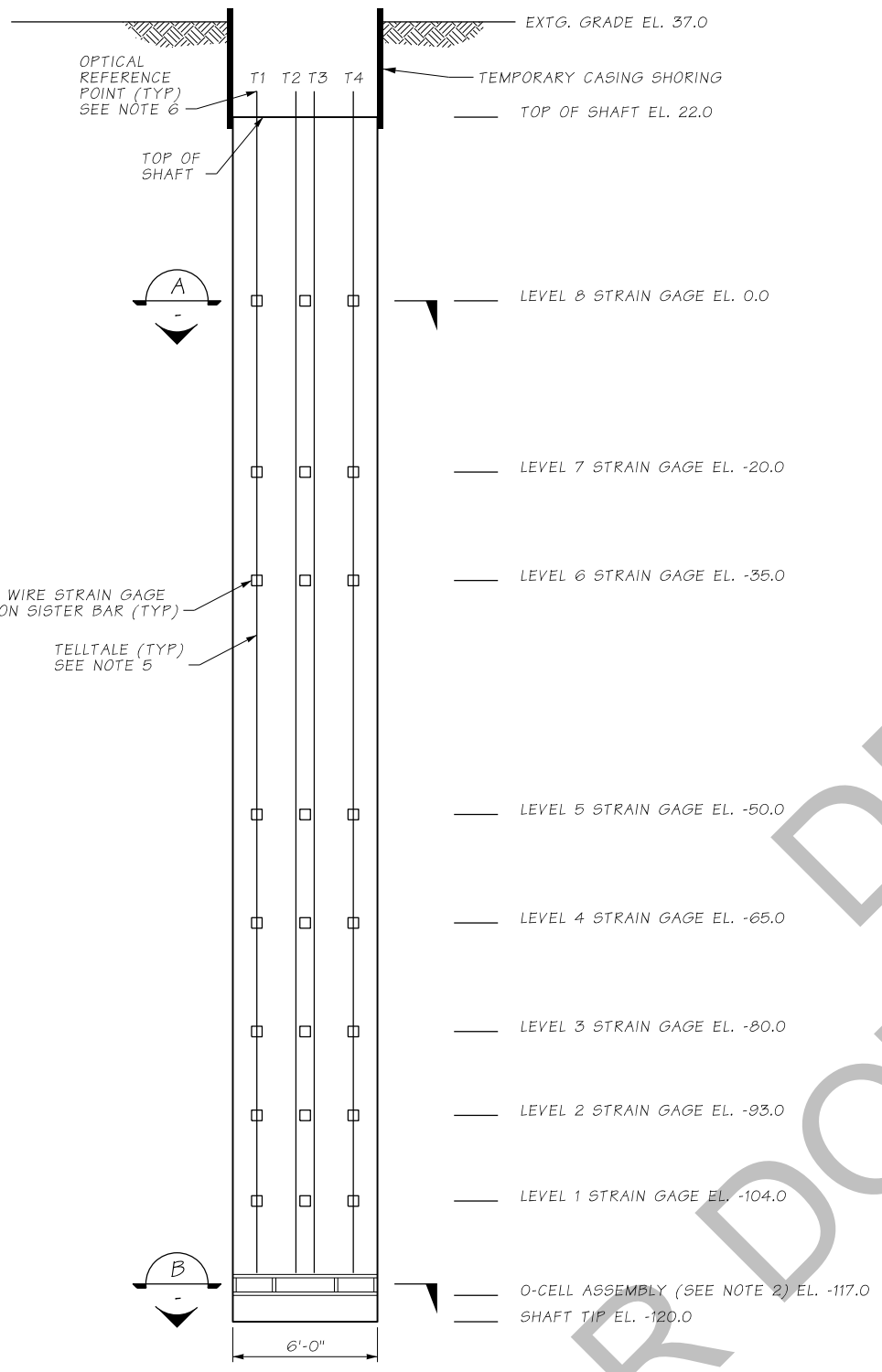


DOUBLE Y-GROOVE WELD
 AWS D1.4 FIGURE 3.2(B)

MANUAL DIRECT BUTT JOINT DETAILS FOR HOOPS

WELDING SHALL MEET THE REQUIREMENTS OF STD. SPEC. 6-02.3(24)E AND SPECIAL PROVISIONS. ALL BACKING SHALL BE REMOVED. SEE SPECIAL PROVISIONS FOR RT TESTING FREQUENCY.

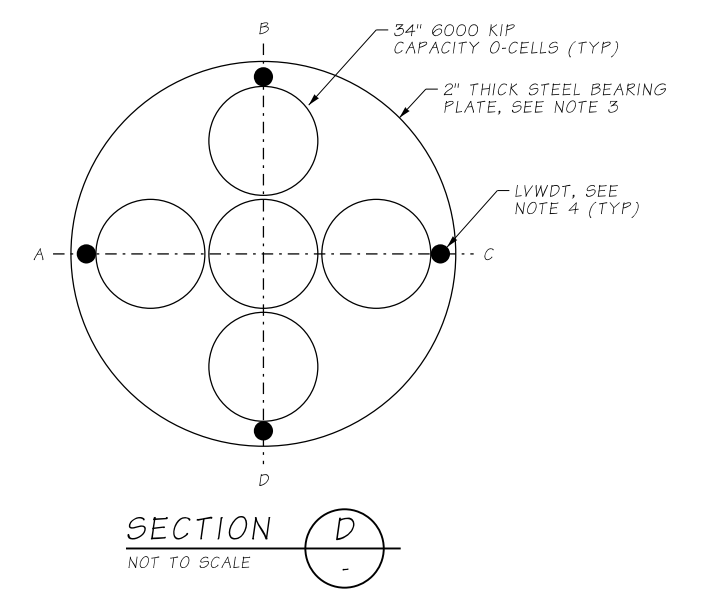
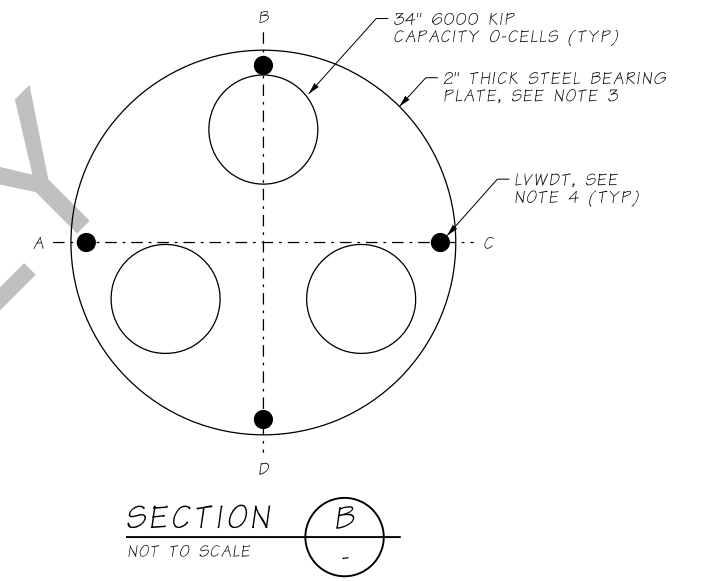
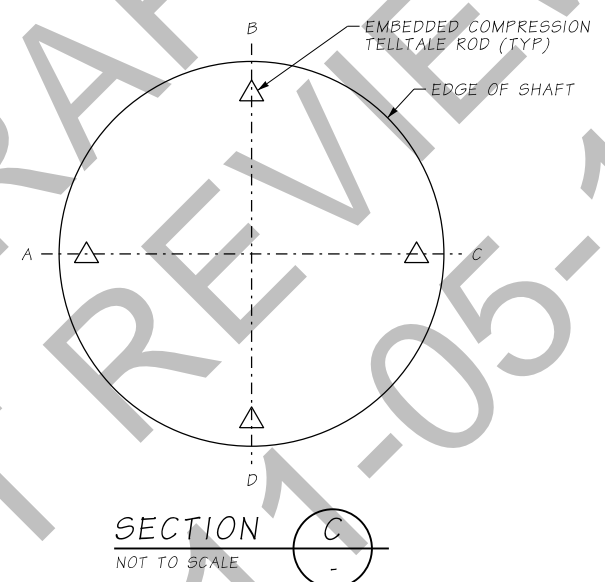
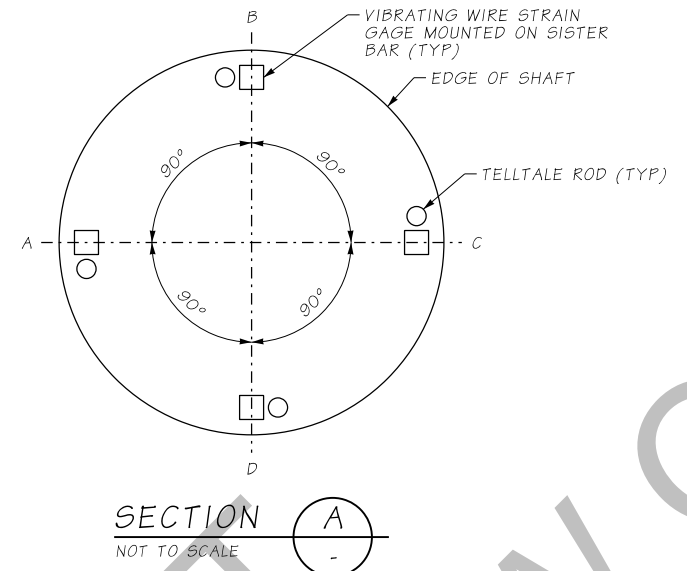
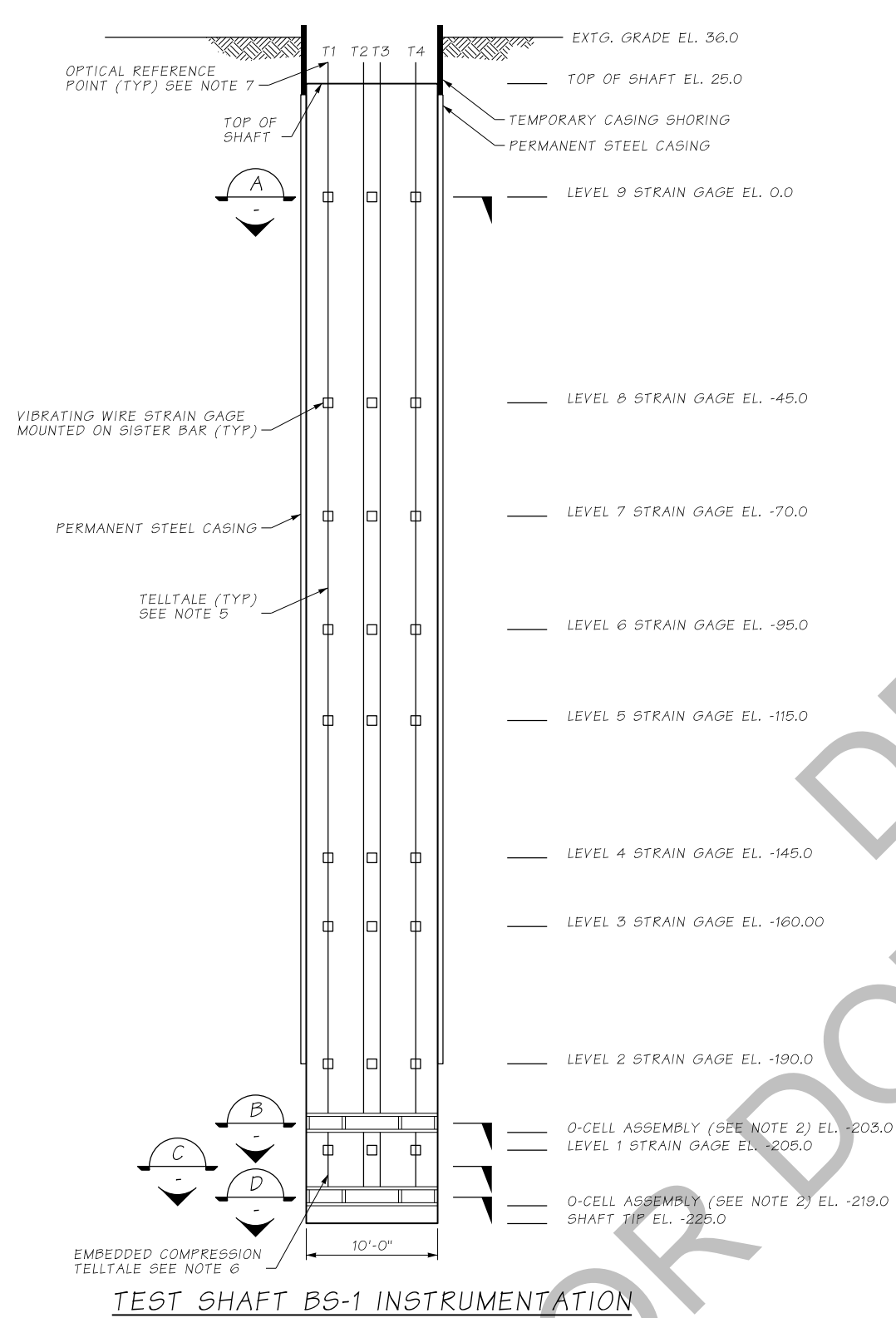
FILE NAME	c:\aawork\pw_work\rcrc\burke\dms02031\CRC_PS_BG_Test\Pile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM DRILLED SHAFT DETAILS	Plot 19 Ref. Sht. Number G4
TIME	9:30:46 AM			10	WASH				
DATE	5/11/2011			JOB NUMBER			SHEET 19 OF 38 SHEETS		
PLOTTED BY	burkej			JOB NO					
DESIGNED BY	C. WERTS			CONTRACT NO.					
ENTERED BY	T. KING			LOCATION NO.					
CHECKED BY				LOC NO					
PROJ. ENGR.	F. GREEN			DATE					
REGIONAL ADM.	D. WAGNER			DATE					
REVISION		DATE	BY	P.E. STAMP BOX					



TEST SHAFT AS-1 INSTRUMENTATION

- NOTES:
1. REINFORCING STEEL & CROSS-HOLE SONIC LOGGING TUBES NOT SHOWN FOR CLARITY. SEE SHAFT REINFORCING PLANS.
 2. O-CELL ASSEMBLY ELEVATION REFERENCES THE BOTTOM SURFACE OF THE BOTTOM PLATE OF O-CELL ASSEMBLY.
 3. SHOP DRAWINGS OF STEEL BEARING PLATES WITH O-CELL PLACEMENT, THRU HOLES, AND TREMIE GUIDE DETAILS TO BE PROVIDED BY LOADTEST INC.
 4. LOCATION OF LVWDT POSITIONED BETWEEN LOWER AND UPPER BEARING PLATES.
 5. TELLTALES SHALL EXTEND FROM THE TOP PLATE OF THE O-CELL TO 1 FOOT ABOVE THE TOP OF SHAFT AND ATTACHED TO A LVDT THAT IS CONNECTED TO A STABLE REFERENCE POINT.
 6. OPTICAL REFERENCE POINT...

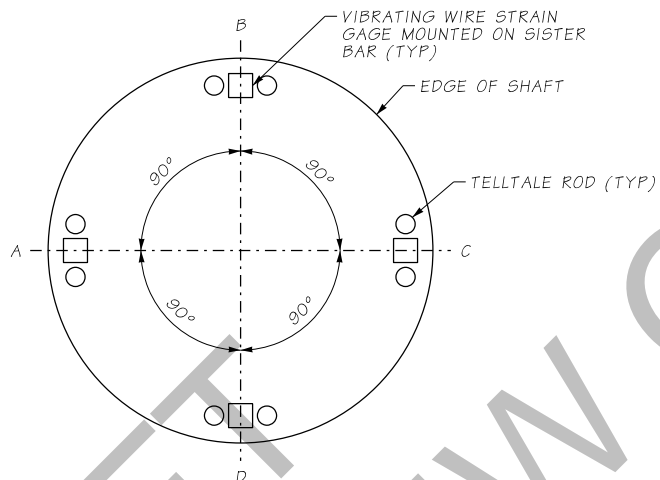
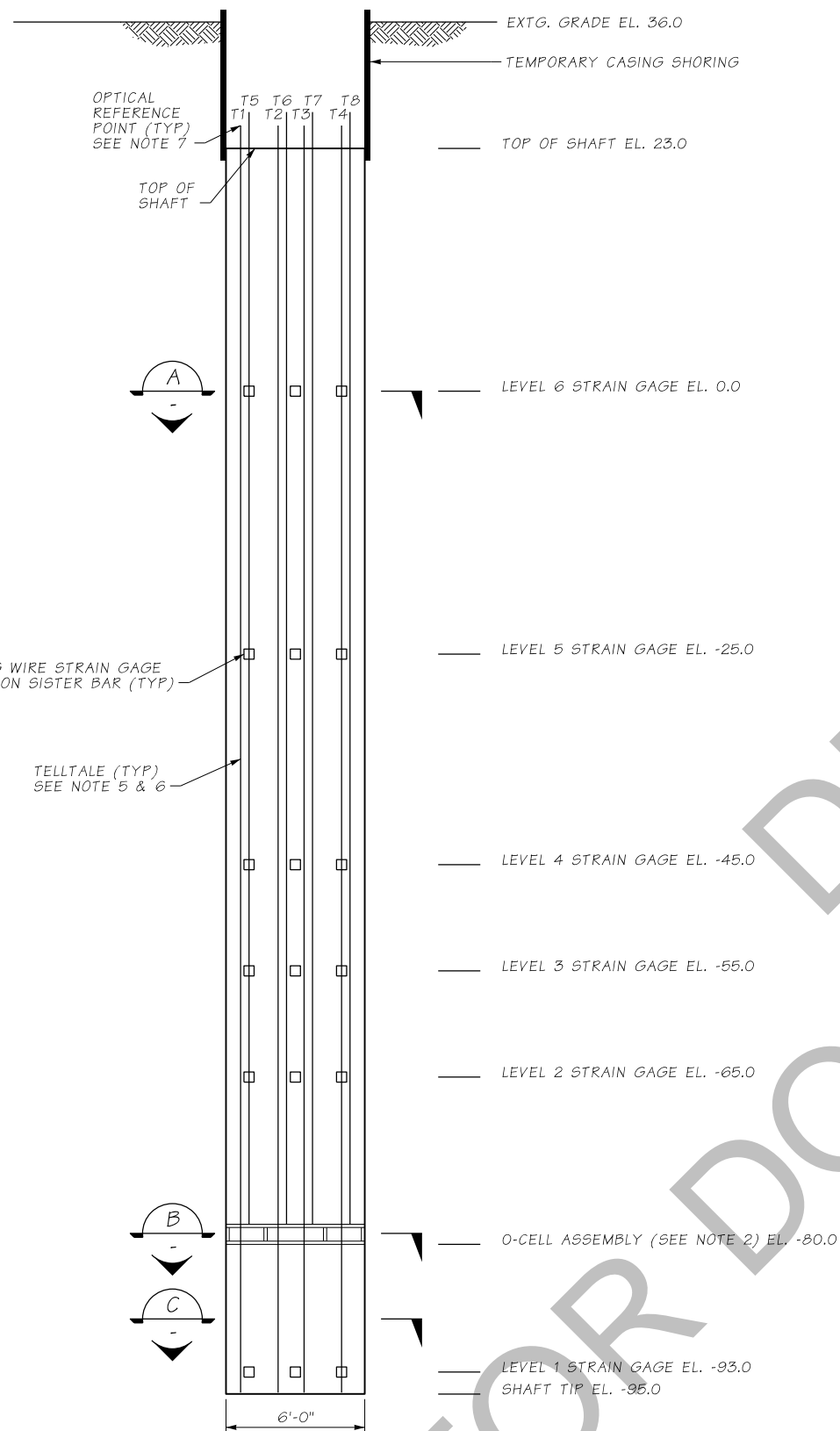
FILE NAME: c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	AS-1 DRILLED SHAFT INSTRUMENTATION	Plot 20
TIME: 9:30:48 AM	DATE: 5/11/2011	JOB NUMBER		CONTRACT NO.	LOCATION NO.				Ref. Sht. Number H1
PLOTTED BY: burkej	DESIGNED BY: P. PIAO	JOB NO		CONTRACT NO.	LOCATION NO.	SHEET 20 OF 38 SHEETS			
ENTERED BY: J. BURKE	CHECKED BY:	CON NO		CONTRACT NO.	LOCATION NO.				
PROJ. ENGR.: F. GREEN	REGIONAL ADM.: D. WAGNER	REVISION	DATE	BY	LOC NO				
						P.E. STAMP BOX	DATE	P.E. STAMP BOX	DATE



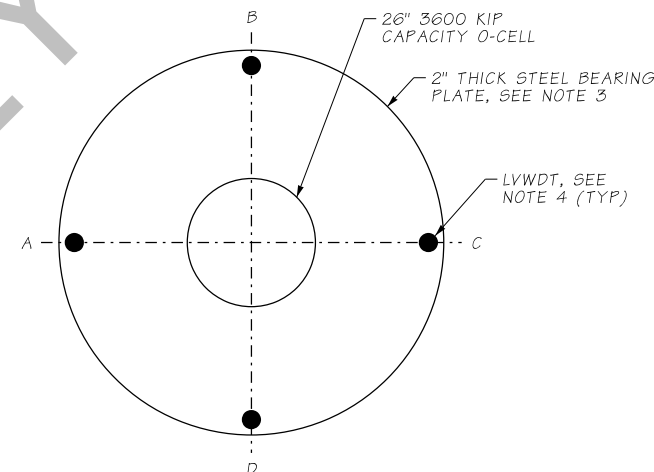
- NOTES:
1. REINFORCING STEEL & CROSS-HOLE SONIC LOGGING TUBES NOT SHOWN FOR CLARITY. SEE SHAFT REINFORCING PLANS.
 2. O-CELL ASSEMBLY ELEVATION REFERENCES THE BOTTOM SURFACE OF THE BOTTOM PLATE OF O-CELL ASSEMBLY.
 3. SHOP DRAWINGS OF STEEL BEARING PLATES WITH O-CELL PLACEMENT, THRU HOLES, AND TREMIE GUIDE DETAILS TO BE PROVIDED BY LOADTEST INC.
 4. LOCATION OF LVWDT POSITIONED BETWEEN LOWER AND UPPER BEARING PLATES.
 5. TELLTALES SHALL EXTEND FROM THE TOP OF PLATE OF THE O-CELL TO 1 FOOT ABOVE TOP OF SHAFT AND ATTACHED TO A LVDT THAT IS CONNECTED TO A STABLE REFERENCE POINT.
 6. EMBEDDED COMPRESSION TELLTALES (ECT) SHALL EXTEND FROM THE TOP PLATE OF THE LOWER O-CELL TO THE BOTTOM PLATE OF THE UPPER O-CELL.
 7. OPTICAL REFERENCE POINT...

TEST SHAFT BS-1 INSTRUMENTATION

FILE NAME: c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	BS-1 DRILLED SHAFT INSTRUMENTATION	Plot 21	
TIME: 9:30:53 AM	DATE: 5/11/2011	DESIGNED BY: P. PIAO	ENTERED BY: J. BURKE	CHECKED BY:	PROJ. ENGR.: F. GREEN				REGIONAL ADM.: D. WAGNER	REVISION
		JOB NUMBER		JOB NO	CONTRACT NO.	LOCATION NO.				SHEET 21 OF 38 SHEETS
		CON NO		LOC NO						

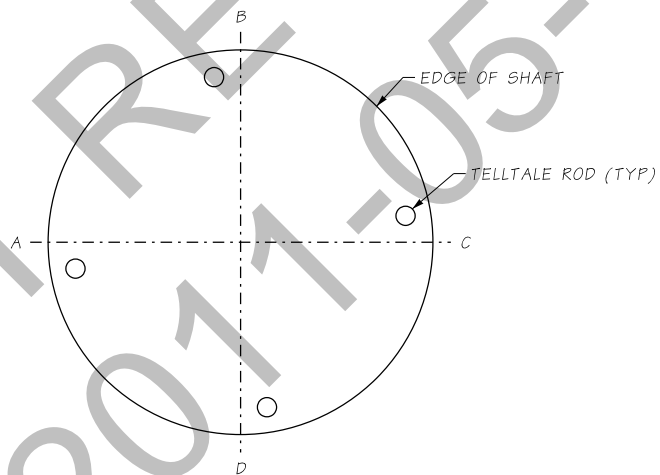


SECTION A
NOT TO SCALE



TELLTALES NOT SHOWN FOR CLARITY

SECTION B
NOT TO SCALE



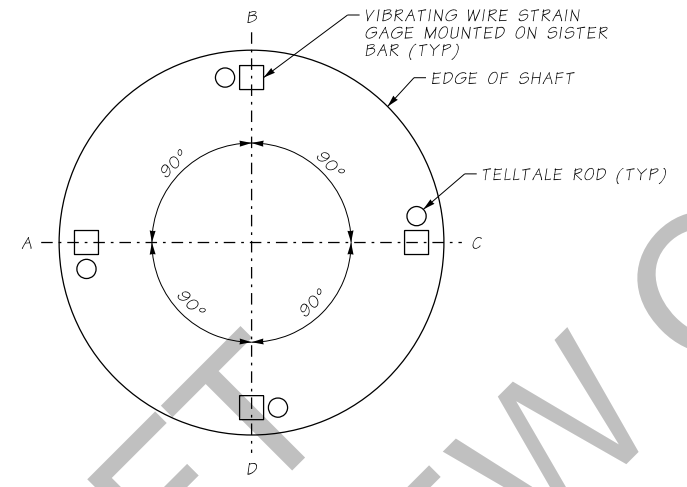
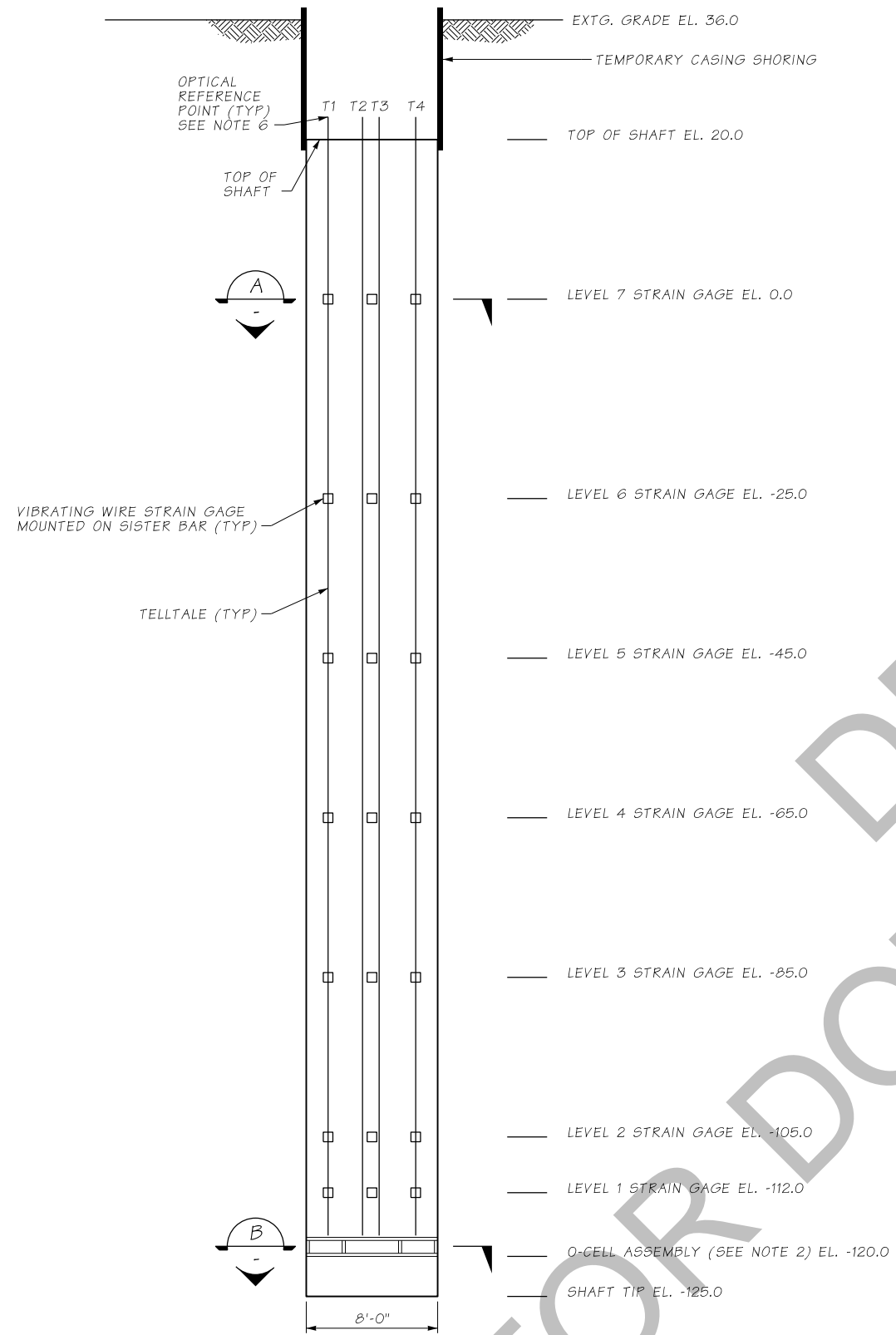
SECTION C
NOT TO SCALE

NOTES:

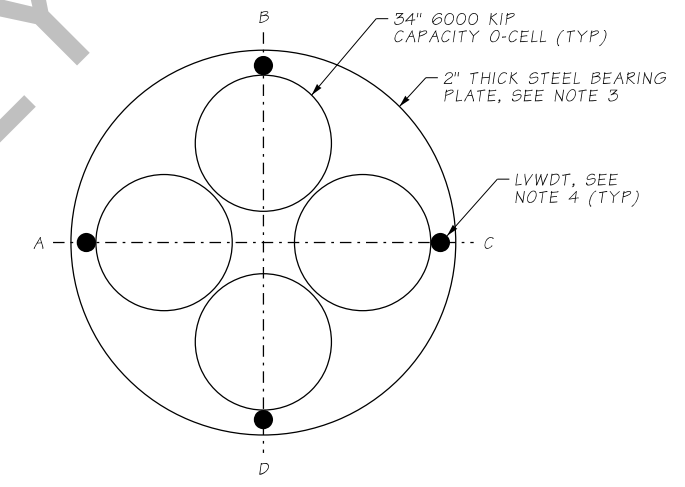
1. REINFORCING STEEL & CROSS-HOLE SONIC LOGGING TUBES NOT SHOWN FOR CLARITY. SEE SHAFT REINFORCING PLANS.
2. O-CELL ASSEMBLY ELEVATION REFERENCES THE BOTTOM SURFACE OF THE BOTTOM PLATE OF O-CELL ASSEMBLY.
3. SHOP DRAWINGS OF STEEL BEARING PLATES WITH O-CELL PLACEMENT, THRU HOLES, AND TREMIE GUIDE DETAILS TO BE PROVIDED BY LOADTEST INC.
4. LOCATION OF LVWDT POSITIONED BETWEEN LOWER AND UPPER BEARING PLATES.
5. TELLTALES SHALL EXTEND FROM THE TOP OF PLATE OF THE O-CELL TO 1 FOOT ABOVE TOP OF SHAFT AND ATTACHED TO A LVDT THAT IS CONNECTED TO A STABLE REFERENCE POINT.
6. CONTRACTOR SHALL PROVIDE EXPANSION JOINTS FOR TELLTALES THAT EXTEND FROM THE SHAFT TIP TO TOP OF SHAFT (T1-T4).
7. OPTICAL REFERENCE POINT...

TEST SHAFT BS-2 INSTRUMENTATION

FILE NAME	c:\aawork\pw_work\rcrcburke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM BS-2 DRILLED SHAFT INSTRUMENTATION	Plot 22 Ref. Sht. Number H3
TIME	9:30:56 AM			10	WASH				
DATE	5/11/2011			JOB NUMBER		LOCATION NO.			SHEET 22 OF 38 SHEETS
PLOTTED BY	burkej			CONTRACT NO.		LOC NO			
DESIGNED BY	P. PIAO								
ENTERED BY	J. BURKE								
CHECKED BY									
PROJ. ENGR.	F. GREEN								
REGIONAL ADM.	D. WAGNER			REVISION	DATE	BY	DATE	DATE	



SECTION A
NOT TO SCALE

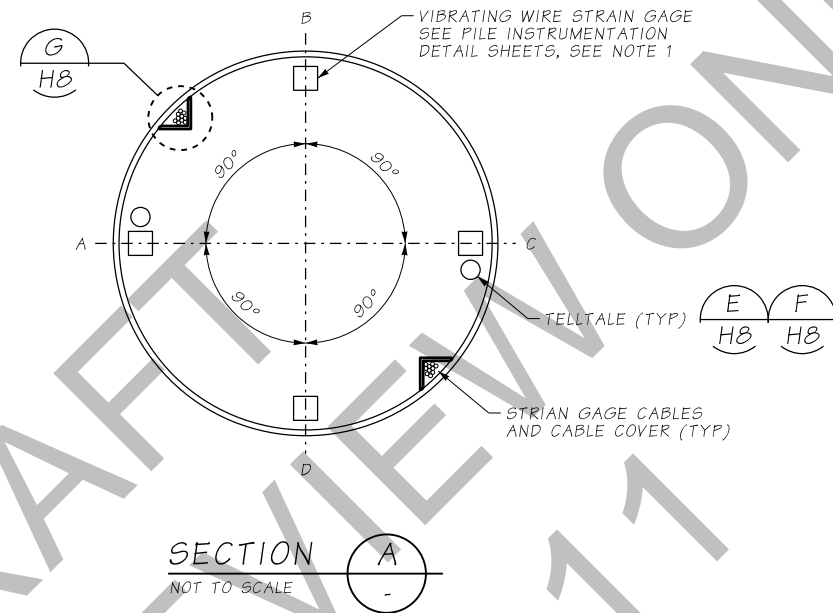
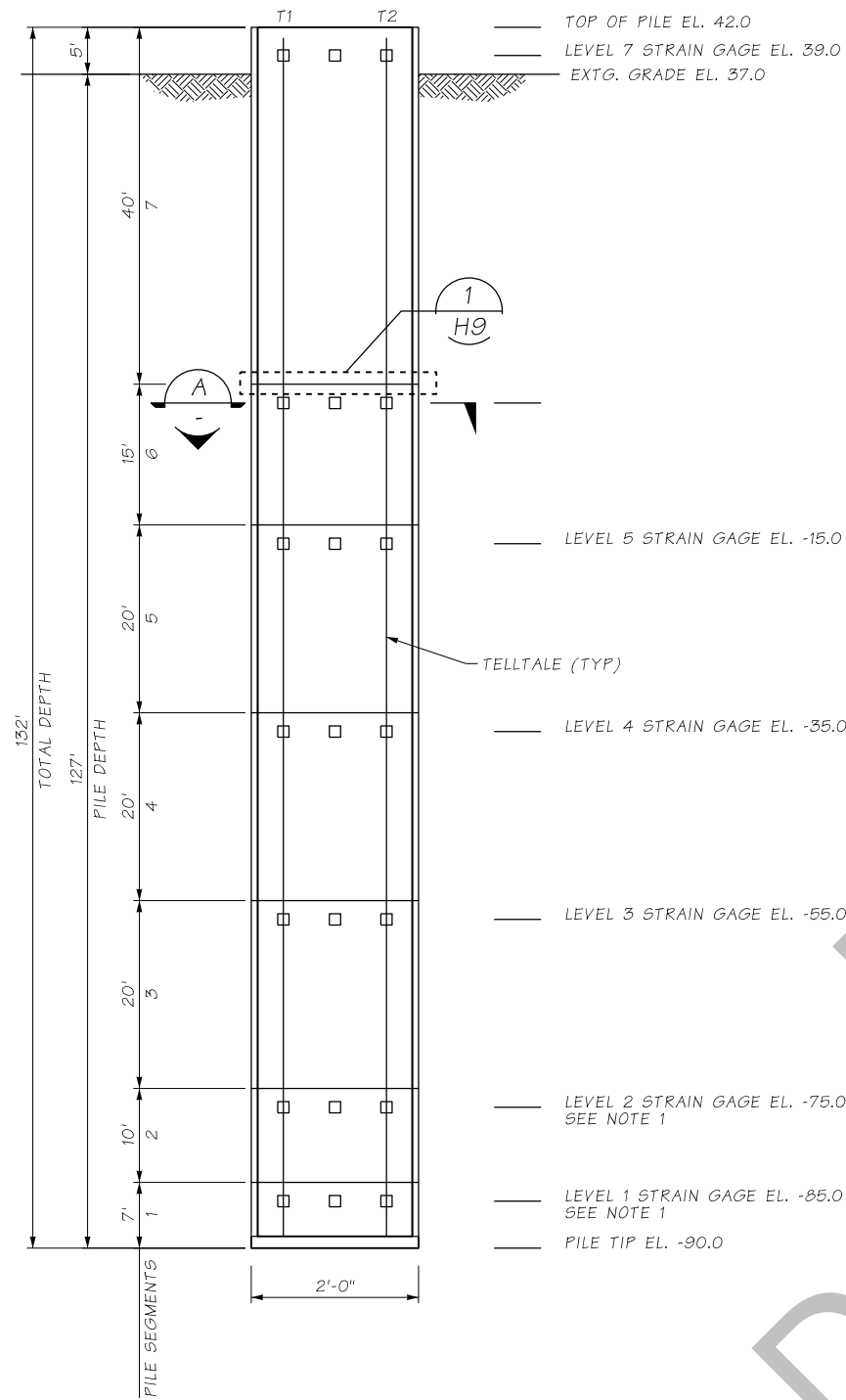


SECTION B
NOT TO SCALE

- NOTES:
1. REINFORCING STEEL & CROSS-HOLE SONIC LOGGING TUBES NOT SHOWN FOR CLARITY. SEE SHAFT REINFORCING PLANS.
 2. O-CELL ASSEMBLY ELEVATION REFERENCES THE BOTTOM SURFACE OF THE BOTTOM PLATE OF O-CELL ASSEMBLY.
 3. SHOP DRAWINGS OF STEEL BEARING PLATES WITH O-CELL PLACEMENT, THRU HOLES, AND TREMIE GUIDE DETAILS TO BE PROVIDED BY LOADTEST INC.
 4. LOCATION OF LVWDT POSITIONED BETWEEN LOWER AND UPPER BEARING PLATES.
 5. TELLTALES SHALL EXTEND FROM THE TOP OF PLATE OF THE O-CELL TO 1 FOOT ABOVE TOP OF SHAFT AND ATTACHED TO A LVDT THAT IS CONNECTED TO A STABLE REFERENCE POINT.
 6. OPTICAL REFERENCE POINT...

TEST SHAFT CS-1 INSTRUMENTATION

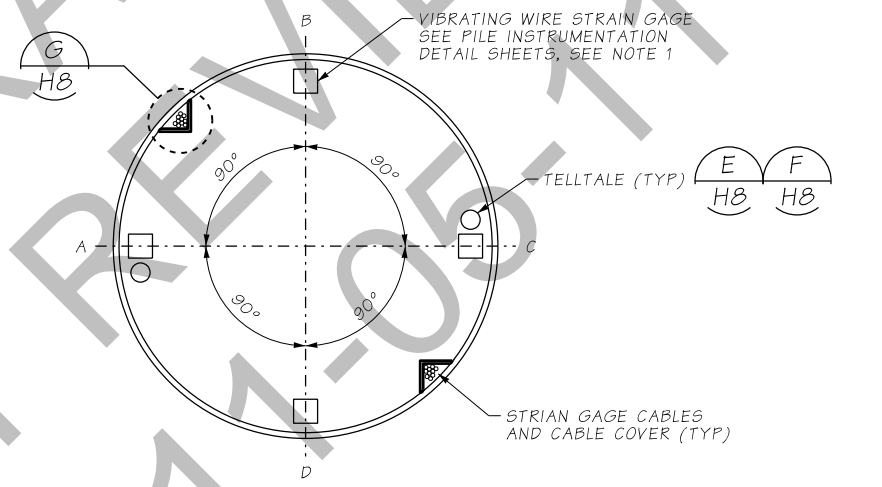
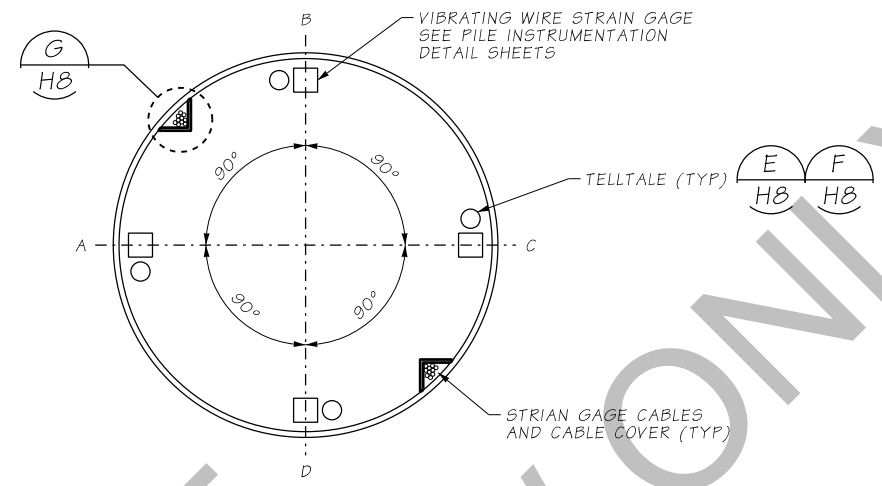
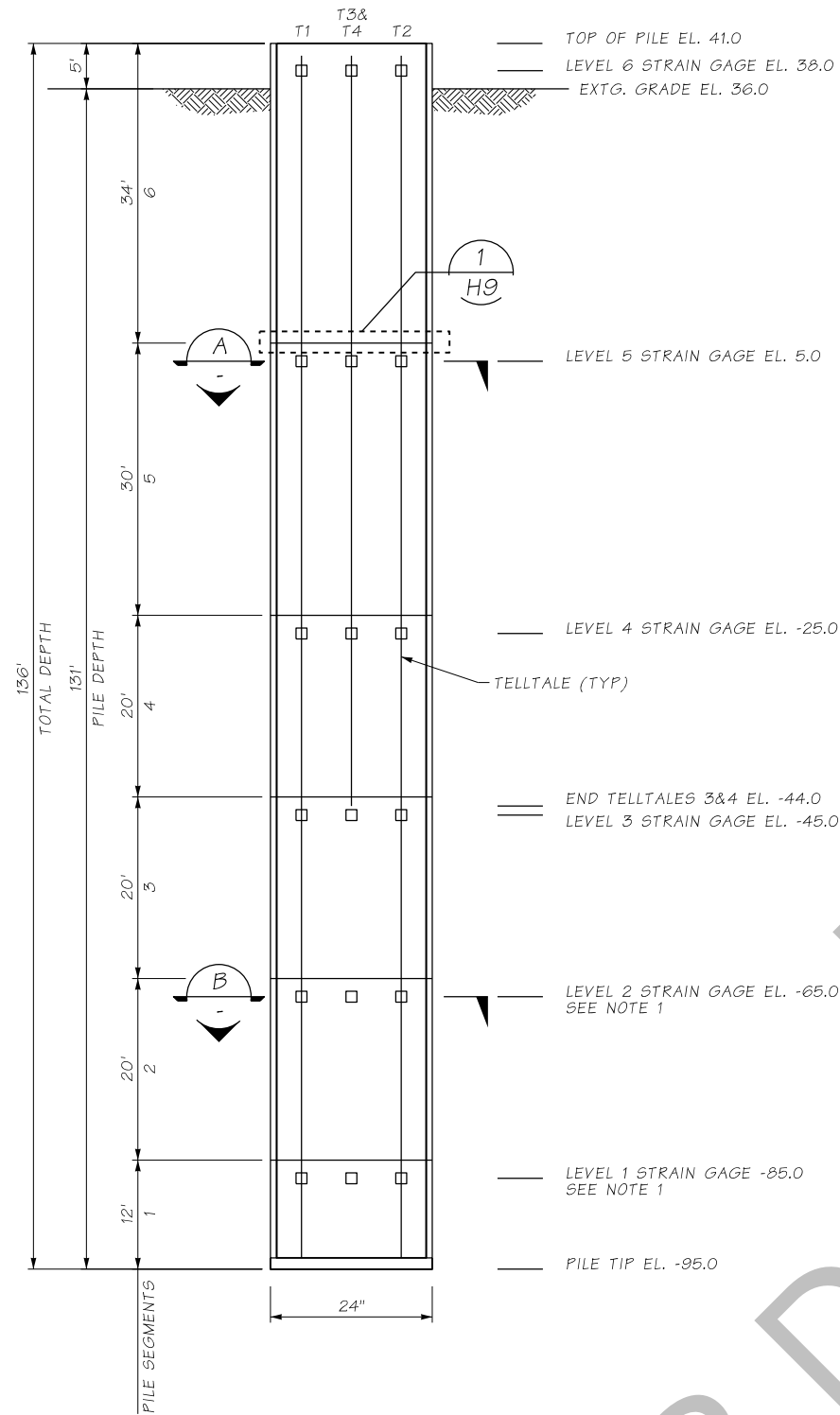
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TIME: 9:30:59 AM		JOB NUMBER		JOB NO		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number H4	
DATE: 5/11/2011		CONTRACT NO.		CON NO		LOC NO		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 23 OF 38 SHEETS	
PLOTTED BY: burkej		REVISION		DATE		BY		DATE		TEST PROGRAM		CS-1 DRILLED SHAFT INSTRUMENTATION	
DESIGNED BY: P. PIAO								DATE					
ENTERED BY: J. BURKE								DATE					
CHECKED BY:								DATE					
PROJ. ENGR.: F. GREEN								DATE					
REGIONAL ADM.: D. WAGNER								DATE					



TEST PILE AP-1 INSTRUMENTATION

- NOTES:
1. STRAIN GAGE LEVELS 1 & 2 SHALL CONTAIN AN ADDITIONAL 4 STRAIN GAGES PER LEVEL. ADDITIONAL STRAIN GAGES CAN BE PLACED IMMEDIATELY ABOVE OR BELOW THE PRIMARY STRAIN GAGES.

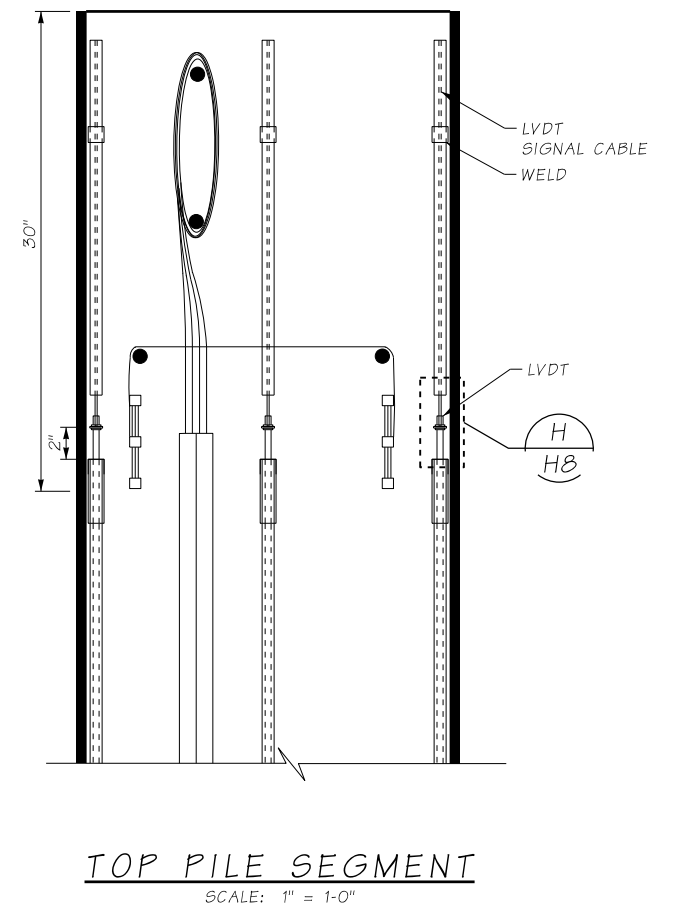
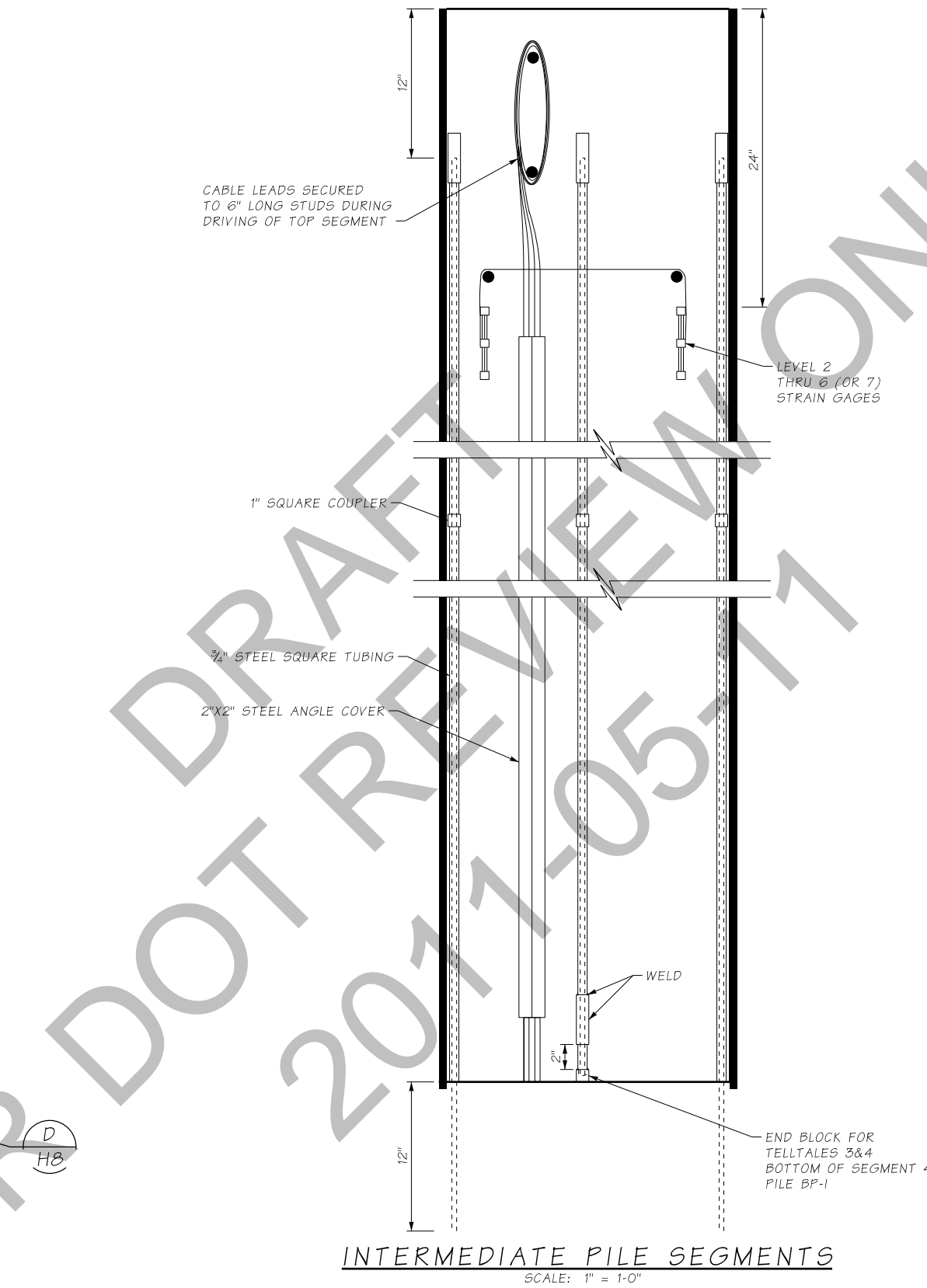
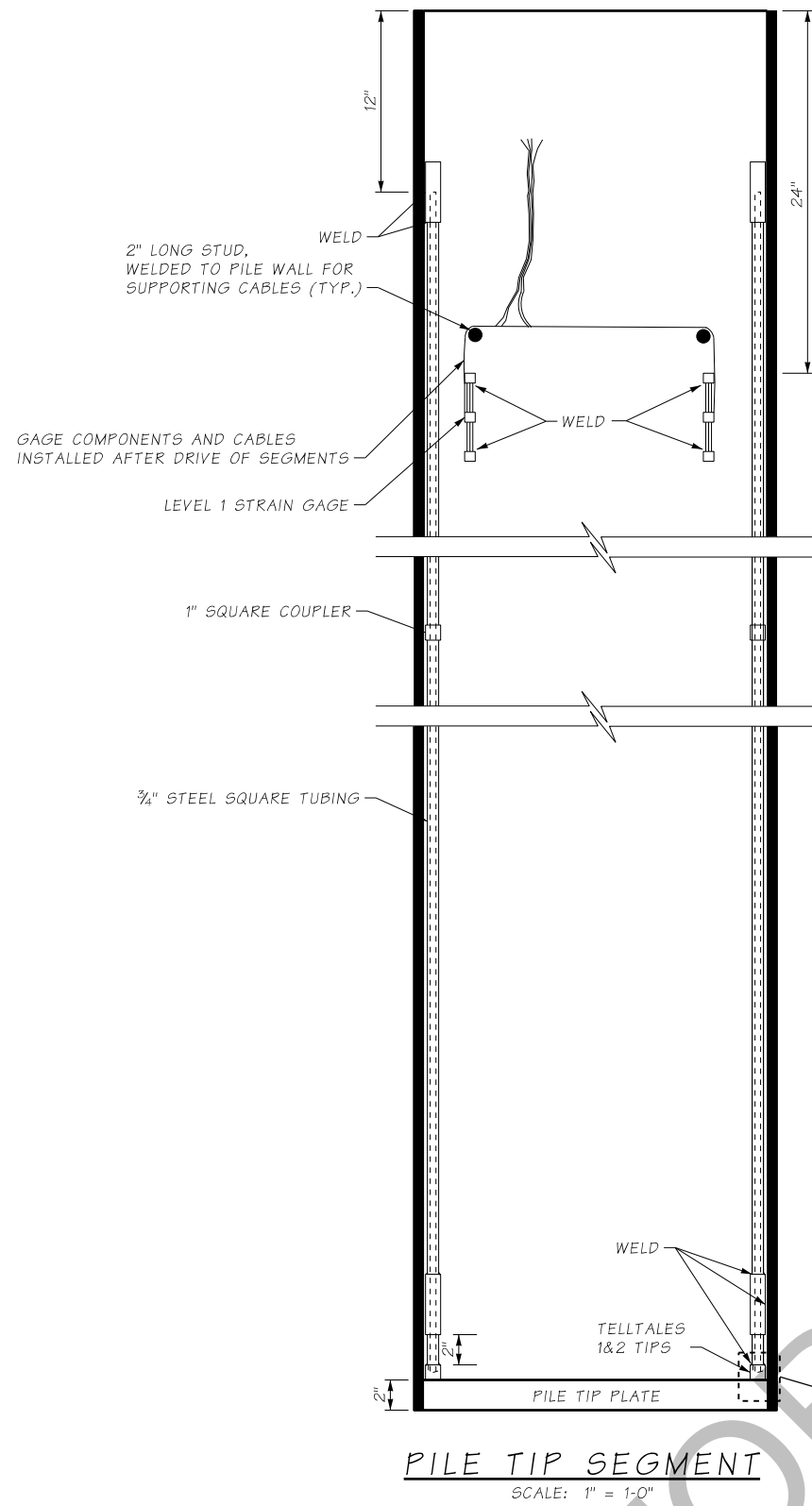
FILE NAME	c:\aawork\pw_work\crctburke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	 	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 24 Ref. Sht. Number H5
TIME	1:29:50 PM			10	WASH				
DATE	5/11/2011			JOB NUMBER		LOCATION NO.		SHEET 24 OF 38 SHEETS	
PLOTTED BY	burkej			JOB NO		LOC NO			
DESIGNED BY	P. PIAO			CONTRACT NO.					
ENTERED BY	J. BURKE								
CHECKED BY									
PROJ. ENGR.	F. GREEN								
REGIONAL ADM.	D. WAGNER			REVISION	DATE	BY			



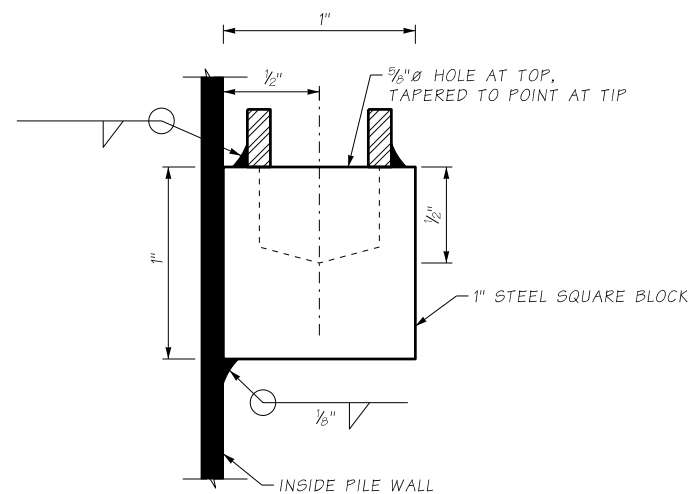
TEST PILE BP-1 INSTRUMENTATION

- NOTES:
1. STRAIN GAGE LEVELS 1 & 2 SHALL CONTAIN AN ADDITIONAL 4 STRAIN GAGES PER LEVEL. ADDITIONAL STRAIN GAGES CAN BE PLACED IMMEDIATELY ABOVE OR BELOW THE PRIMARY STRAIN GAGES.

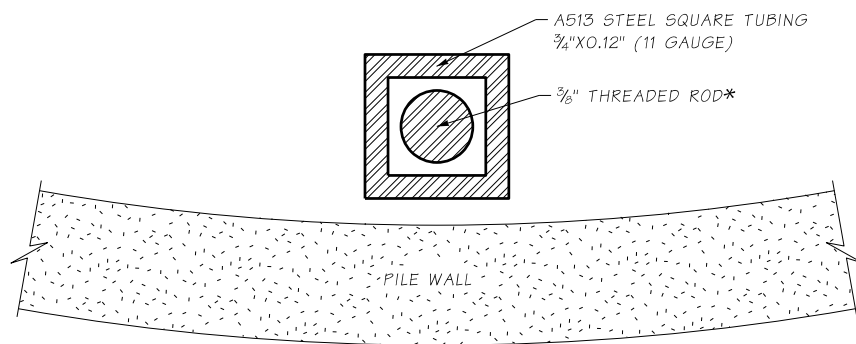
FILE NAME c:\aawork\pw_work\crctburke\dms02031\CR_C_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM BP-1 PILE INSTRUMENTATION	Plot 25 Ref. Sht. Number H6 SHEET 25 OF 38 SHEETS
TIME 9:31:05 AM	DATE 5/11/2011	CONTRACT NO.	CON NO	LOC NO	DATE			
PLOTTED BY burkej	DESIGNED BY P. PIAO	ENTERED BY J. BURKE	CHECKED BY	PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY



FILE NAME: c:\aawork\pw_work\crctburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 26	
TIME: 9:31:07 AM		JOB NUMBER		CONTRACT NO.		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number H7	
DATE: 5/11/2011		JOB NO		CONTRACT NO.		LOC NO		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 26 OF 38 SHEETS	
PLOTTED BY: burkej		CON NO		DATE		DATE		P.E. STAMP BOX		TEST PROGRAM		PILE INSTRUMENTATION DETAILS 1	
DESIGNED BY: P. PIAO		DATE		BY		DATE		P.E. STAMP BOX		REVISION			
ENTERED BY: J. BURKE													
CHECKED BY:													
PROJ. ENGR.: F. GREEN													
REGIONAL ADM.: D. WAGNER													

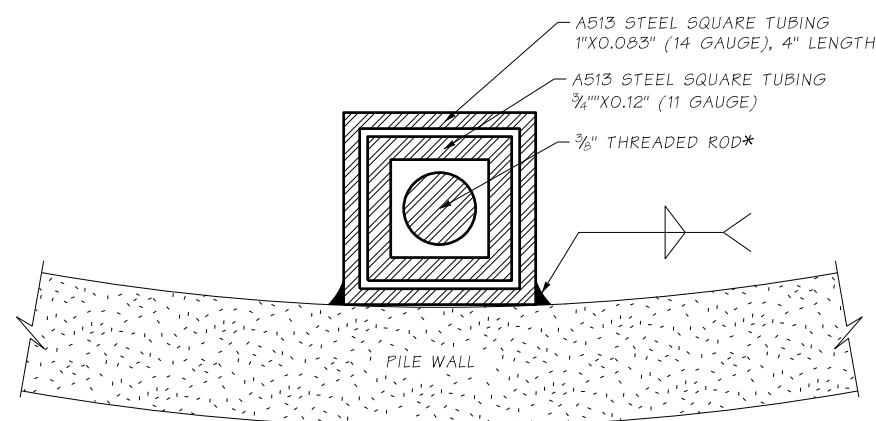


TELLTALE END BLOCK (D)
NOT TO SCALE



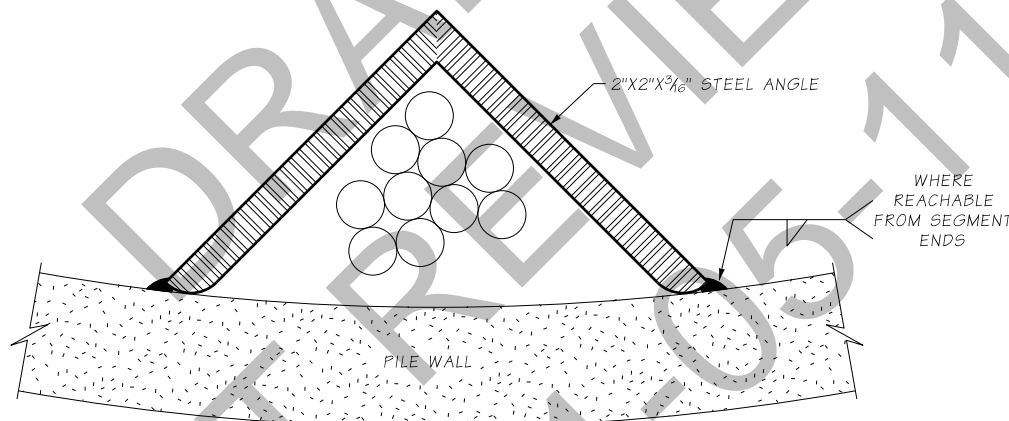
TELLTALE DETAIL (F)
NOT TO SCALE

*INTERNALLY THREADED ROD INSERTED AFTER ALL PILE SEGMENTS DRIVEN, AND BEFORE LOAD TESTING.

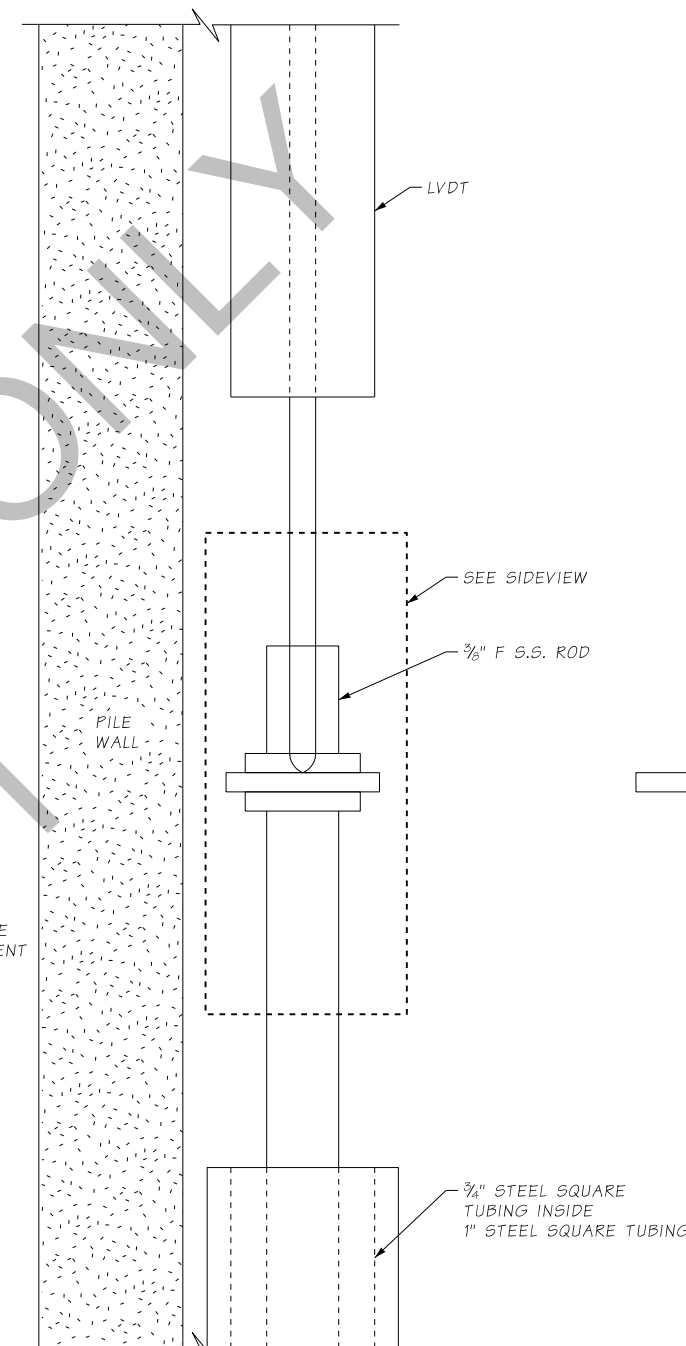


TELL-TALE SUPPORT FIXTURE (E)
NOT TO SCALE

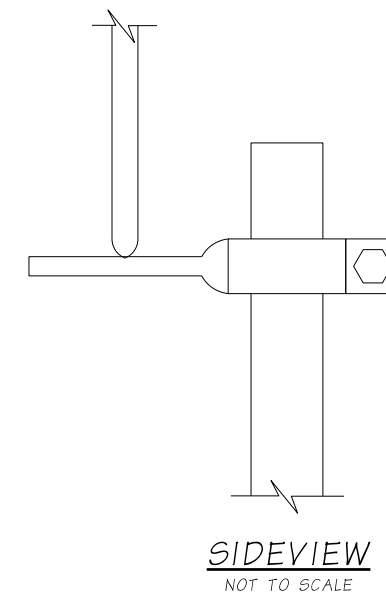
*INTERNALLY THREADED ROD INSERTED AFTER ALL PILE SEGMENTS DRIVEN, AND BEFORE TEST LOADING.



CABLE PROTECTION (G)
NOT TO SCALE

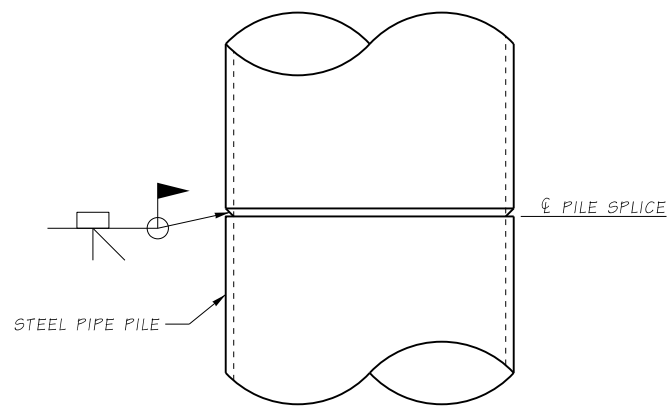


LVDT DETAIL (H)
NOT TO SCALE



SIDEVIEW
NOT TO SCALE

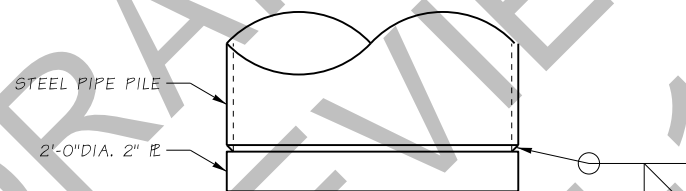
FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM PILE INSTRUMENTATION DETAILS 2	Plot 27 Ref. Sht. Number H8
TIME 9:42:51 AM	DATE 5/11/2011	JOB NUMBER		CONTRACT NO.	LOCATION NO.			
PLOTTED BY burkej	DESIGNED BY P. PIAO	ENTERED BY J. BURKE	CHECKED BY	PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY
CON NO		LOC NO		DATE		DATE		



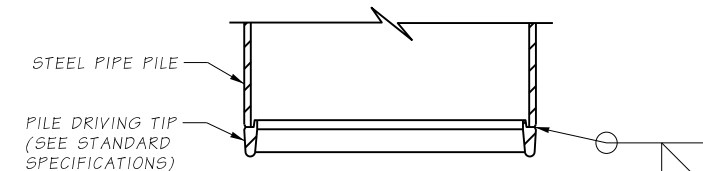
PIPE PILE SPLICE DETAIL (1)
NOT TO SCALE

NOTE:

- 1. PILE SPLICES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.



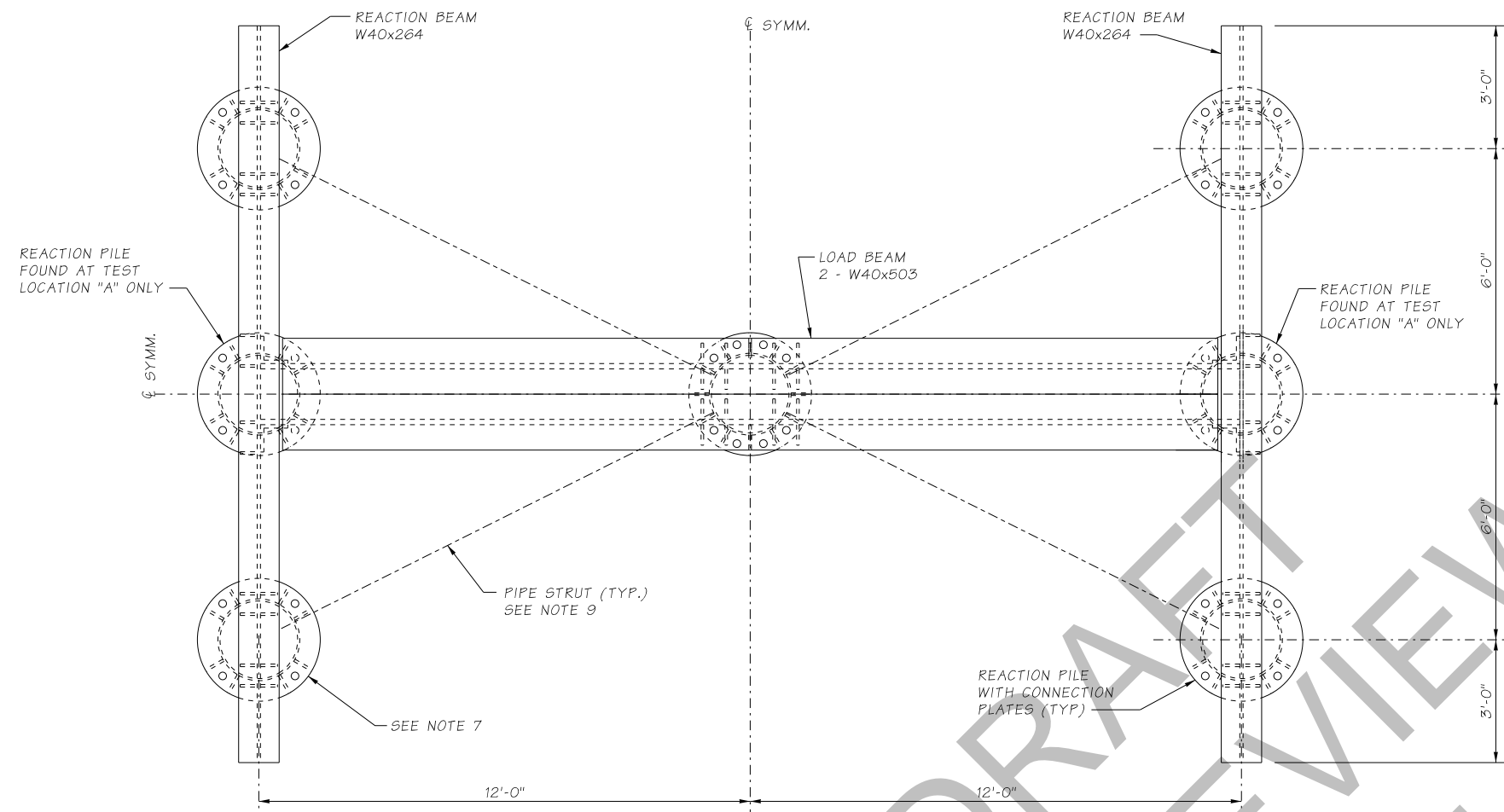
CLOSED END PILE DETAIL (2)
NOT TO SCALE



CUTTING SHOE DETAIL (3)
NOT TO SCALE

FOR DOT REVIEW ONLY

FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM PILE DETAILS	Plot 28 Ref. Sht. Number H9 SHEET 28 OF 38 SHEETS
TIME 9:42:53 AM	DATE 5/11/2011	DESIGNED BY M. DEML	ENTERED BY J. BURKE	CHECKED BY	PROJ. ENGR. F. GREEN			
REVISION		DATE	BY	CON NO	LOC NO	P.E. STAMP BOX	P.E. STAMP BOX	



LOAD FRAME PLAN

NOTES:

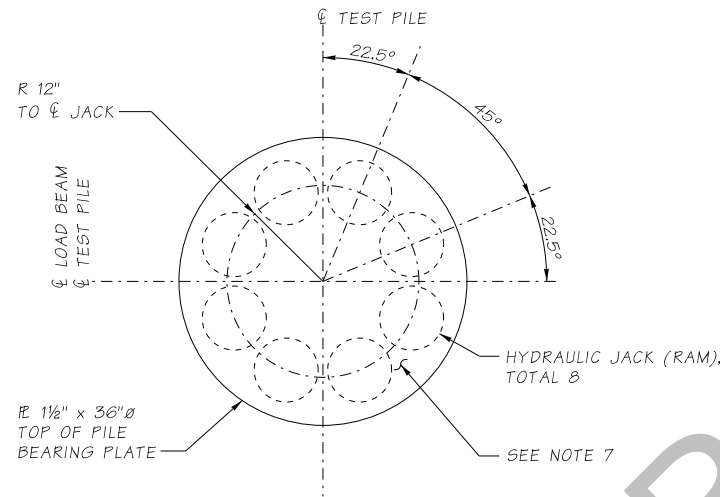
1. COMPRESSION DESIGN LOAD = 2000 KIPS.
FACTORED COMPRESSION LOAD = 3000 KIPS.
TENSION DESIGN LOAD = 1150 KIPS.
FACTORED TENSION LOAD = 1725 KIPS.
2. MAXIMUM LOAD PER RAM FOR COMPRESSION LOAD TEST = 167 TONS.
MAXIMUM LOAD PER RAM FOR TENSION LOAD TEST = 144 TONS.
LOCATION OF JACKS SHALL BE AS SHOWN HEREIN. ANY DEVIATION FROM THESE DRAWING LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
3. ALL WIDE FLANGE BEAMS AND PLATES ARE ASTM A709, GRADE 50.
HSS SHAPES ARE ASTM A500, GRADE B. ROUND PIPE IS ASTM A53, GRADE B.
PIPE PILES ARE ASTM A252, GRADE3.
4. ALL ELECTRODES E70XX.
ALL WELDING IN ACCORDANCE WITH AWS D1.1.
5. ALL BOLTS ASTM A490 1" DIAMETER U.N.O.
BOLTS TO BE INSTALLED BY TURN-OF-NUT METHOD.
BOLT THREADS TO BE EXCLUDED FROM SHEAR PLANES.
6. CONTRACTOR SHALL PROVIDE SHIMS AS REQUIRED FOR REACTION PILES AT TEST LOCATION A, SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. CONNECTION BARS, SHAPES AND HARDWARE NOT SHOWN FOR CLARITY. SEE SHEETS 3 AND 4 FOR DETAILS.
8. ADJUST SHIM DIMENSIONS AS REQUIRED TO PROVIDE STABLE, INTERLOCKING UNITS SUBJECT TO THE APPROVAL OF THE ENGINEER.
9. PIPE STRUTS, OR TENSION TIES, SHALL BE PROVIDED AT TOP AND BOTTOM FLANGES OF BEAMS FOR STABILITY.

PRE-INSTALLATION PROCEDURE

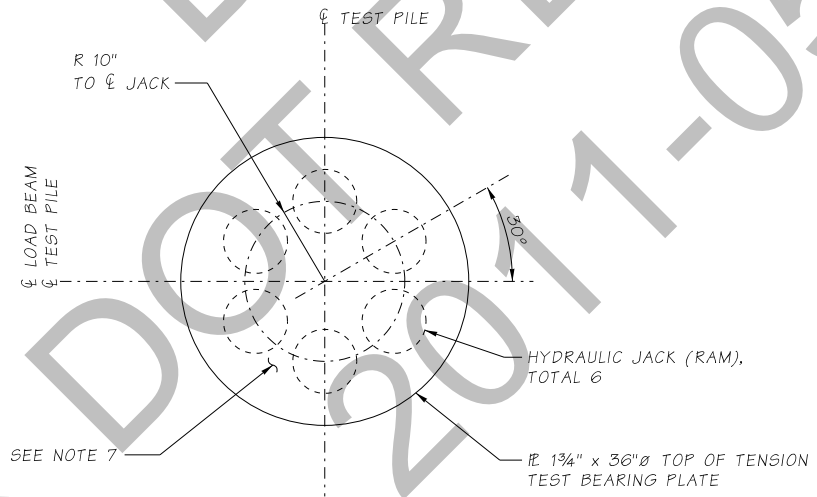
1. FIELD MEASURE PILES AFTER DRIVING AT BOTH SITE LOCATIONS AND CONFIRM FRAME GEOMETRY WITH ENGINEER PRIOR TO FABRICATION.
2. ANY ADJUSTMENTS TO FRAME GEOMETRY SHALL BE APPROVED BY THE ENGINEER.

JACKING PROCEDURE

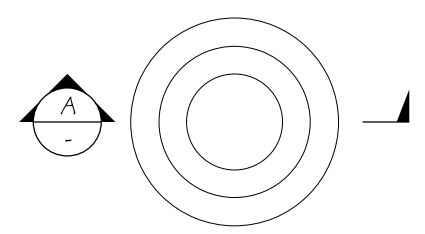
1. TEST PROCEDURE, LOADING INCREMENTS AND RATES, ETC. TO COMPLY WITH REQUIREMENTS OF GEOTECHNICAL ENGINEER.
2. TOTAL LOAD ON RAMS FOR COMPRESSION TEST SHALL NOT EXCEED 2000 KIPS. TOTAL LOAD ON RAMS FOR TENSION TEST SHALL NOT EXCEED 1150 KIPS. CONTRACTOR SHALL USE AN APPROVED SYSTEM TO PROVIDE EQUAL PRESSURE TO ALL LOADED RAMS.
3. WHEN RETRACTING RAMS TO INSTALL SHIMS NO MORE THAN 2 RAMS MAY BE RETRACTED AT ANY TIME. THE 2 RAMS BEING RETRACTED SHALL BE LOCATED 180° TO EACH OTHER.
4. TOTAL LOADS FROM RAMS SHALL BE SYMMETRIC ABOUT CENTERLINE OF LOAD BEAMS AT ALL TIMES.



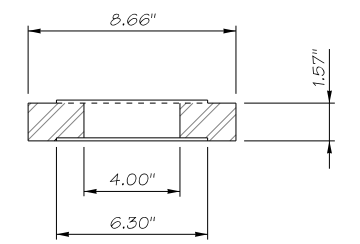
JACK & LOAD CELL PLAN FOR COMPRESSION LOADING



JACK & LOAD CELL PLAN FOR TENSION LOADING

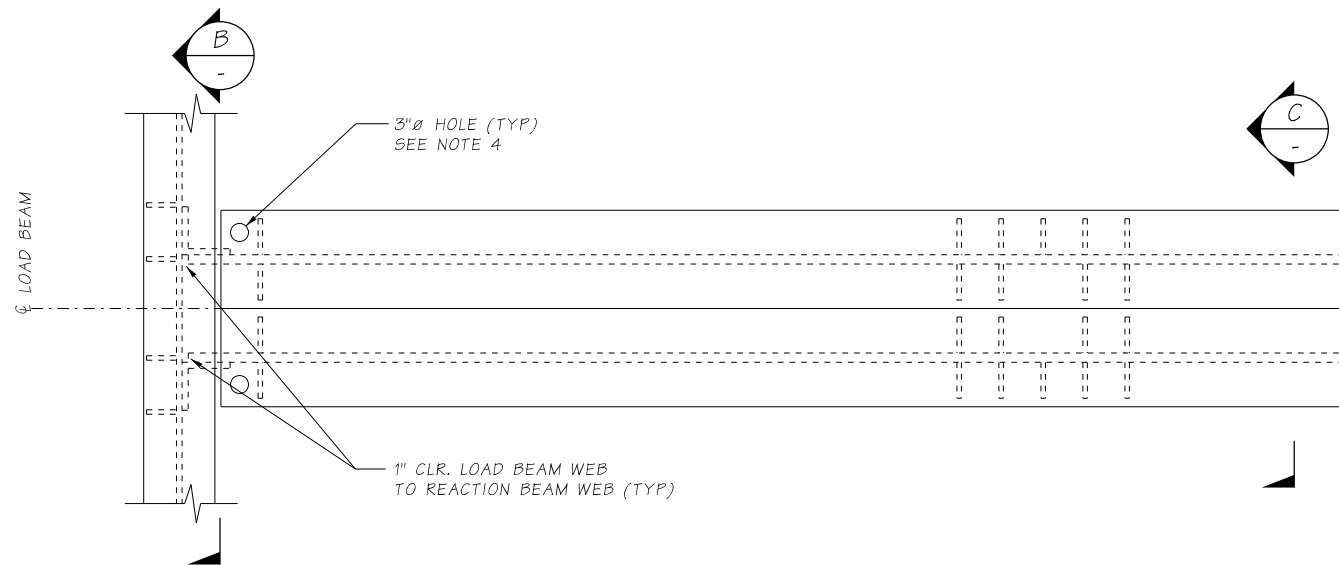


PROPOSED SHIMS

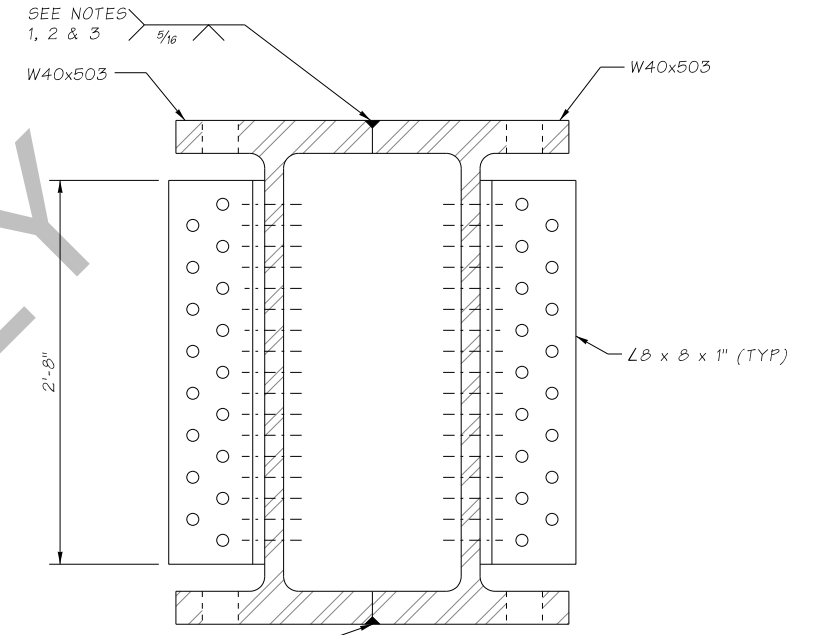


SECTION A-A

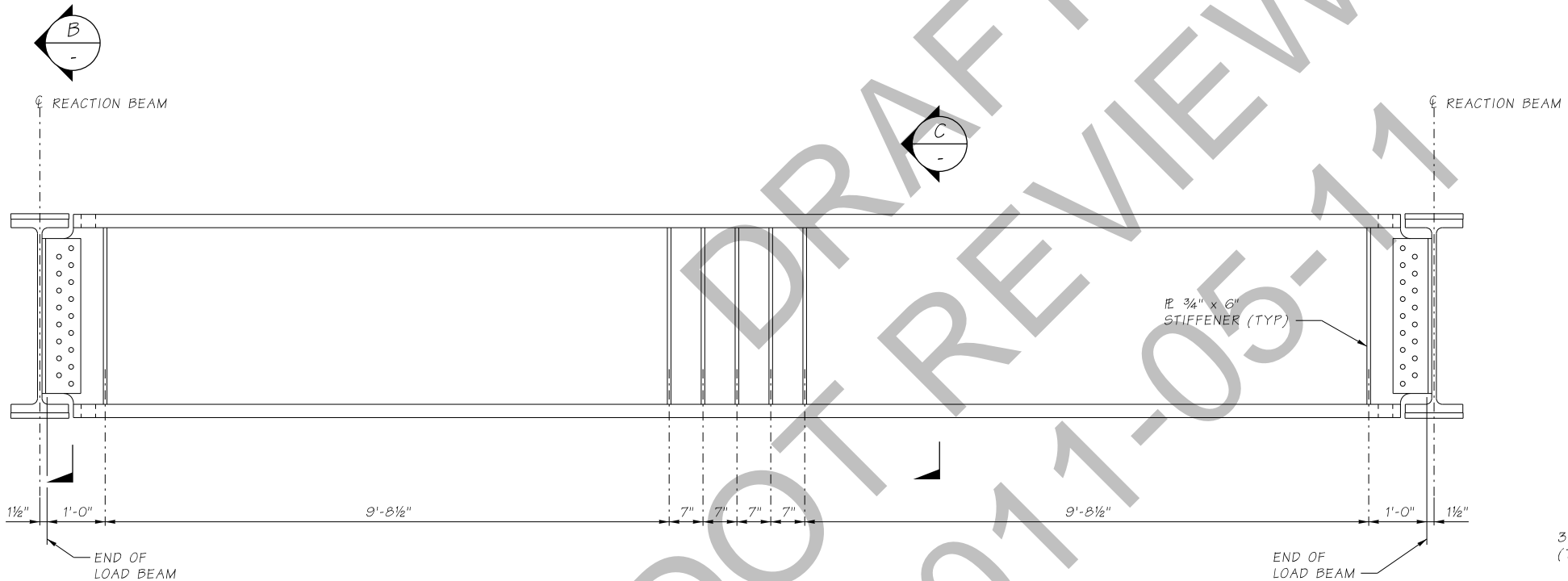
FILE NAME: c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 29	
TIME: 9:42:57 AM		JOB NUMBER		JOB NO		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number J1	
DATE: 5/11/2011		CONTRACT NO.		CON NO		LOC NO		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 29 OF 38 SHEETS	
PLOTTED BY: burkej		DATE		DATE		DATE		COLUMBIA RIVER CROSSING		TEST PROGRAM			
DESIGNED BY: C. WERTS		REVISION		REVISION		REVISION		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 1			
ENTERED BY: T. KING		DATE		DATE		DATE		COLUMBIA RIVER CROSSING					
CHECKED BY:		BY		BY		BY		COLUMBIA RIVER CROSSING					
PROJ. ENGR.: F. GREEN								COLUMBIA RIVER CROSSING					
REGIONAL ADM.: D. WAGNER								COLUMBIA RIVER CROSSING					



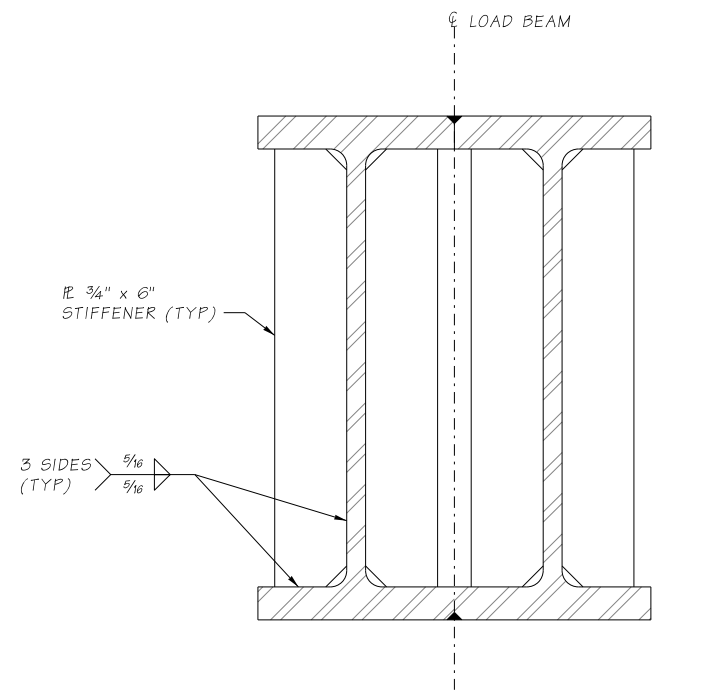
LOAD BEAM PLAN



SECTION B-B



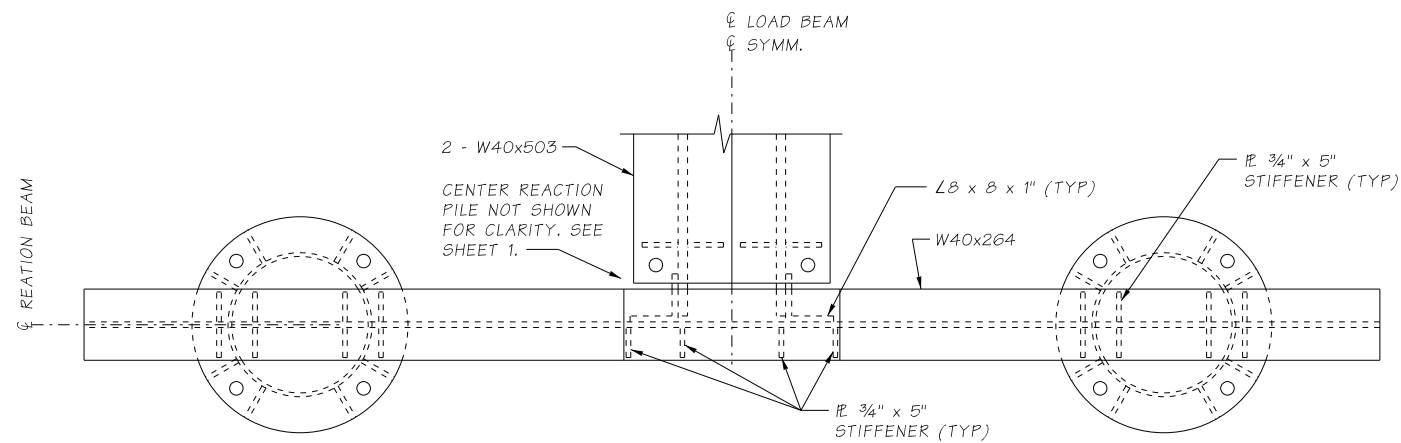
LOAD BEAM ELEVATION



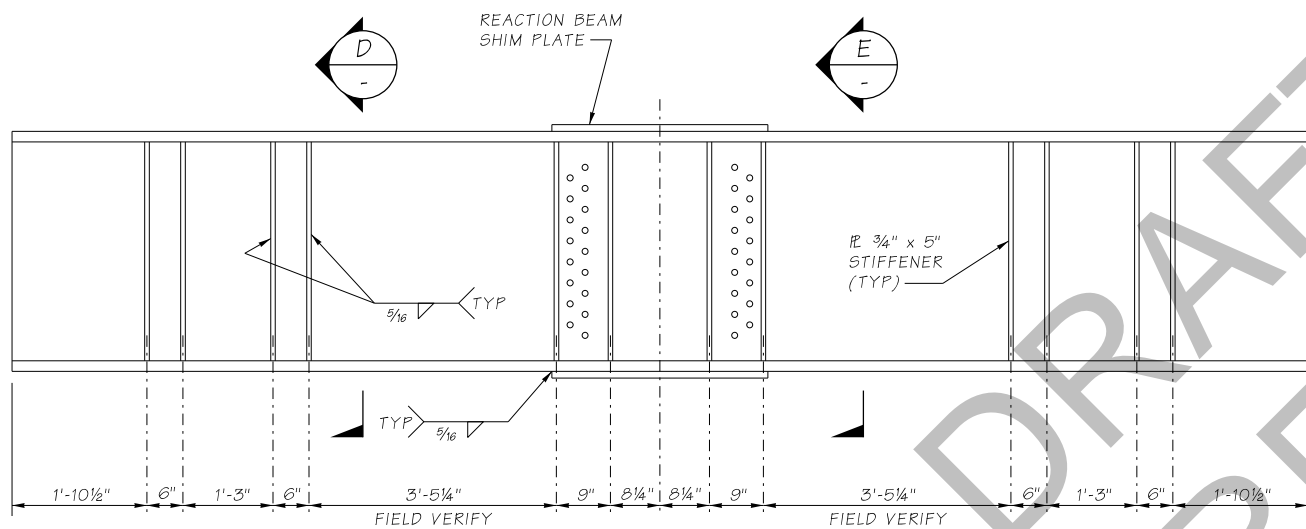
SECTION C-C

- NOTES:
1. USE 36" LONG V-GROOVE WELD TOP AND BOTTOM AT MIDSPAN OF LOAD BEAM.
 2. USE 12" LONG V-GROOVE WELD TOP AND BOTTOM AT ENDS OF LOAD BEAMS.
 3. USE 6" ON 36" STITCH V-GROOVE WELD TOP AND BOTTOM BETWEEN ENDS AND MIDSPAN WELDS.
 4. FIELD VERIFY LOCATION OF CENTER REACTION PILES PRIOR TO DRILLING HOLES IN FLANGE.
 5. CONFIRM LOCATION OF CONNECTION ANGLE HOLES IN CONSTRUCTED LOAD BEAM PRIOR TO DRILLING HOLES IN REACTION BEAM WEB.

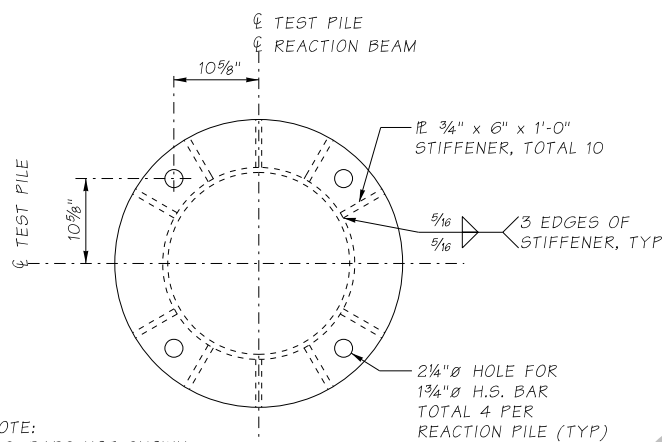
FILE NAME: c:\aawork\lpw_work\crctburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM LOAD FRAME DETAIL 2	Plot 30 Ref. Sht. Number J2
TIME: 9:31:12 AM	DATE: 5/11/2011	JOB NO		CONTRACT NO.	LOCATION NO.			
PLOTTED BY: burkej	DESIGNED BY: C. WERTS	ENTERED BY: T. KING	CHECKED BY:	PROJ. ENGR.: F. GREEN	REGIONAL ADM.: D. WAGNER	REVISION	DATE	BY
P.E. STAMP BOX		P.E. STAMP BOX		DATE				



REACTION BEAM PLAN

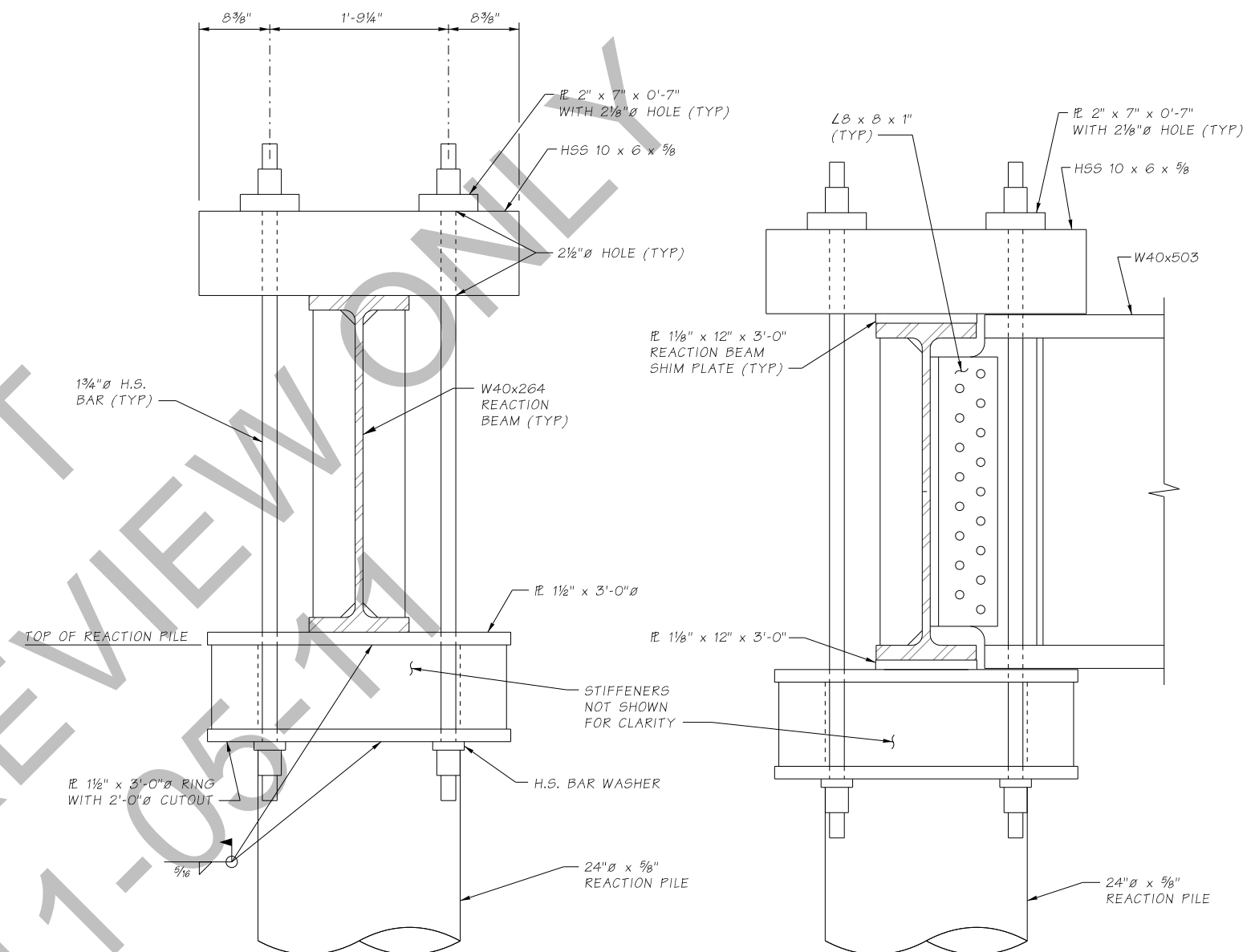


REACTION BEAM ELEVATION



REACTION PILE PLAN

NOTE:
H.S. BARS NOT SHOWN
FOR CLARITY.



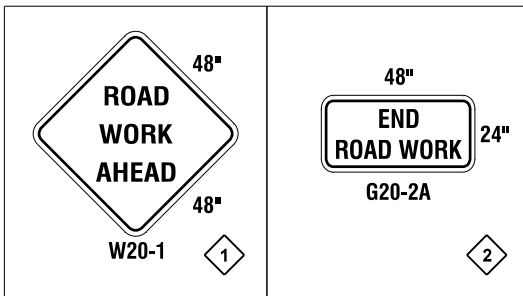
SECTION D

SECTION E

NOTE:
ALL H.S. BARS FOR REACTION PILES SHALL BE
WRENCH TIGHT PRIOR TO TEST LOAD APPLICATION.

FILE NAME: c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 31	
TIME: 9:31:16 AM		JOB NUMBER		JOB NO		LOCATION NO.		Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number J3	
DATE: 5/11/2011		CONTRACT NO.		CON NO		LOC NO		Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 31 OF 38 SHEETS	
PLOTTED BY: burkej		DATE		DATE		DATE		COLUMBIA RIVER CROSSING		TEST PROGRAM		LOAD FRAME DETAIL 3	
DESIGNED BY: C. WERTS		BY		BY		BY		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 3		LOAD FRAME DETAIL 3	
ENTERED BY: T. KING		REVISION		REVISION		REVISION		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 3		LOAD FRAME DETAIL 3	
CHECKED BY:		DATE		DATE		DATE		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 3		LOAD FRAME DETAIL 3	
PROJ. ENGR.: F. GREEN		DATE		DATE		DATE		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 3		LOAD FRAME DETAIL 3	
REGIONAL ADM.: D. WAGNER		DATE		DATE		DATE		COLUMBIA RIVER CROSSING		LOAD FRAME DETAIL 3		LOAD FRAME DETAIL 3	

T. 2N., R.1E., W.M.



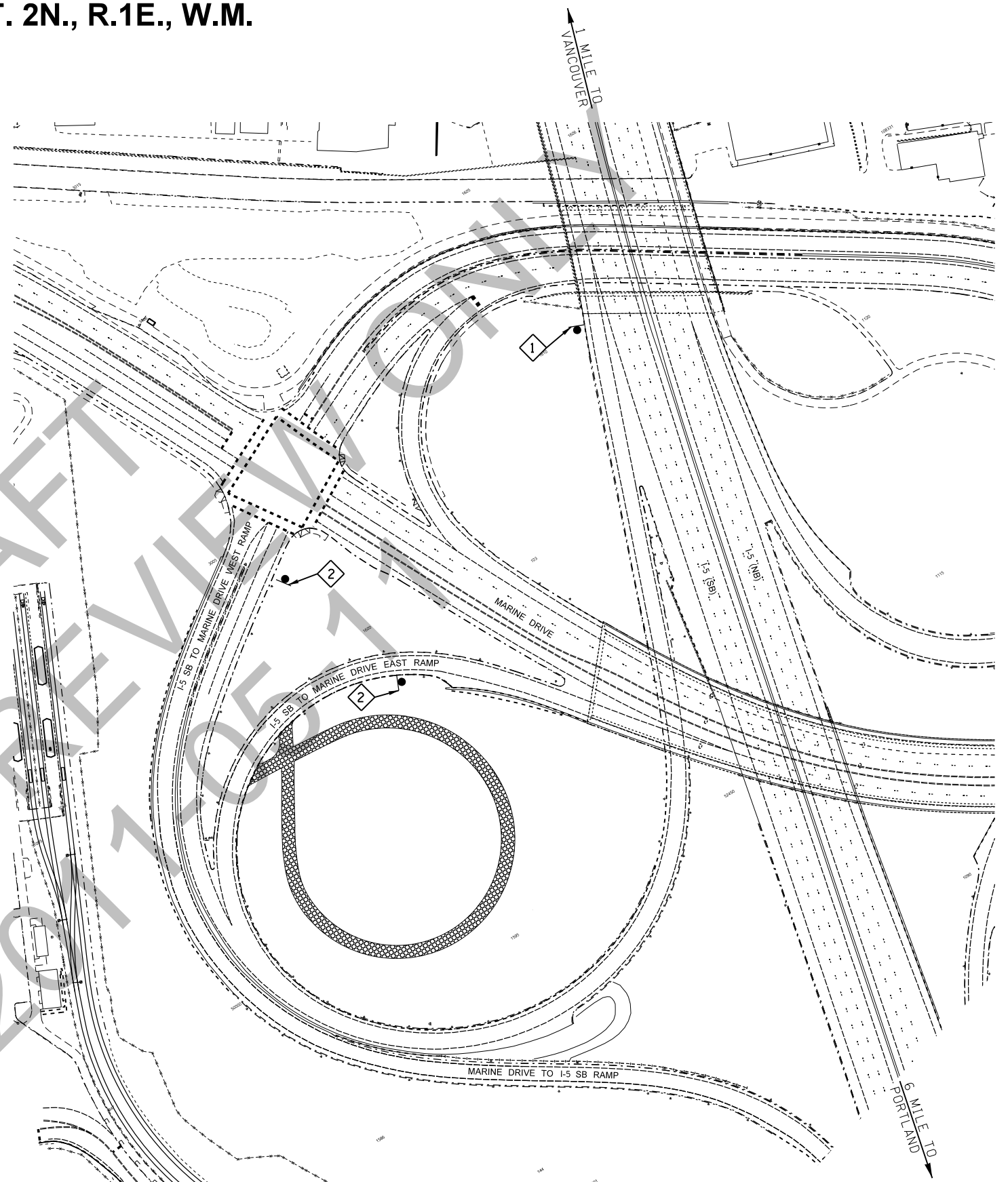
CONSTRUCTION SIGNS CL. A

NOTES:

1. NTS: NOT TO SCALE
2. SIGN LOCATIONS ARE APPROXIMATE
3. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS NOTED OTHERWISE
2. PCMS SIGNS SHAL BE PLACED 7 DAYS PRIOR TO ANY RAMP CLOSURE

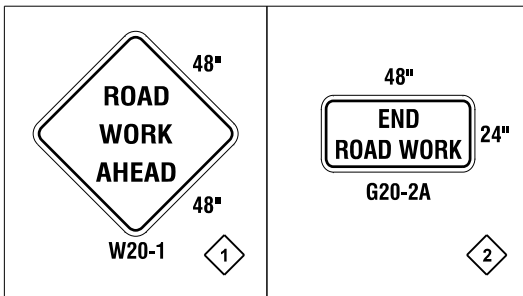
LEGEND

- SIGN
- ◇ SIGN NOTE
- PCMS PCMS SIGN



FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	 Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM	Plot 33 Ref. Sht. Number K1 SHEET 33 OF 38 SHEETS
TIME 9:31:21 AM	DATE 5/11/2011	JOB NO		LOCATION NO.	DATE			
PLOTTED BY burkej	DESIGNED BY D. TERAN	CONTRACT NO.		LOC NO	P.E. STAMP BOX	P.E. STAMP BOX	CONSTRUCTION SIGNS CL. A SITE A	
ENTERED BY D. TERAN	CHECKED BY	REVISION	DATE	BY				
PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER							

T. 2N., R.1E., W.M.



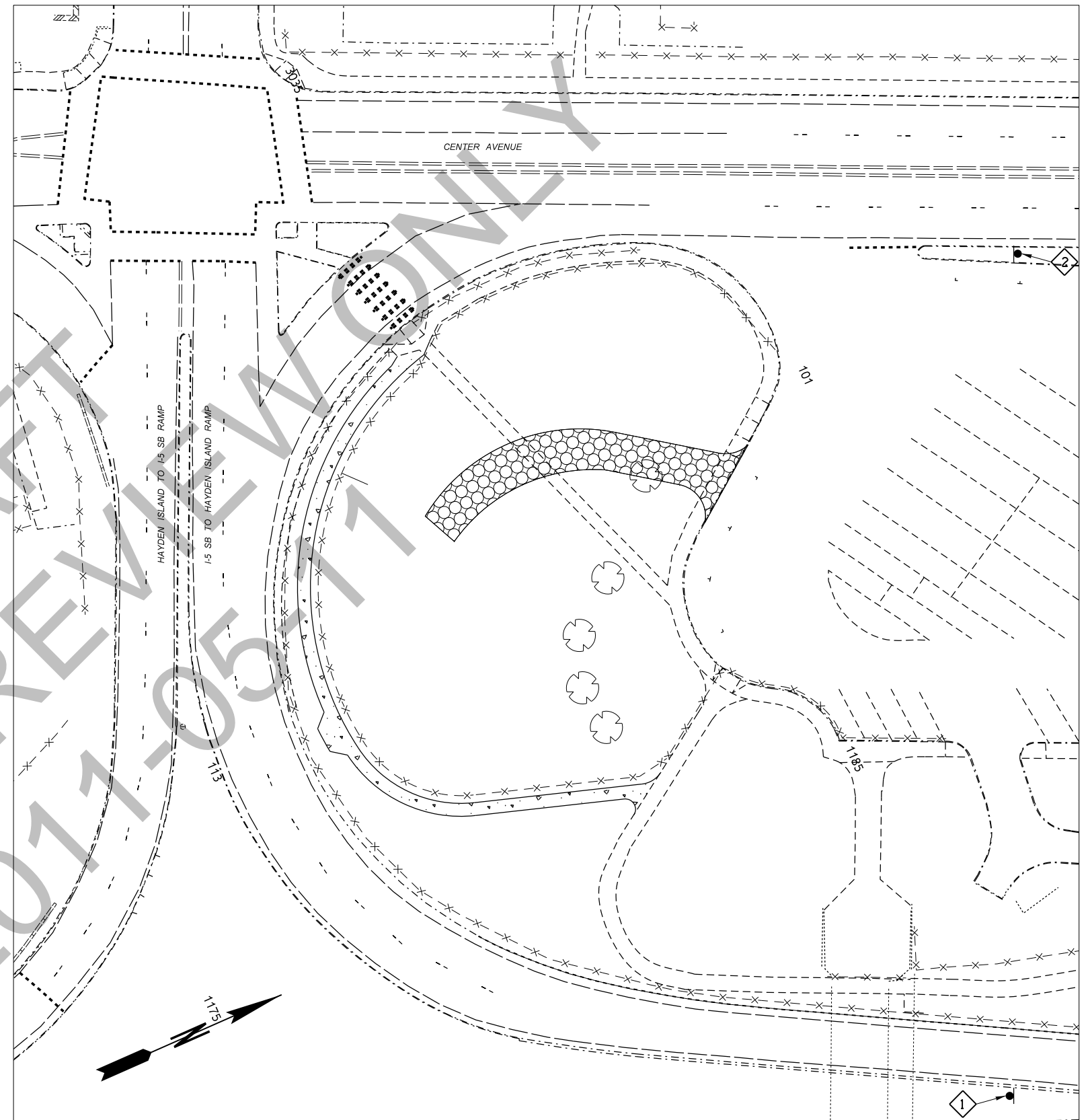
CONSTRUCTION SIGNS CL. A

NOTES:

1. NTS: NOT TO SCALE
2. SIGN LOCATIONS ARE APPROXIMATE
3. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS NOTED OTHERWISE
2. PCMS SIGNS SHAL BE PLACED 7 DAYS PRIOR TO ANY RAMP CLOSURE

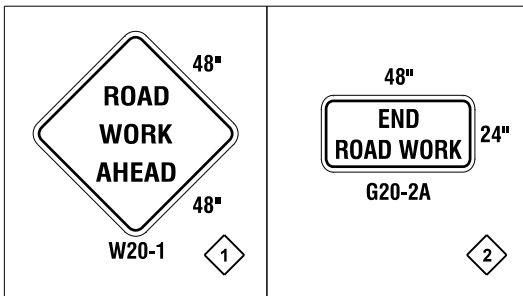
LEGEND

- SIGN
- ◇ SIGN NOTE
- PCMS PCMS SIGN



FILE NAME c:\aawork\pw_work\crc\burke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. 10		STATE WASH	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM CONSTRUCTION SIGNS CL. A SITE B	Plot 34 Ref. Sht. Number K2
TIME 9:43:02 AM	DATE 5/11/2011	PLOTTED BY burkej	DESIGNED BY D. TERAN	ENTERED BY D. TERAN	CHECKED BY			
REVISION		DATE	BY	CON NO	LOC NO	P.E. STAMP BOX	DATE	P.E. STAMP BOX

T. 2N., R.1E., W.M.



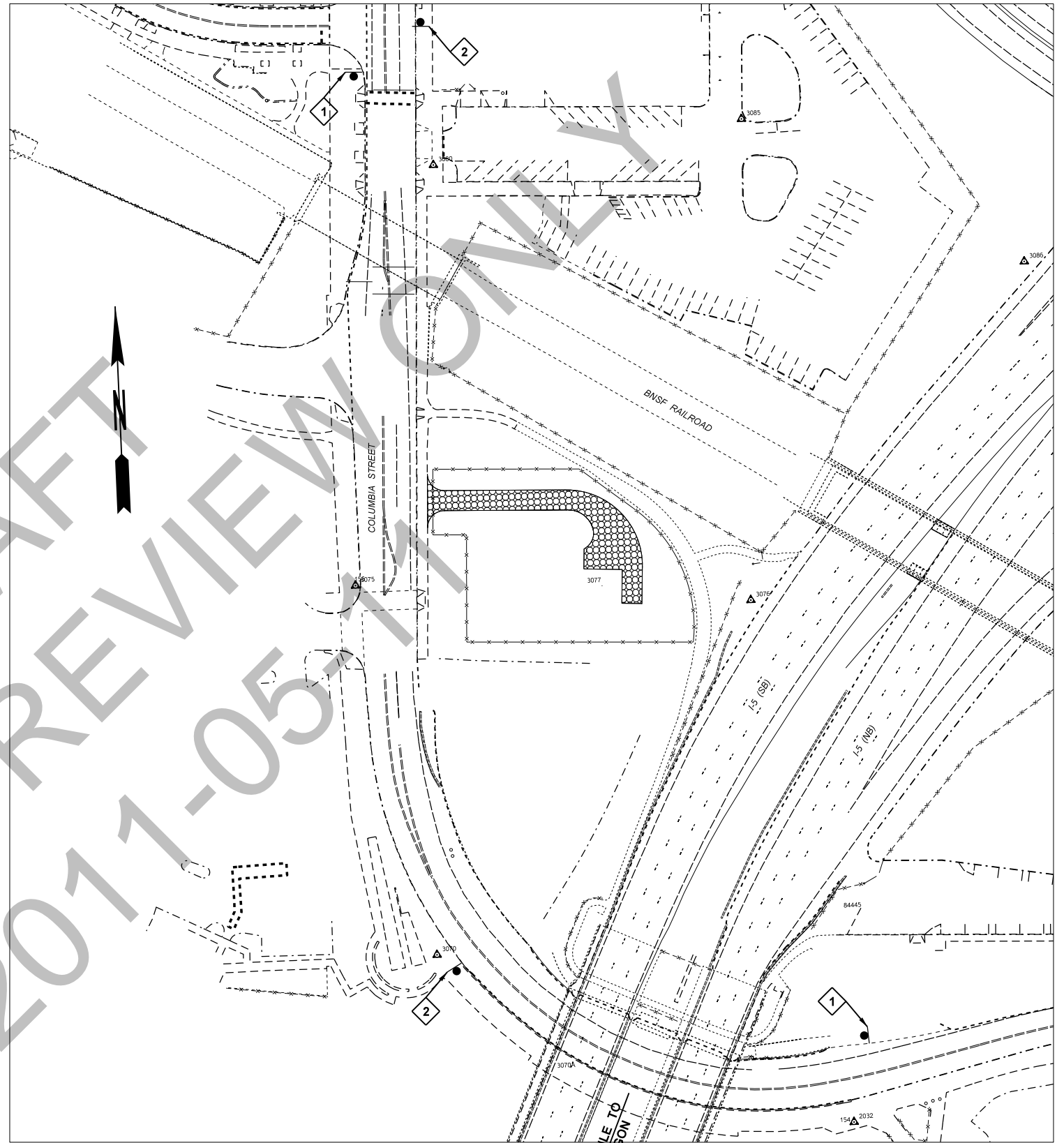
CONSTRUCTION SIGNS CL. A

NOTES:

1. NTS: NOT TO SCALE
2. SIGN LOCATIONS ARE APPROXIMATE
3. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS NOTED OTHERWISE
2. PCMS SIGNS SHAL BE PLACED 7 DAYS PRIOR TO ANY RAMP CLOSURE

LEGEND

- SIGN
- ◇ SIGN NOTE
- PCMS PCMS SIGN



FILE NAME c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn		REGION NO. STATE		FED.AID PROJ.NO.		Washington State Department of Transportation		I-5		Plot 35	
TIME 9:43:04 AM		10 WASH				Oregon Department of Transportation		COLUMBIA RIVER CROSSING		Ref. Sht. Number K3	
DATE 5/11/2011		JOB NO				Columbia River CROSSING		DRILLED SHAFT & DRIVEN PILE		SHEET 35 OF 38 SHEETS	
PLOTTED BY burkej		CONTRACT NO.		LOCATION NO.				TEST PROGRAM			
DESIGNED BY D. TERAN		CON NO		LOC NO				CONSTRUCTION SIGNS CL. A SITE C			
ENTERED BY D. TERAN		DATE		BY		DATE					
CHECKED BY											
PROJ. ENGR. F. GREEN											
REGIONAL ADM. D. WAGNER		REVISION		DATE		DATE					

T. 2N., R.1E., W.M.

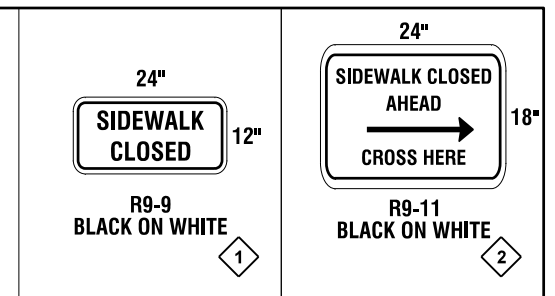
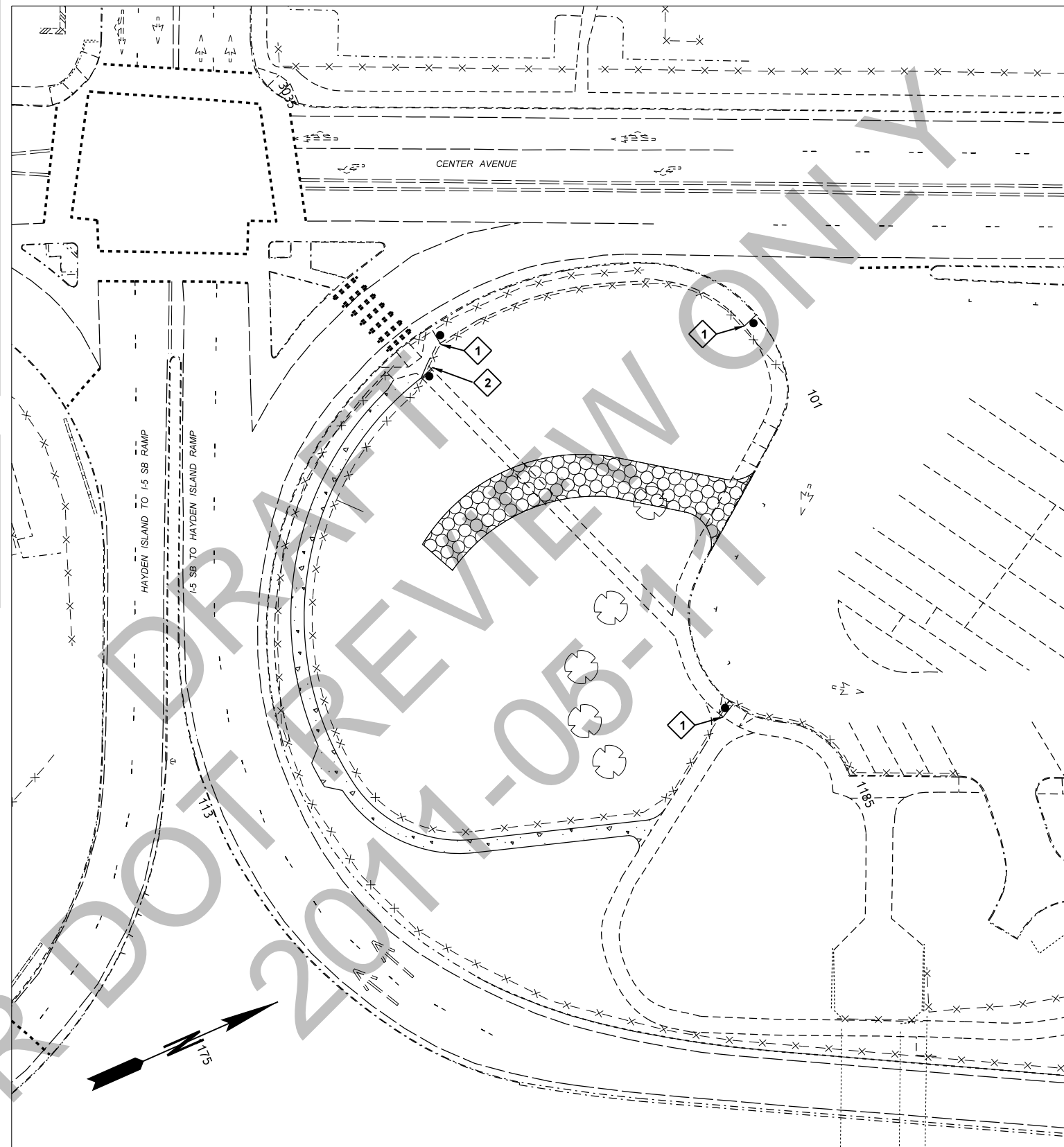
BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730
PROTECTIVE VEHICLE WITH TMA ROLL AHEAD DISTANCE										
TYPICAL PROTECTIVE VEHICLE TYPE WITH TMA	TYPICAL PROTECTIVE VEHICLE (WITH TMA) LOADED WEIGHT (LBS)								STATIONARY OPERATION (feet)	
4 YARD DUMP TRUCK, SERVICE TRUCK, FLAT BED, ETC.	MINIMUM WEIGHT 15,000 LBS. (MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS)								30	
ROLL AHEAD STOPPING SIGHT DISTANCE ASSUMES DRY PAVEMENT										
* A PROTECTIVE VEHICLE IS RECOMMENDED REGARDLESS IF A TMA IS AVAILABLE. IF NO TMA IS USED, THE PROTECTIVE VEHICLE SHALL BE STRATEGICALLY LOCATED IN THE FIELD TO SHIELD WORKERS, NO ROLL AHEAD DISTANCE IS SPECIFIED.										
** A SECOND ATTENUATOR TRUCK SHALL BE USED TO PROTECT THE OPERATOR FOR REMOVAL AND PLACING OF RPM'S.										

MINIMUM 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

SIGN SPACING = X		
FREEWAYS & EXPRESSWAYS	60 / 65 MPH	1500' ± (OR AS PER MUTCD)
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±
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.

LEGEND	
	SIGN LOCATION - TRIPOD MOUNT
	TEMPORARY TRAFFIC CONTROL DEVICES
	FLAGGING STATION
	PROTECTIVE VEHICLE
	SIGN NOTE
	PCMS SIGN



CONSTRUCTION SIGNS CL. B

- NOTES:**
1. FLAGGER STATION SHALL BE ILLUMINATED DURING HOURS OF DARKNESS.
 2. EXTEND DEVICE TAPER ACROSS SHOULDER
 3. FLAGGING LOCATIONS SHALL BE REVISED AS NEEDED
 4. NTS. NOT TO SCALE
 5. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS NOTED OTHERWISE
 6. SIGN LOCATIONS ARE APPROXIMATE
 7. PCMS SIGNS SHALL BE PLACED 7 DAYS PRIOR TO ANY RAMP CLOSURE

DRAFT
4/11/11
NOT TO SCALE

ALL SIGNS ARE 48"x48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED

FILE NAME	c:\aawork\pw_work\crtburke\dms02031\CRC_PS_BG_TestPile.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation Oregon Department of Transportation Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM TRAFFIC CONTROL PLAN SITE B	Plot 37 Ref. Sht. Number K5
TIME	9:43:10 AM			10	WASH				
DATE	5/11/2011			JOB NUMBER					SHEET 37 OF 38 SHEETS
PLOTTED BY	burkej			CONTRACT NO.					
DESIGNED BY	D. TERAN			LOCATION NO.					
ENTERED BY	D. TERAN			JOB NO					
CHECKED BY				CON NO					
PROJ. ENGR.	F. GREEN			LOC NO					
REGIONAL ADM.	D. WAGNER			REVISION					
				DATE	BY				

T. 2N., R.1E., W.M.

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
PROTECTIVE VEHICLE WITH TMA ROLL AHEAD DISTANCE										
TYPICAL PROTECTIVE VEHICLE TYPE WITH TMA	TYPICAL PROTECTIVE VEHICLE (WITH TMA) LOADED WEIGHT (LBS)								STATIONARY OPERATION (feet)	
4 YARD DUMP TRUCK, SERVICE TRUCK, FLAT BED, ETC.	MINIMUM WEIGHT 15,000 LBS. (MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS)								30	
ROLL AHEAD STOPPING SIGHT DISTANCE ASSUMES DRY PAVEMENT										
* A PROTECTIVE VEHICLE IS RECOMMENDED REGARDLESS IF A TMA IS AVAILABLE. IF NO TMA IS USED, THE PROTECTIVE VEHICLE SHALL BE STRATEGICALLY LOCATED IN THE FIELD TO SHIELD WORKERS, NO ROLL AHEAD DISTANCE IS SPECIFIED.										
** A SECOND ATTENUATOR TRUCK SHALL BE USED TO PROTECT THE OPERATOR FOR REMOVAL AND PLACING OF RPM'S.										

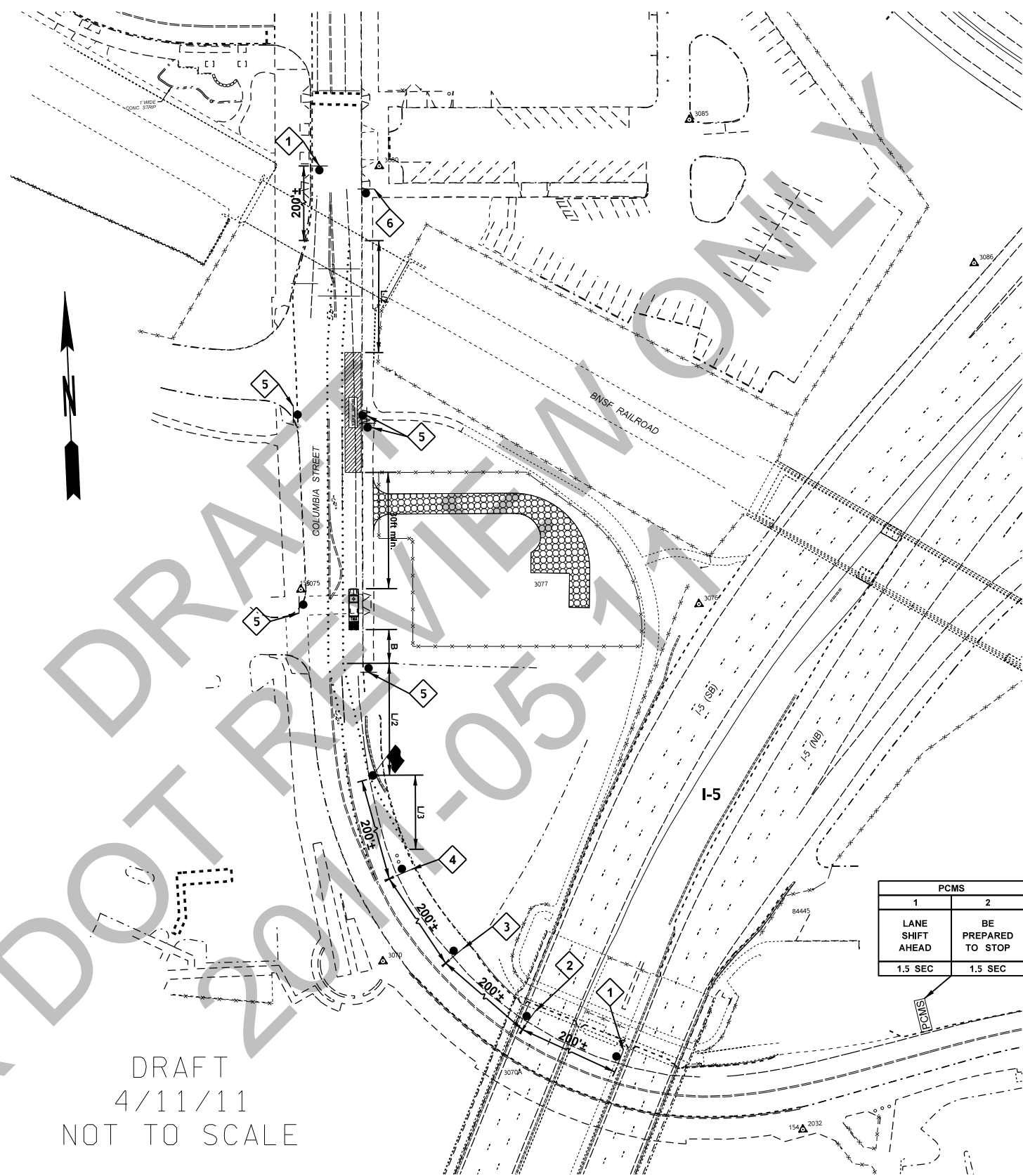
MINIMUM TAPER LENGTH = L (feet)										
LANE WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	780	840

SIGN SPACING = X		
FREEWAYS & EXPRESSWAYS	60 / 65 MPH	1500' ± (OR AS PER MUTCD)
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±
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.

LEGEND

- SIGN LOCATION - TRIPOD MOUNT
- TEMPORARY TRAFFIC CONTROL DEVICES
- FLAGGING STATION
- PROTECTIVE VEHICLE
- SIGN NOTE
- PCMS SIGN



 ROAD WORK AHEAD W20-1	 W1-4(L)
 BE PREPARED TO STOP W20-7B	 W20-7A
 R9-9 BLACK ON WHITE	 R9-11 BLACK ON WHITE

CONSTRUCTION SIGNS CL. B

- NOTES:**
1. FLAGGER STATION SHALL BE ILLUMINATED DURING HOURS OF DARKNESS.
 2. EXTEND DEVICE TAPER ACROSS SHOULDER
 3. FLAGGING LOCATIONS SHALL BE REVISED AS NEEDED
 4. NTS. NOT TO SCALE
 5. ALL SIGNS SHALL BE BLACK ON ORANGE UNLESS NOTED OTHERWISE
 6. SIGN LOCATIONS ARE APPROXIMATE
 7. PCMS SIGNS SHALL BE PLACED 7 DAYS PRIOR TO ANY RAMP CLOSURE
 8. SEE WORK ZONE TRAFFIC CONTROL STANDARD PLAN K-22.20-01

PCMS	
1	2
LANE SHIFT AHEAD 1.5 SEC	BE PREPARED TO STOP 1.5 SEC

CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40

ALL SIGNS ARE 48"x48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED

FILE NAME c:\aawork\lpw_work\crtburke\dms02031\CR_C_PS_BG_TestPile.dgn	TIME 9:43:13 AM	DATE 5/11/2011	PLOTTED BY burkej	DESIGNED BY D. TERAN	ENTERED BY D. TERAN	CHECKED BY	PROJ. ENGR. F. GREEN	REGIONAL ADM. D. WAGNER	REVISION	DATE	BY	CON NO	LOC NO	FED.AID PROJ.NO.	REGION NO. 10	STATE WASH	Washing State Department of Transportation	Oregon Department of Transportation	Columbia River CROSSING	I-5 COLUMBIA RIVER CROSSING DRILLED SHAFT & DRIVEN PILE TEST PROGRAM TRAFFIC CONTROL PLAN SITE C	Plot 38 Ref. Sht. Number K6	SHEET 38 OF 38 SHEETS
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