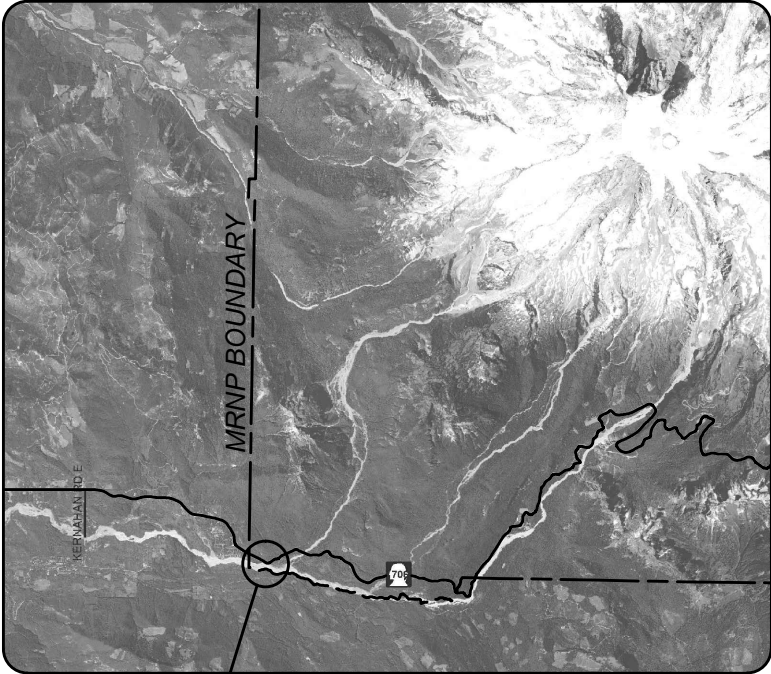
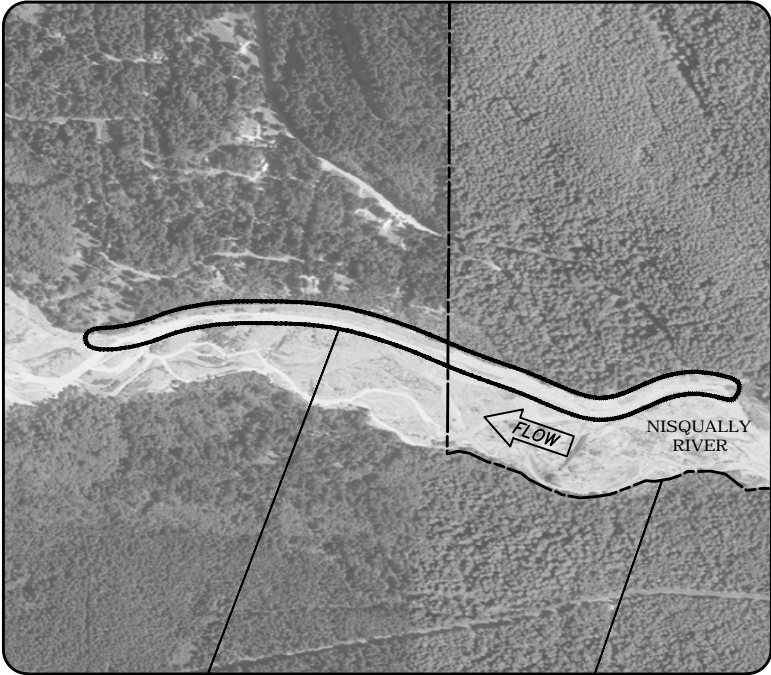


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Xrefs: [P:\1360\NISQUALLY LEVEE REPAIR - 2006\WHP\AS-BUILT SV\NISQUALLY AS-BUILT.DWG]

S34, T15N, R7E, W.M.



PROJECT SITE VICINITY MAP  
(NOT TO SCALE)



PROJECT SITE PROJECT MAP  
(NOT TO SCALE) MRNP BOUNDARY

# UPPER NISQUALLY RIVER MRNP REVETMENT RETROFIT C.I.P. # 1411

SHEET INDEX	
COVER	1
ACCESS AND DIVERSION PLAN	2
PLAN	3 - 5
DEFLECTOR DETAIL	6

SUMMARY OF QUANTITIES			
ITEM	QUANTITY	UNIT	ITEM DESCRIPTION
PREPARATION			
1	LUMP SUM	L.S.	MOBILIZATION
2	LUMP SUM	L.S.	SITE PREPARATION, ACCESS, STAGING
EROSION CONTROL AND ROADSIDE RESTORATION			
3	50	DAY	ESC LEAD
4	400	S.Y.	STABILIZED CONSTRUCTION ENTRANCE
5	4000	EACH	PLANT SELECTION - SITKA WILLOW (LIVE STAKE) (Salix sitchensis)
6	EST. 20,000	DOL	EROSION/WATER POLLUTION CONTROL
OTHER ITEMS			
8	LUMP SUM	L.S.	SURVEYING
9	LUMP SUM	L.S.	SPCC PLAN
10	LUMP SUM	L.S.	TEMPORARY DEWATERING AND STREAM BYPASS
13	28	EACH	ROCK DEFLECTOR
14	LUMP SUM	L.S.	TRIMMING AND CLEANUP
15	EST. 25,000	DOL	MINOR CHANGE



CALL 2 WORKING DAYS BEFORE YOU  
1-800-424-5555  
UTILITIES UNDERGROUND LOCATION CE

## SURVEY INFORMATION

THE SURVEY INFORMATION USED IN THIS PROJECT WAS DERIVED FROM THE FOLLOWING SOURCES:

### LIDAR ELEVATION INFORMATION:

LIDAR BARE EARTH DEM [COMPUTER FILE]. (2009). LEWIS COUNTY, AVAILABLE: PUGET SOUND LIDAR CONSORTIUM, SEATTLE, WA  
[HTTP://PUGETSOUNDLIDAR.ESS.WASHINGTON.EDU/LIDAR\\_DATA/RESTRICTED/PROJECTS/2009LEWIS.HTML](http://pugetsoundlidar.ess.washington.edu/lidar_data/restricted/projects/2009lewis.html)

### AS-BUILT SURVEY BY PIERCE COUNTY:

NISQUALLY PARK LEVEE SURVEY 2006 PERFORMED BY WH&PACIFIC. SURVEY NOTES AS FOLLOWS:

- HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM, NAD 83/91, SOUTH ZONE.
- VERTICAL DATUM: NGVD 29
- FIELD MEASUREMENTS FOR THIS SURVEY WERE PERFORMED DURING FEBRUARY 2007 WITH A TCRA 1101 TOTAL STATION, AND A OR EXCEED A LINEAR CLOSURE OF 1:15,000. ALL PRIMARY MEASUREMENT EQUIPMENT UTILIZED HAS BEEN COMPARED AND ADJUSTED TO A NATIONAL GEODETIC SURVEY CALIBRATED BASELINE WITHIN THE LAST YEAR.
- UTILITIES SHOWN ON THIS SURVEY ARE BASED ON VISIBLE SURFACE FEATURES ONLY.
- THE BOUNDARY INFORMATION PROVIDED ON THIS SURVEY IS FROM THE "NISQUALLY PARK RIVER LEVEE EASEMENT & PROPERTY LINE BOUNDARY MAPPING" DRAWING (31828- SURV-BM01.DWG) BY WH&PACIFIC IN MAY OF 2004.

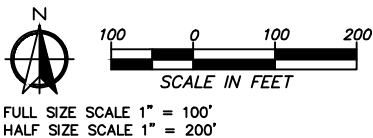
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DESIGNED BY: B. BENNETT	BOOK NO. NA				
CHECKED BY: I. KUCHTA	DATE PLOTTED: APRIL 2017				
		NO.	DATE	REVISION	BY
					APPROVED



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DEPARTMENT OF PUBLIC WORKS AND UTILITIES  
SURFACE WATER MANAGEMENT  
TACOMA MALL PLAZA BUILDING  
2702 SOUTH 42nd STREET, SUITE 201  
TACOMA, WA 98409-7322  
APPROVED BY:  
HAROLD SMELT, P.E. SURFACE WATER MANAGEMENT MANAGER

UPPER NISQUALLY RIVER REVTMENT RETROFIT
COVER
C.I.P. # 1411
SHEET 1 OF

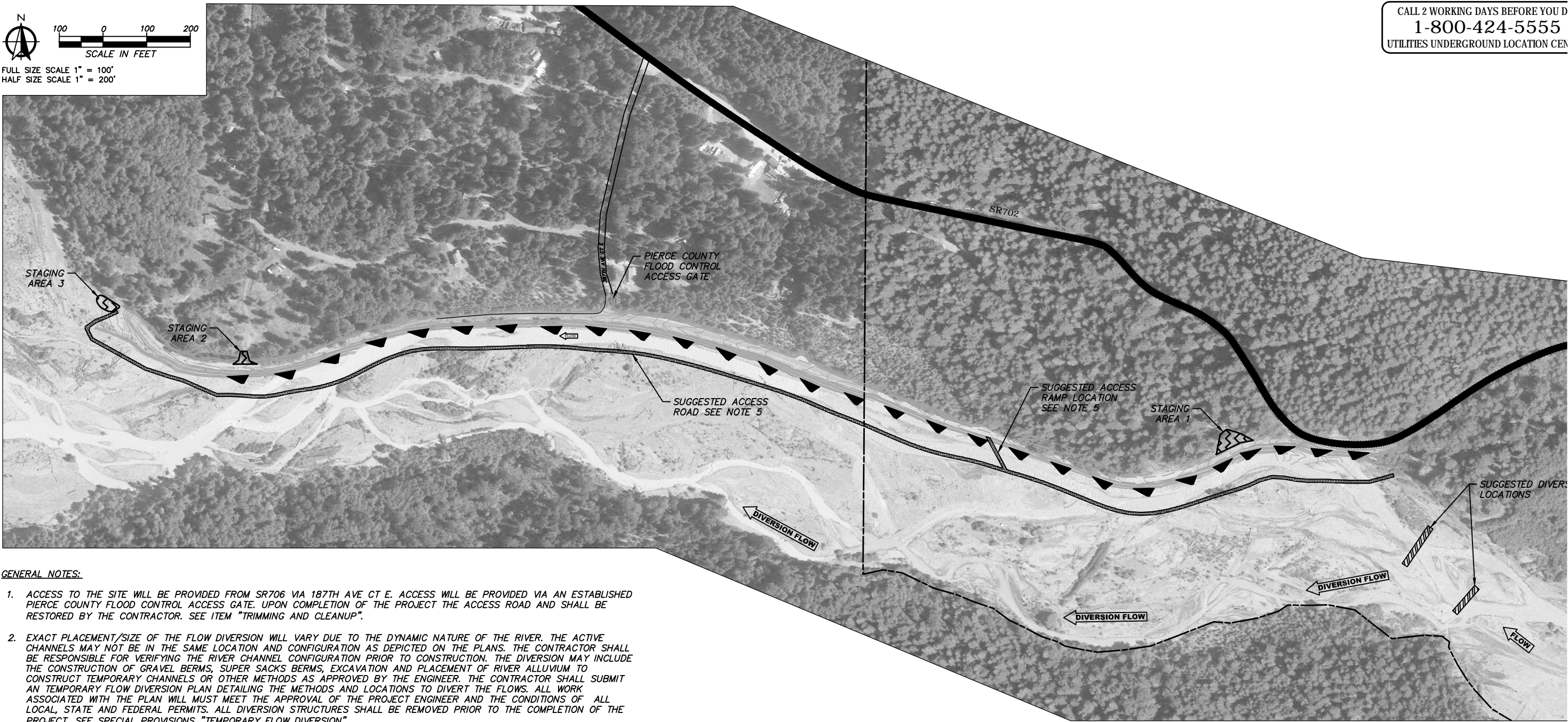




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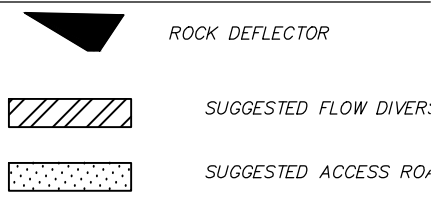


GENERAL NOTES:

1. ACCESS TO THE SITE WILL BE PROVIDED FROM SR706 VIA 187TH AVE CT E. ACCESS WILL BE PROVIDED VIA AN ESTABLISHED PIERCE COUNTY FLOOD CONTROL ACCESS GATE. UPON COMPLETION OF THE PROJECT THE ACCESS ROAD AND SHALL BE RESTORED BY THE CONTRACTOR. SEE ITEM "TRIMMING AND CLEANUP".
2. EXACT PLACEMENT/SIZE OF THE FLOW DIVERSION WILL VARY DUE TO THE DYNAMIC NATURE OF THE RIVER. THE ACTIVE CHANNELS MAY NOT BE IN THE SAME LOCATION AND CONFIGURATION AS DEPICTED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE RIVER CHANNEL CONFIGURATION PRIOR TO CONSTRUCTION. THE DIVERSION MAY INCLUDE THE CONSTRUCTION OF GRAVEL BERMS, SUPER SACKS BERMS, EXCAVATION AND PLACEMENT OF RIVER ALLUVIUM TO CONSTRUCT TEMPORARY CHANNELS OR OTHER METHODS AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL SUBMIT AN TEMPORARY FLOW DIVERSION PLAN DETAILING THE METHODS AND LOCATIONS TO DIVERT THE FLOWS. ALL WORK ASSOCIATED WITH THE PLAN WILL MUST MEET THE APPROVAL OF THE PROJECT ENGINEER AND THE CONDITIONS OF ALL LOCAL, STATE AND FEDERAL PERMITS. ALL DIVERSION STRUCTURES SHALL BE REMOVED PRIOR TO THE COMPLETION OF THE PROJECT. SEE SPECIAL PROVISIONS "TEMPORARY FLOW DIVERSION".
3. ALL FISH MUST BE REMOVED FROM THE WORK AREAS BY PIERCE COUNTY BIOLOGISTS. ONLY ONE FISH REMOVAL WILL BE PERFORMED BY PIERCE COUNTY AFTER THE DIVERSION AND FISH SCREENS ARE IN PLACE. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE DIVERSIONS AND FISH SCREENS. IF FISH ARE ALLOWED TO ENTER THE WORK AREA UNDER ANY CIRCUMSTANCES NOT RELATED TO EXCESS FLOWS; ADDITIONAL FISH REMOVAL BY PIERCE COUNTY WILL BE REQUIRED. ANY ADDITIONAL REMOVAL ACTIVITIES WILL RESULT IN THE CONTRACTOR BEING CHARGED TIME AND MATERIALS FOR THE ADDITIONAL FISH REMOVAL WORK.
4. THE DOWNSTREAM FISH SCREEN WILL ONLY BE NECESSARY IF FISH ARE ABLE TO ENTER THE WORK AREA DURING CONSTRUCTION. THE PIERCE COUNTY BIOLOGIST WILL DETERMINE IF THE SCREENS ARE REQUIRED. PIERCE COUNTY WILL NOT PROVIDE THE FISH SCREENS, ONLY TECHNICAL DIRECTION. THE CONTRACTOR WILL BE RESPONSIBLE TO BUILD, INSTALL, AND MAINTAIN THE FISH SCREEN.
5. ALL STREAM CROSSINGS USING CONSTRUCTION EQUIPMENT MUST COMPLY WITH LOCAL, STATE AND FEDERAL PERMIT CONDITIONS. THE CONTRACTOR SHALL SUBMIT AN ACCESS PLAN DETAILING THE EXACT ROUTE AND METHODS USED TO CROSS ANY ACTIVE CHANNELS. NO WORK SHALL PROCEED UNTIL THE PROJECT ENGINEER APPROVES THIS PLAN.

PLAN VIEW

1" = 200'



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Drawing: P:\1411 UPPER NISQUALLY NAT PARK ELJIS\DESIGN\ACAD\LOGJAMS ONLY\1411\_BASE\_REVERSE\_DEFLECTORS.DWG

Xrefs: [P:\1360\NISQUALLY LEVEE REPAIR - 2006\WHP\AS-BUILT SV\NISQUALLY AS-BUILT.DWG]

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CHECKED BY: I. KUCHTA	DATE PLOTTED: APRIL 2017						
		NO.	DATE	REVISION	BY	APPROVED	



Pierce County

DEPARTMENT OF PUBLIC WORKS AND UTILITIES  
SURFACE WATER MANAGEMENT  
TACOMA MALL PLAZA BUILDING  
2702 SOUTH 42nd STREET, SUITE 201  
TACOMA, WA 98409-7322

APPROVED BY:  
HAROLD SMELT, P.E. SURFACE WATER MANAGEMENT MANAGER

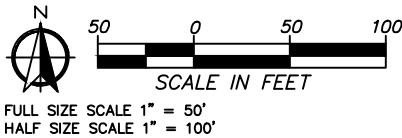
UPPER NISQUALLY RIVER  
REVTMENT RETROFIT

SUGGESTED ACCESS AND DIVERSION PLAN

C.I.P. # 1411

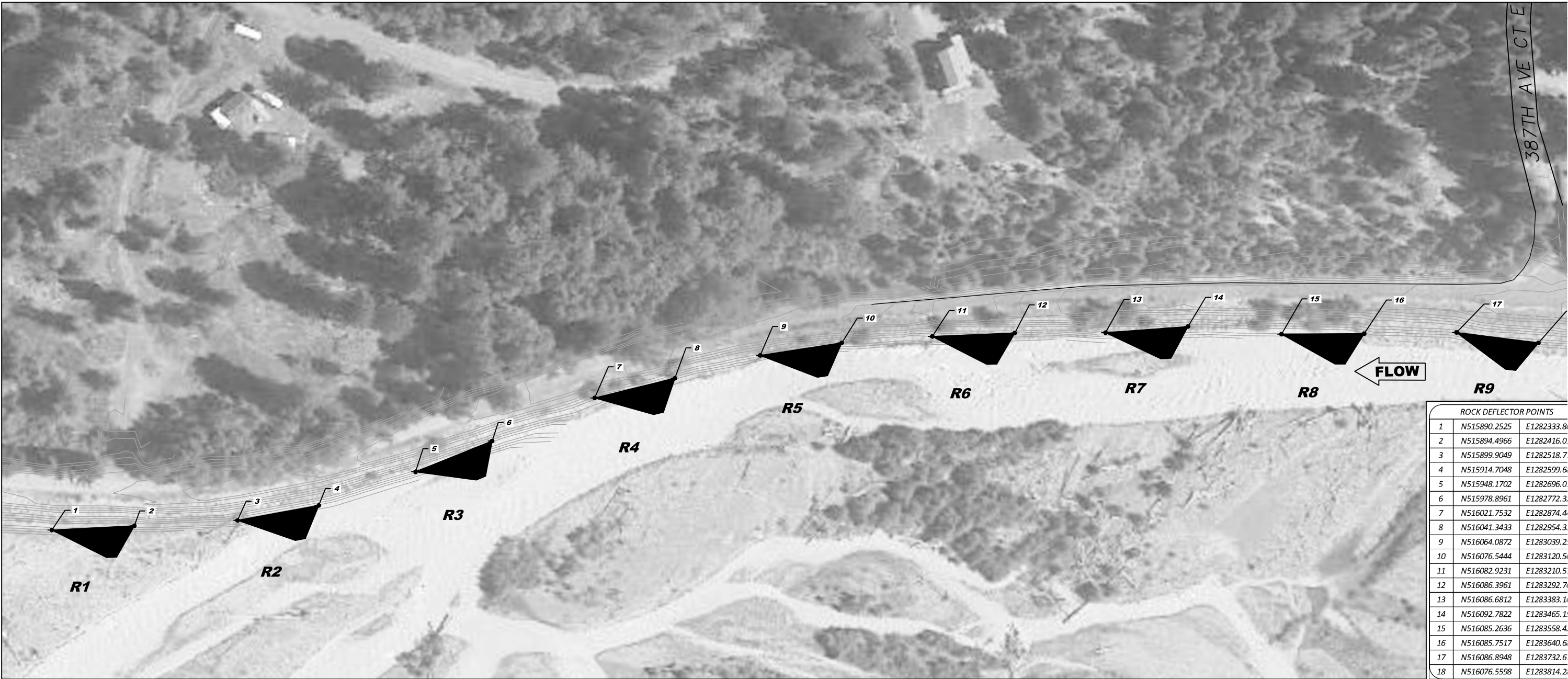
SHEET 2 OF

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Xrefs: [P:\1360\NISQUALLY LEVEE REPAIR - 2006\WHP\AS-BUILT SV\NISQUALLY AS-BUILT.DWG]



NOTE: PROPERTY LINES OF THE ADJACENT PARCELS SHOWN ARE LOCATED BY INTERPRETATION OF DEEDS AND OTHER INFORMATION FOUND IN THE PUBLIC RECORD AND SHOULD NOT BE CONSTRUED AS AN ACTUAL SURVEY.

CALL 2 WORKING DAYS BEFORE YOU D  
1-800-424-5555  
UTILITIES UNDERGROUND LOCATION CEN



ROCK DEFLECTOR POINTS		
1	N515890.2525	E1282333.8
2	N515894.4966	E1282416.0
3	N515899.9049	E1282518.7
4	N515914.7048	E1282599.6
5	N515948.1702	E1282696.0
6	N515978.8961	E1282772.3
7	N516021.7532	E1282874.4
8	N516041.3433	E1282954.3
9	N516064.0872	E1283039.2
10	N516076.5444	E1283120.5
11	N516082.9231	E1283210.5
12	N516086.3961	E1283292.7
13	N516086.6812	E1283383.1
14	N516092.7822	E1283465.1
15	N516085.2636	E1283558.4
16	N516085.7517	E1283640.6
17	N516086.8948	E1283732.6
18	N516076.5598	E1283814.2

GENERAL NOTES:

1. EXACT PLACEMENT OF THE DEFLECTORS MAY VARY SLIGHTLY DUE TO SITE CONDITIONS AT THE TIME OF CONSTRUCTION. THE PROJECT ENGINEER RESERVES THE RIGHT TO MODIFY THE LOCATION OF EACH ENGINEERED LOGJAM PRIOR TO CONSTRUCTION.
2. SURFACE TOPOGRAPHIC CONTOURS ARE FOR REFERENCE ONLY. DUE TO THE DYNAMIC NATURE OF THE RIVER CHANNEL THE TOPOGRAPHIC SURFACE IS NOT SUITABLE FOR CONSTRUCTION. THE DEFLECTORS ARE BUILT RELATIVE TO THE EXISTING LEVEE TOE DEPTH.
3. THE CONTRACTOR IS RESPONSIBLE TO RESTORE THE REVETMENT ACCESS ROAD TO THE PRE-EXISTING CONDITION UPON COMPLETION OF THE PROJECT..

PLAN VIEW  
1" = 50'



ROCK DEFLECTOR

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DRAWN BY: B. BENNETT	DATE SURVEYED: NA				
DESIGNED BY: B. BENNETT	BOOK NO. NA				
CHECKED BY: I. KUCHTA	DATE PLOTTED: APRIL 2017				
		NO.	DATE	REVISION	BY
					APPROVED



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TACOMA, WA 98409-7322

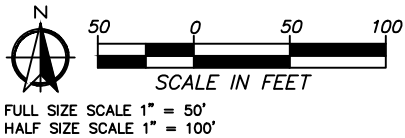
APPROVED BY:  
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UPPER NISQUALLY RIVER  
REVETMENT RETROFIT

PLAN

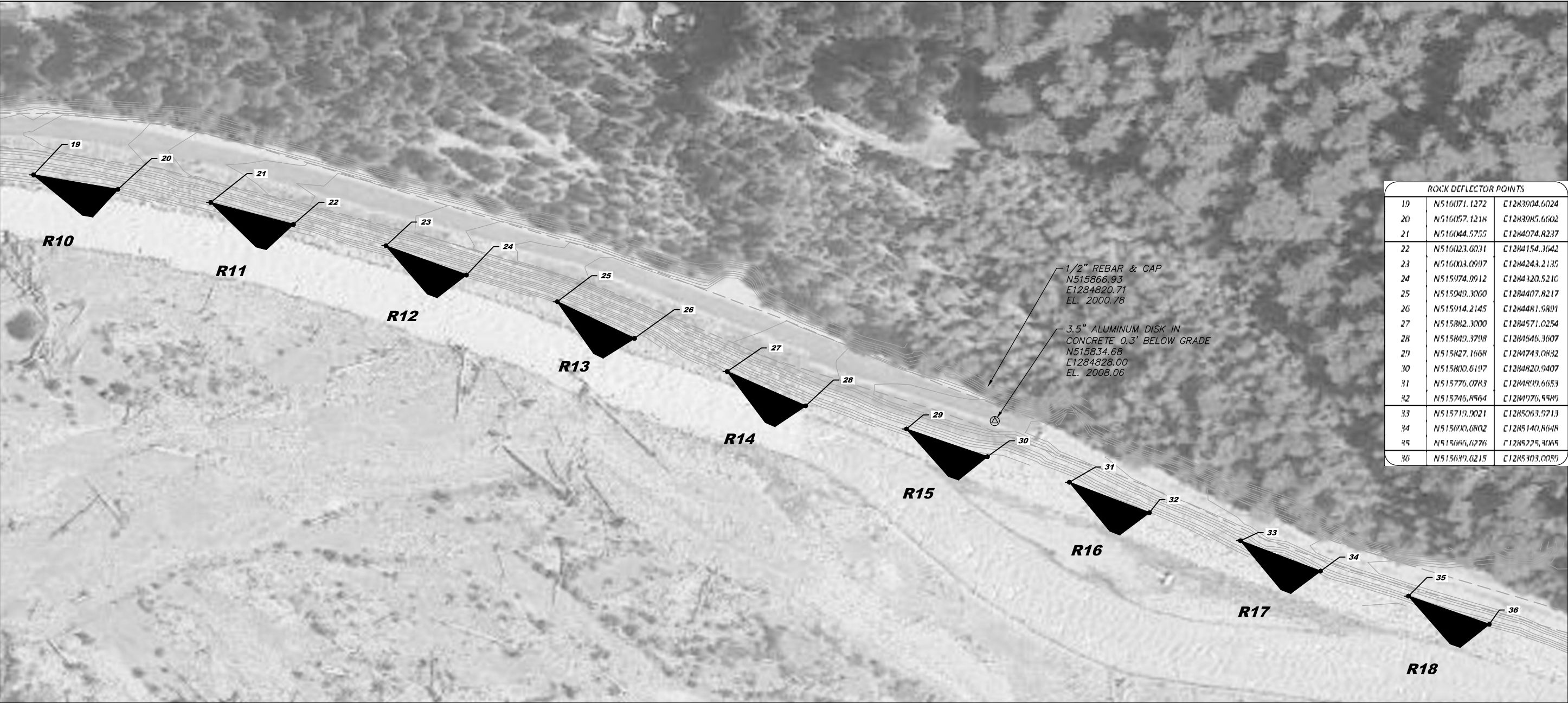
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UTILITIES UNDERGROUND LOCATION CEN



ROCK DEFLECTOR POINTS		
19	N516071.1272	E1283904.6024
20	N516057.1218	E1283985.6602
21	N516044.5755	E1284074.8237
22	N516023.6031	E1284154.3642
23	N516003.0997	E1284243.2135
24	N515974.9912	E1284320.5210
25	N515949.3060	E1284407.8217
26	N515914.2145	E1284481.9891
27	N515882.3000	E1284571.0254
28	N515849.3798	E1284646.3607
29	N515827.1668	E1284743.0832
30	N515800.6197	E1284820.9407
31	N515776.0783	E1284899.6653
32	N515746.8564	E1284976.5589
33	N515719.9021	E1285063.9713
34	N515690.6802	E1285140.8648
35	N515666.6276	E1285225.4065
36	N515639.6215	E1285303.0059

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PLAN VIEW  
1" = 50'



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CHECKED BY: I. KUCHTA	DATE PLOTTED: APRIL 2017					
		NO.	DATE	REVISION	BY	APPROVED



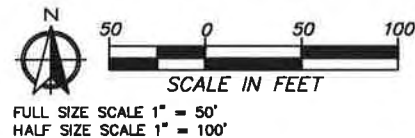
Pierce County  
DEPARTMENT OF PUBLIC WORKS AND UTILITIES  
SURFACE WATER MANAGEMENT  
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2702 SOUTH 42nd STREET, SUITE 201  
TACOMA, WA 98409-7322  
APPROVED BY:  
HAROLD SMELT, P.E. SURFACE WATER MANAGEMENT MANAGER

UPPER NISQUALLY RIVER  
REVTMENT RETROFIT

PLAN

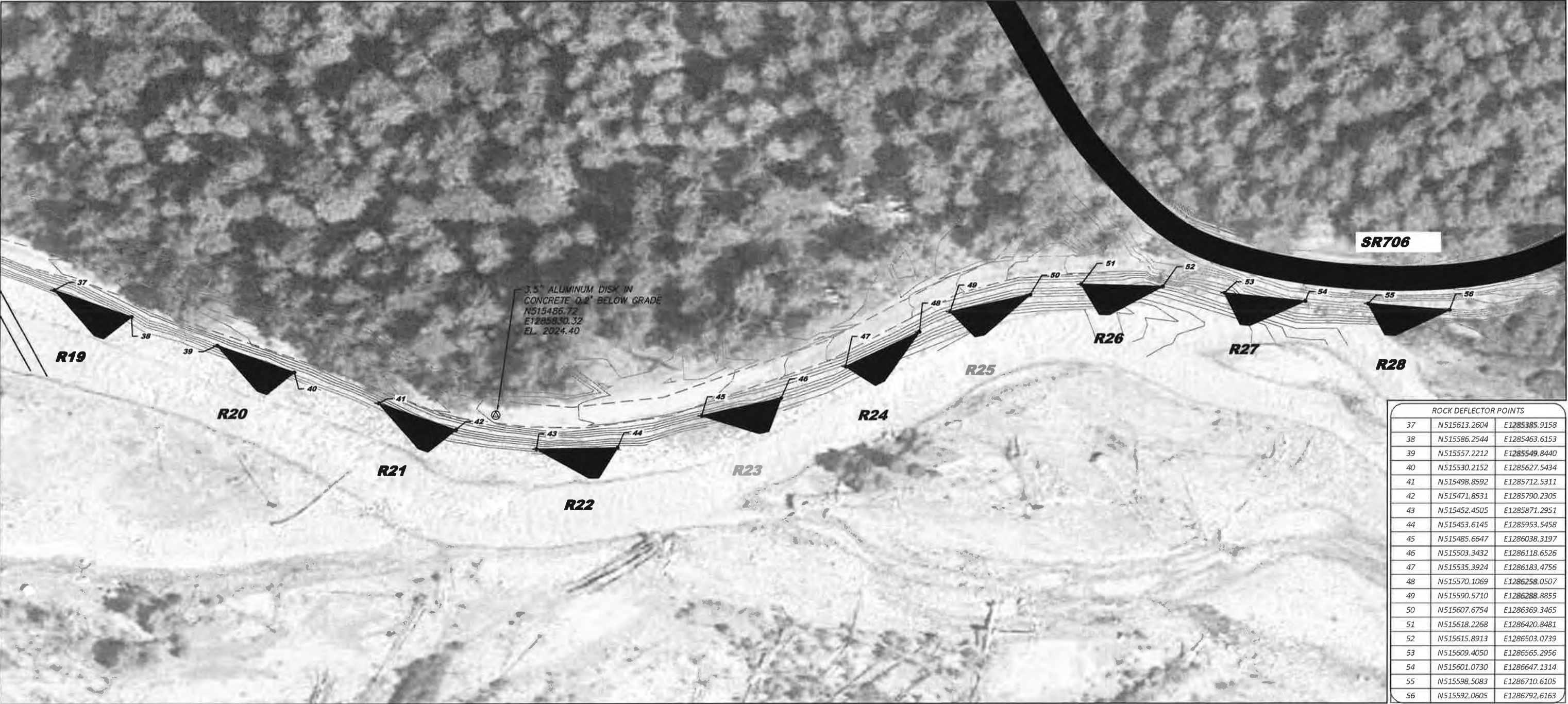
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SHEET 4 OF



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UTILITIES UNDERGROUND LOCATION CENTER



ROCK DEFLECTOR POINTS		
37	N515613.2604	E1285385.9158
38	N515586.2544	E1285463.6153
39	N515557.2212	E1285549.8440
40	N515530.2152	E1285627.5434
41	N515498.8592	E1285712.5311
42	N515471.8531	E1285790.2305
43	N515452.4505	E1285871.2951
44	N515453.6145	E1285953.5458
45	N515485.6647	E1286038.3197
46	N515503.3432	E1286118.6526
47	N515535.3924	E1286183.4756
48	N515570.1069	E1286258.0507
49	N515590.5710	E1286288.8855
50	N515607.6754	E1286369.3465
51	N515618.2268	E1286420.8481
52	N515615.8913	E1286503.0739
53	N515609.4050	E1286565.2956
54	N515601.0730	E1286647.1314
55	N515598.5083	E1286710.6105
56	N515592.0605	E1286792.6163

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PLAN VIEW  
1" = 50'



ROCK DEFLECTOR

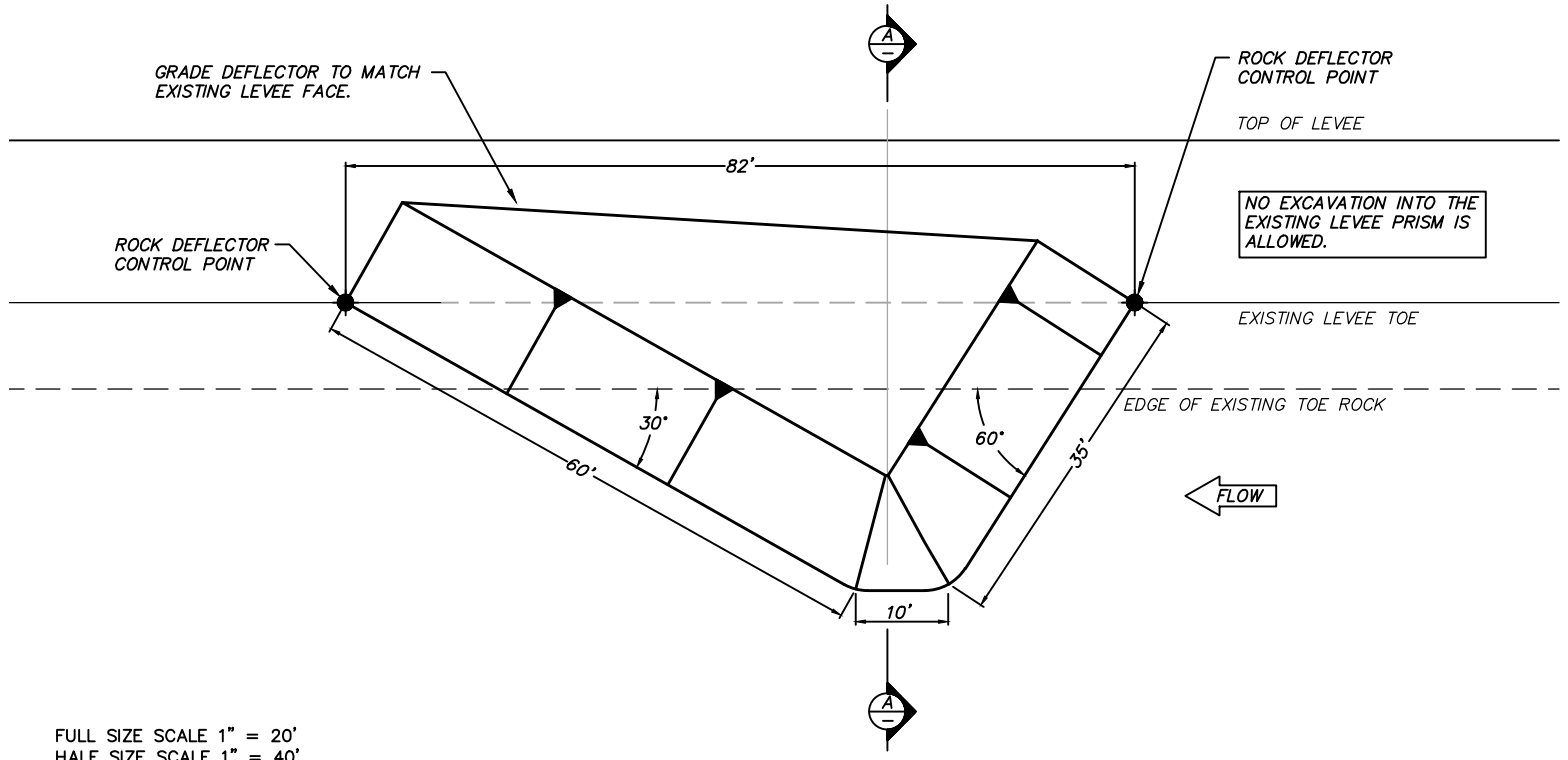
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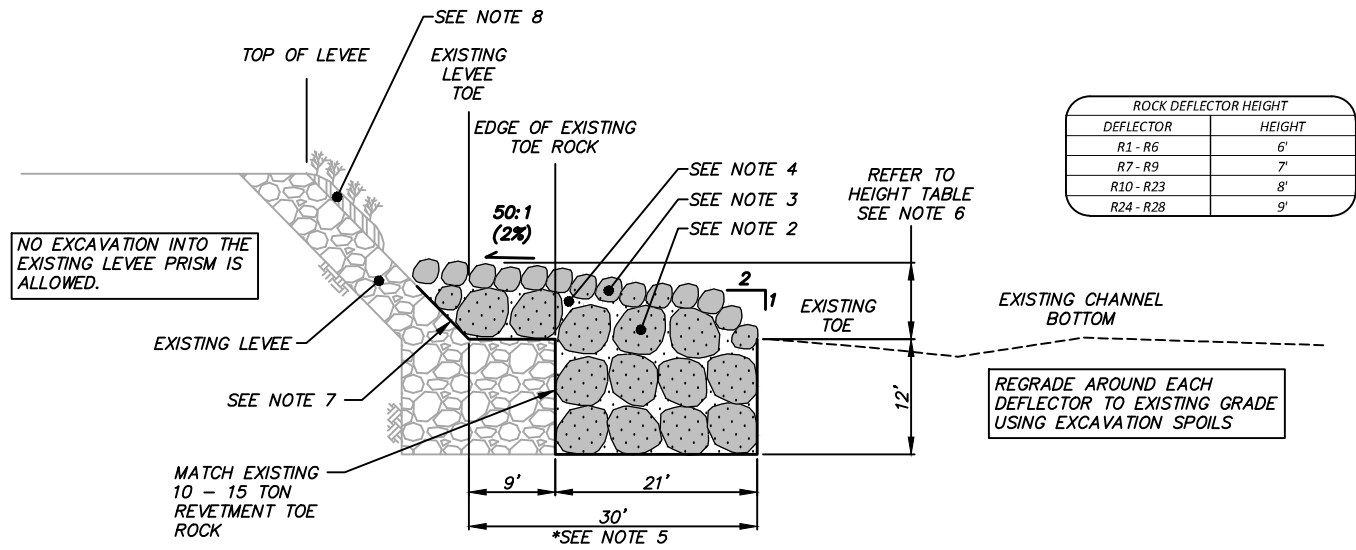
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REVTMENT RETROFIT  
PLAN  
C.I.P. # 1411



FULL SIZE SCALE 1" = 20'  
HALF SIZE SCALE 1" = 40'

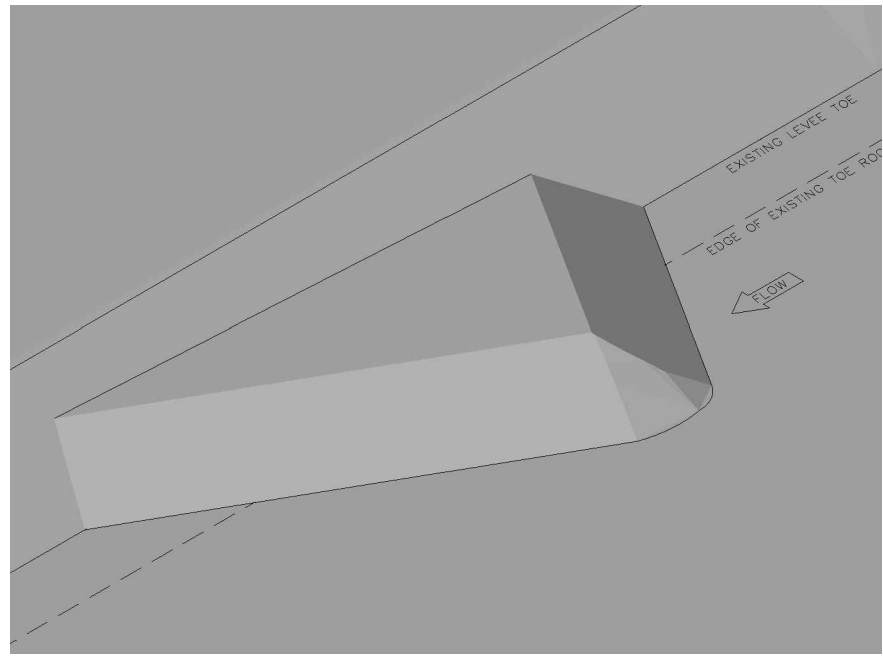
PLAN

NOTE:  
TOE AND FACE ROCK IS ONLY  
SHOWN ILLUSTRATIVE PURPOSES. THE  
EXACT POSITION WILL VARY IN THE  
FIELD.



ROCK DEFLECTOR HEIGHT	
DEFLECTOR	HEIGHT
R1 - R6	6'
R7 - R9	7'
R10 - R23	8'
R24 - R28	9'

SECTION A  
NTS



ISOMETRIC  
NTS

GENERAL ROCK DEFLECTOR CONSTRUCTION NOTES:

- SEE SPECIAL PROVISION: "ROCK DEFLECTOR".
- PLACE 10-15 TON STONE TIGHTLY INTERLOCKED TOGETHER. INCORPORATE 6-8 TON ROCK AS NEEDED TO FILL VOIDS.
- ALL ROCK USED TO CONSTRUCT ROCK DEFLECTOR FACE SHALL BE 6-8 TON ROCK.
- ALL VOIDS BETWEEN THE ROCK SHALL BE FILLED WITH NATIVE ALLUVIUM.
- THE ROCK DEFLECTOR SHALL EXTEND 30' FROM THE EXISTING TOE POINT AS INDICATED ON THE PLANS. THE RIVERWARD EDGE OF THE EXISTING TOE ROCK VARIES, NO EXTRA PAYMENT WILL BE MADE TO EXTEND OR REMOVE THE EXISTING TOE ROCK. EXISTING TOE ROCK EXTENDING UNDER THE PROPOSED DEFLECTOR SHALL NOT BE REMOVED AND CAN BE INCORPORATED INTO THE DEFLECTOR.
- THE HEIGHT OF THE ROCK DEFLECTOR IS DETERMINED FROM THE EXISTING TOE ELEVATION.
- NO ADDITIONAL PAYMENT WILL BE MADE TO REMOVE EXISTING ROCK OR DEBRIS ON THE LEVEE FACE REQUIRED TO CONSTRUCT THE ROCK DEFLECTOR.
- EXISTING PLANTINGS AND TOPSOIL DISTURBED SHALL BE REPLACED IN-KIND. ALL WORK SHALL BE INCIDENTAL TO THE ITEM "ROCK DEFLECTOR".

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DESIGNED BY: B. BENNETT	BOOK NO. NA				
CHECKED BY: I. KUCHTA	DATE PLOTTED: JUNE 2016				
		NO.	DATE	REVISION	BY
					APPROVED



Pierce County  
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UPPER NISQUALLY RIVER  
REVTMENT RETROFIT

DEFLECTOR DETAIL

C.I.P. # 1411