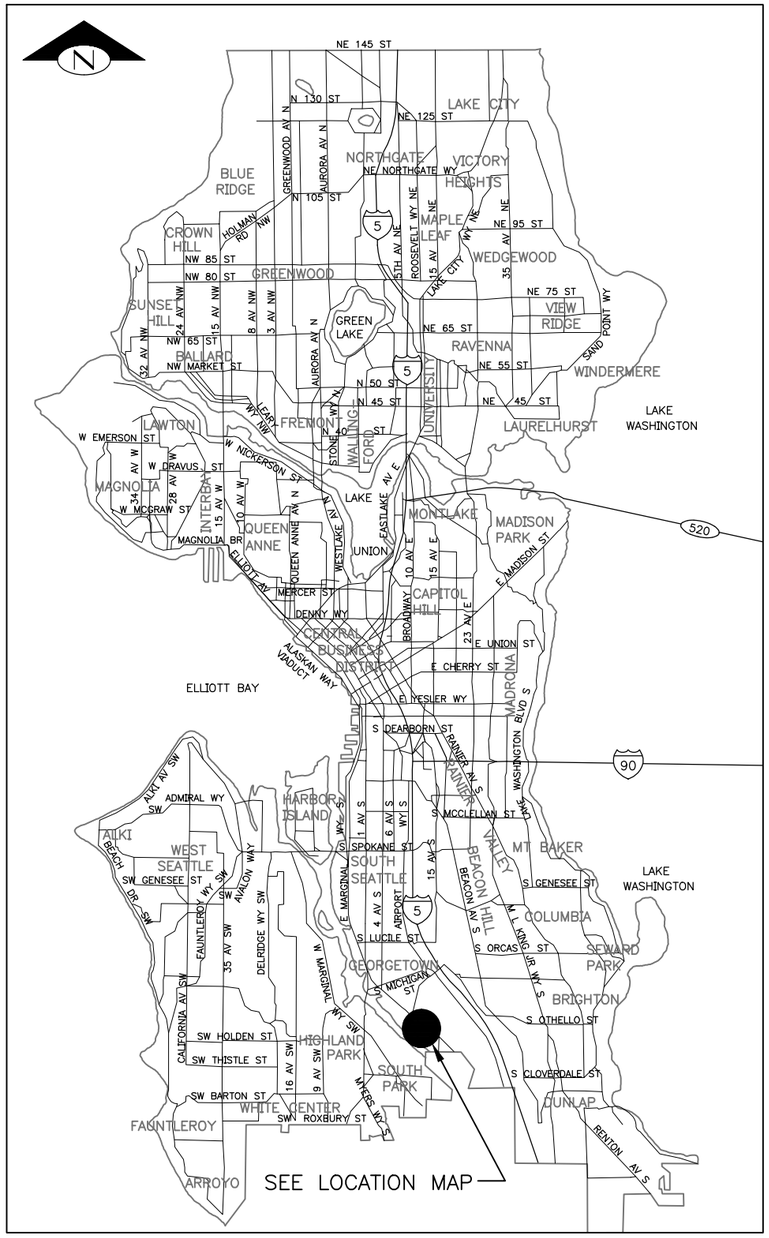
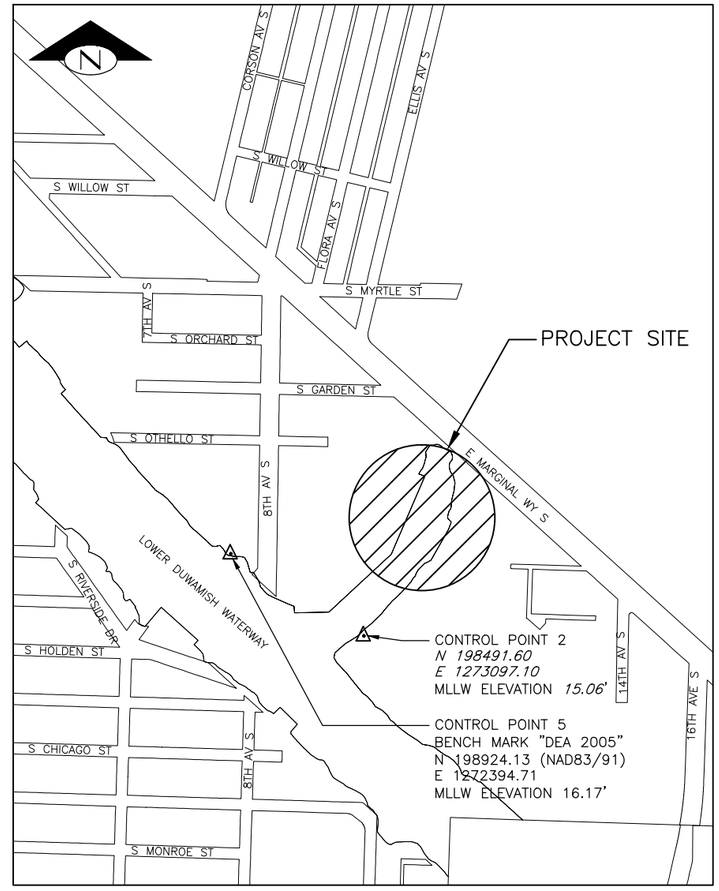


VICINITY MAP

1 0 1 2

SCALE: 1" = 1 MILE



LOCATION MAP

SCALE: 1" = 400'

H: NAD 1983/91
V: MLLW

BASIS OF BEARING:

CITY DATUM/MLLW DIFFERENCE: −12.23 FT

PROJECT FIELD BOOK(S):

BENCH (NAVD−88) FIELDBOOK/PAGE: SNV−2533

BENCH (COS) FIELDBOOK/PAGE:

COORDINATE BASIS:
MONUMENT (1) HELD:
FOR LOCATION: Y FOR AZIMUTH: N
MONUMENT (2) HELD:
FOR LOCATION: Y FOR AZIMUTH: Y
MONUMENT (3) HELD: NA
FOR LOCATION: N FOR AZIMUTH: N

DETAIL AND SECTION REFERENCING

4 / 9 — DETAIL REFERENCE NUMBER; SHEET ON WHICH DETAIL APPEARS

(TITLE) (SCALE) 4 / 9 — DETAIL REFERENCE NUMBER; SHEET FROM WHICH DETAIL WAS TAKEN

("TYP" SPECIFIES THAT DETAIL IS UNIFORMLY TYPICAL THROUGHOUT PROJECT EXCEPT WHERE OTHERWISE NOTED.)
("VAR" SPECIFIES THAT DETAIL WAS TAKEN FROM SEVERAL SHEETS.)

A A 32 — SECTION A−A IS SHOWN ON SHEET 32.

SECTION A−A 30 — SECTION A−A IS TAKEN FROM SHEET 30.

SHEET INDEX

SHT NO.	DESCRIPTION
1	VICINITY MAP, LOCATION MAP, DETAIL AND SECTION REFERENCING, DATUM, & SHEET INDEX
2	THIS SHEET INTENTIONALLY LEFT BLANK
3	ABBREVIATIONS AND LEGEND
4	PROJECT SITE PLAN − EXISTING CONDITIONS AND STORM DRAINAGE OUTFALLS
5	CONSTRUCTION SUMMARY, SEQUENCING, AND GENERAL NOTES
6	SURVEY CONTROL PLAN
7	SITE ACCESS AND STAGING PLAN
8	DEMOLITION PLAN − PIER
9	DEMOLITION DETAILS − PIER
10	DEMOLITION PLAN MUDFLATS AND BANKS
11	DREDGING/EXCAVATION PLAN
12	DREDGING/EXCAVATION SECTIONS A−D
13	DREDGING/EXCAVATION SECTIONS E−F
14	DREDGING/EXCAVATION SECTIONS G−H
15	DREDGING/EXCAVATION SECTION I
16	CAPPING PLAN
17	CAPPING SECTIONS A−D
18	CAPPING SECTIONS E−F
19	CAPPING SECTIONS G−H
20	CAPPING SECTION I
21	CAP AND OUTFALL SCOUR PROTECTION DETAILS
22	FINAL GRADING AND HABITAT ENHANCEMENT PLAN − SHEET 1
23	FINAL GRADING AND HABITAT ENHANCEMENT PLAN − SHEET 2
24	HABITAT ENHANCEMENT DETAILS

VICINITY MAP, LOCATION MAP, DETAIL AND SECTION REFERENCING, DATUM, & SHEET INDEX

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City of Seattle
Ray Hoffman, Director

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SCALE: H. 1"=20', V. 1"=10' INSPECTOR'S BOOK

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO

VAULT PLAN NO. 776−294

SHEET 1 OF 24

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VAULT SERIAL NO.	DATE	MARK	NATURE	MADE	CHK'D	REV'D
353775			REVISIONS			

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045
R/W
CO

VAULT PLAN NO. 776-294

SHEET 2 OF 24

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
APPROX	APPROXIMATELY OR APPROXIMATE
AC	ASPHALT CONCRETE
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
EL	ELEVATION
EOF	EMERGENCY OVERFLOW
FL	FLOOR
FT	FEET
GND	GROUND
IE	INVERT ELEVATION
IN	INCHES
MAX	MAXIMUM
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
NAD	NORTH AMERICAN DATUM
NOM	NOMINAL
NTS	NOT TO SCALE
PL	PROPERTY LINE
PSEOF	PUMP STATION EMERGENCY OVERFLOW
PSD	PUBLIC STORM DRAIN
RA	REMOVAL AREA
RAWP	REMOVAL ACTION WORK PLAN
RE	RESIDENT ENGINEER
SD	STORM DRAIN
SS	SANITARY SEWER
STA	BASELINE STATION
TC	TOP OF CONCRETE
TYP	TYPICAL
VAR	VARIOUS

LEGEND:

SECTIONS:

- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE
- CAPPING LINE

PLAN VIEWS:

- POWER POLE
- SANITARY MANHOLE
- CATCH BASIN
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.41WALL SPOT ELEVATION
- 1 FOOT CONTOUR INTERVAL
- 5 FOOT CONTOUR INTERVAL
- FINAL GRADE
- PROJECT BASELINE
- APPROXIMATE PROPERTY LINE
- APPROXIMATE BOUNDARY OF TENANT LEASE AREAS
- APPROXIMATE EXISTING TOP OF BANK
- PROJECT LIMITS
- DREDGE LIMITS
- RAIL SPUR
- -3 REQUIRED DREDGE ELEVATION (FT MLLW)
- 106 COORDINATE LOCATION
- LARGE WOODY DEBRIS
- 1 PHOTO VIEW
- SURVEY CONTROL POINT

- EXISTING CONCRETE
- EXISTING RIPRAP

CAP MATERIALS:

- FILTER MATERIAL
- WATERWAY CAP MATERIAL
- CAP ARMOR
- HEAVY LOOSE RIPRAP
- BEACH SAND

CAP TYPES:

- OUTFALL SCOUR PROTECTION
- SLOPE CAP
- ARMORED CAP
- WATERWAY CAP
- OUTFALL AREA CAP – ARMORED
- OUTFALL AREA CAP–UNARMORED
- BOUNDARY BERM

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ABBREVIATIONS AND LEGEND

LOWER DUWAMISH WATERWAY
SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
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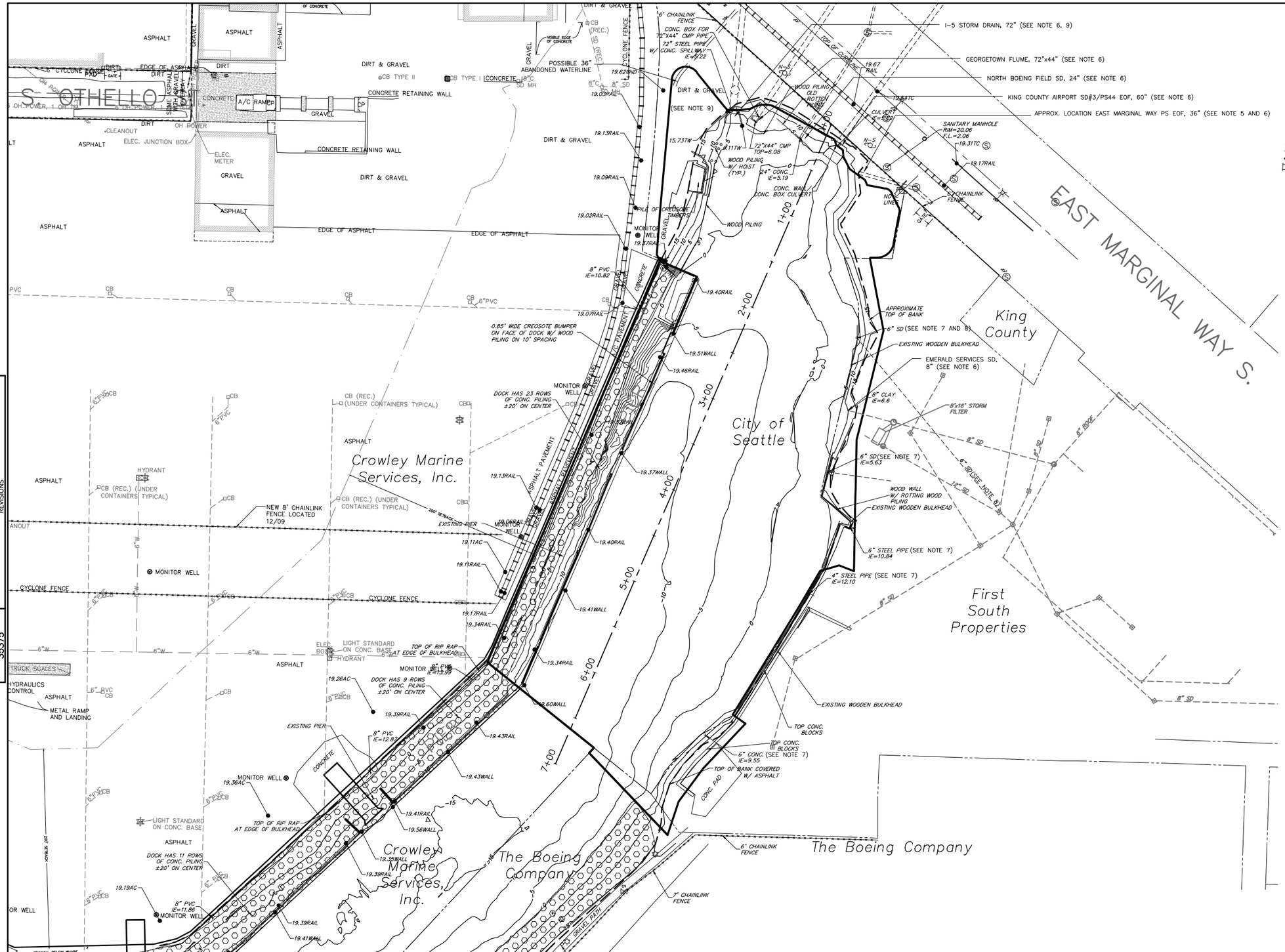
SHEET 3 OF 24



LEGEND

- POWER POLE
- SANITARY MANHOLE
- CATCH BASIN
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.47RAIL SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL
- PROJECT BASELINE
- APPROXIMATE PROPERTY LINE
- APPROXIMATE EXISTING TOP OF BANK
- PROJECT LIMITS
- RAIL SPUR
- EXISTING RIPRAP

NOTES:

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (NAD–83/91), U.S. FEET.
2. CONTOURS ARE SHOWN IN FEET AT AN INTERVAL OF 5 FEET AND INDICATE ELEVATIONS IN REFERENCE TO MEAN LOWER LOW WATER (MLLW).
3. REFER TO SHEET 6 FOR BASEMAP SURVEY NOTES.
4. KNOWN STORM DRAIN FEATURES ARE SHOWN. CONTRACTOR TO LOCATE/VERIFY ALL UTILITIES IN ACCORDANCE WITH THE SPECIFICATIONS.
5. APPROXIMATE LOCATION OF EAST MARGINAL WAY PUMP STATION EOF OUTFALL (36–INCH) IS SHOWN.
6. LOCATE AND PROTECT ALL EXISTING OUTFALLS.
7. CUT OUTFALL FLUSH WITH EXCAVATED SURFACE AND GROUT IN ACCORDANCE WITH SPECIFICATIONS. SEE DETAIL 1 SHEET 21.
8. EXISTING STORM DRAIN IS PLUGGED. LOCATION OBTAINED FROM BUSH, ROED & HITCHINGS, INC. 2009 MINOT AVENUE EAST, SEATTLE, WA 98102, BRH JOB# 99322.02; BRH DRAWING NAME: XGRD.DWG. STORM DRAIN AND OUTFALL NOTED AS NOT FOUND IN FIELD
9. PROTECT WOOD PILING FENDER WALLS AT I–5 OUTFALL.

N

50 25 0 50 100
SCALE IN FEET

PROJECT SITE PLAN – EXISTING CONDITIONS AND STORM DRAINAGE OUTFALLS

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

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SHEET 4 OF 24

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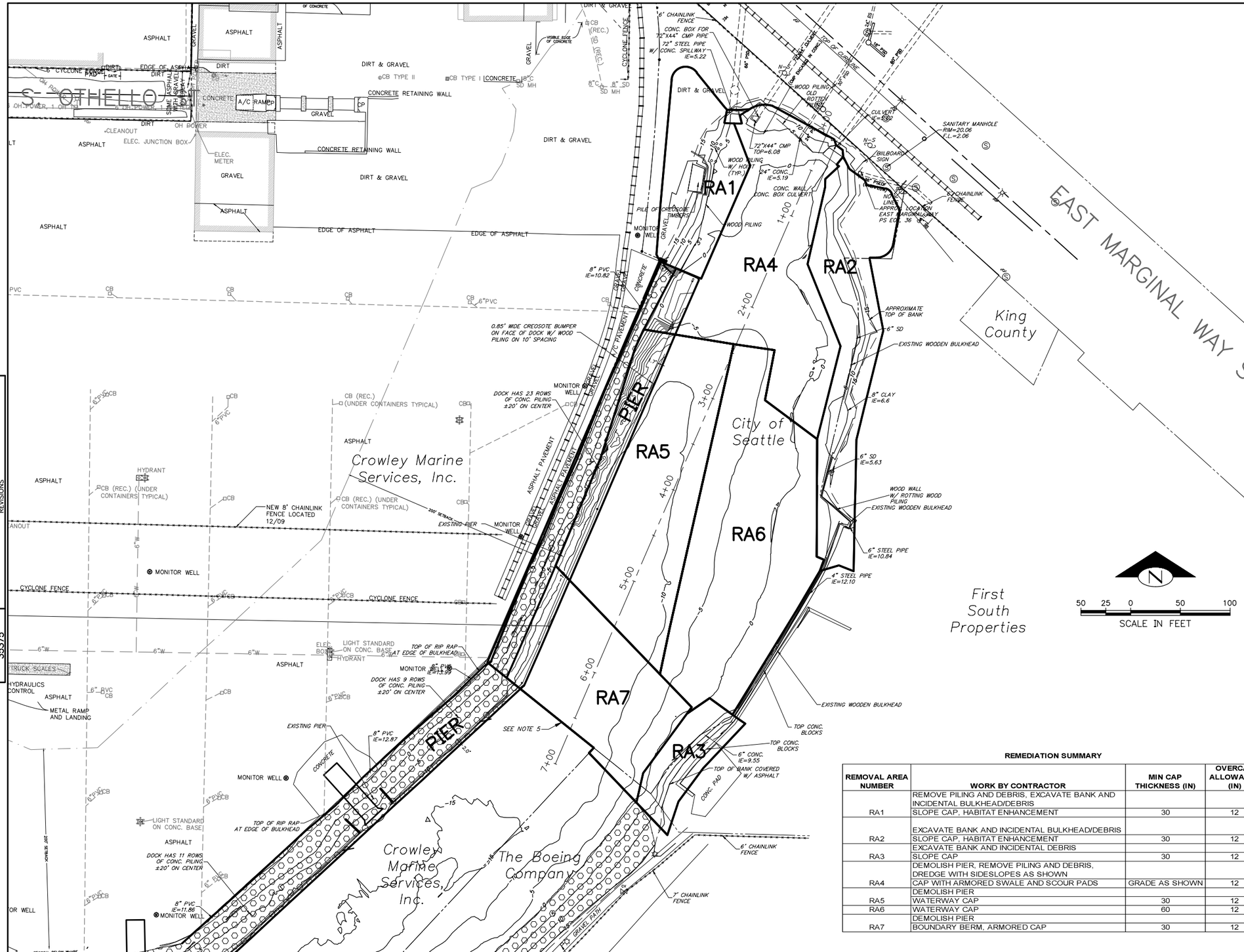

LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL
- REMOVAL AREA BOUNDARY
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOP OF BANK
- RAIL SPUR
- EXISTING RIPRAP

CONSTRUCTION SEQUENCING NOTES:

1. CONTRACTOR SUBMITTALS INCLUDING RAWP MUST BE APPROVED PRIOR TO THE START OF ANY SITE WORK.
2. PERFORM ALL WORK IN ACCORDANCE WITH THE SEQUENCING DEFINED IN THE APPROVED RAWP.
3. COMPLETE PRECONSTRUCTION SURVEY PRIOR TO THE START OF DREDGING AND EXCAVATION, IN ACCORDANCE WITH THE SPECIFICATIONS.
4. REMOVE VISIBLE DERELICT PILING AND LARGE DEBRIS BEFORE DREDGING.
5. PLACE BOUNDARY BERM AT STA 6+70 BEFORE DREDGING.
6. REMOVE BULKHEAD STRUCTURES THAT RETAIN BANK SOILS AS BANK EXCAVATION PROCEEDS.
7. ALLOW ENGINEER ACCESS TO EXCAVATED BANKS FOR DOCUMENTATION SAMPLING. NO ADDITIONAL DREDGING OR EXCAVATION WILL BE REQUIRED BASED ON THE DOCUMENTATION SAMPLING.
8. COMPLETE POST-DREDGE ACCEPTANCE SURVEY PRIOR TO THE START OF BANK OR OUTFALL AREA CAPPING.
9. ALL DREDGING AND EXCAVATION SHALL BE COMPLETED PRIOR TO THE START OF ANY CAPPING WORK.
10. SEE SHEET 16 FOR CAPPING SEQUENCE.
11. DEMOLISH PIER BEFORE PLACING CAP MATERIAL IN PIER FOOTPRINT OR IN RA5, 6, OR 7.
12. COMPLETE CAP ACCEPTANCE SURVEY, PREFINAL, AND FINAL INSPECTIONS. ENGINEER WILL COLLECT CAP VERIFICATION AND BOUNDARY AREA DOCUMENTATION SAMPLES.
13. COMPLETE RESPONSE ACTIONS AS DETERMINED BY THE ENGINEER FOR ANY OUT OF COMPLIANCE WORK, IN ACCORDANCE WITH SECTION 352324 OF THE SPECIFICATIONS.
14. ENGINEER MAY DIRECT ADDITIONAL WATERWAY CAP MATERIAL PLACEMENT BASED ON BOUNDARY AREA DOCUMENTATION SAMPLING.

GENERAL NOTES:

1. PERFORM ALL IN-WATER WORK IN ACCORDANCE WITH THE FISH WINDOWS DEFINED IN SECTION 011100 OF THE SPECIFICATIONS.
2. MODIFY OPERATIONS AS NEEDED TO COMPLY WITH WATER QUALITY CRITERIA DEFINED IN THE CLEAN WATER ACT 401 CERTIFICATION. COMPLIANCE WILL BE DETERMINED BY THE ENGINEER.
3. CONTAIN AND REMOVE ANY SHEENS OR FLOATABLE MATERIAL RELEASED TO THE WATER AS A RESULT OF CONSTRUCTION ACTIVITIES.
4. PROTECT ALL EXISTING OUTFALL STRUCTURES NOT DESIGNATED FOR DEMOLITION.
5. ALL CAP MATERIALS SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS WITH THE GOAL OF PRODUCING UNIFORM LIFTS WITH MINIMAL DISTURBANCE OF, OR INTERMINGLING WITH, THE EXISTING BOTTOM SEDIMENTS.
6. PERFORM ALLL WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE APPROVED RAWP.

REMEDIATION SUMMARY

REMOVAL AREA NUMBER	WORK BY CONTRACTOR	MIN CAP THICKNESS (IN)	OVERCAP ALLOWANCE (IN)
RA1	REMOVE PILING AND DEBRIS, EXCAVATE BANK AND INCIDENTAL BULKHEAD/DEBRIS SLOPE CAP, HABITAT ENHANCEMENT	30	12
RA2	EXCAVATE BANK AND INCIDENTAL BULKHEAD/DEBRIS SLOPE CAP, HABITAT ENHANCEMENT	30	12
RA3	EXCAVATE BANK AND INCIDENTAL DEBRIS SLOPE CAP	30	12
RA4	DEMOLISH PIER, REMOVE PILING AND DEBRIS, DREDGE WITH SIDESLOPES AS SHOWN CAP WITH ARMORED SWALE AND SCOUR PADS	GRADE AS SHOWN	12
RA5	DEMOLISH PIER WATERWAY CAP	30	12
RA6	WATERWAY CAP	60	12
RA7	DEMOLISH PIER BOUNDARY BERM, ARMORED CAP	30	12

CONSTRUCTION SUMMARY, SEQUENCING, AND GENERAL NOTES

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SCALE: AS NOTED INSPECTOR'S BOOK

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 5 OF 24

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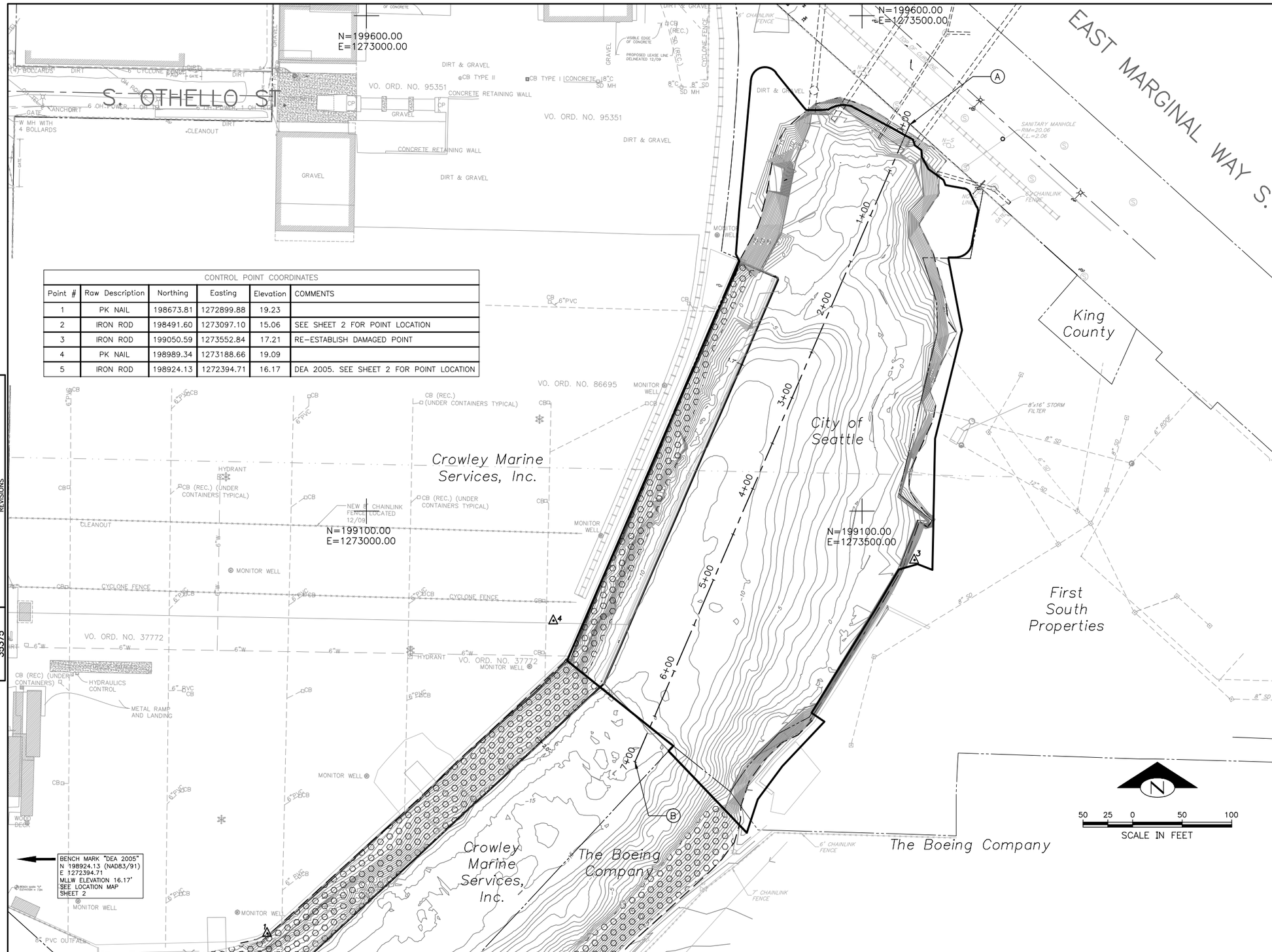

CONTROL POINT COORDINATES					
Point #	Raw Description	Northing	Easting	Elevation	COMMENTS
1	PK NAIL	198673.81	1272899.88	19.23	
2	IRON ROD	198491.60	1273097.10	15.06	SEE SHEET 2 FOR POINT LOCATION
3	IRON ROD	199050.59	1273552.84	17.21	RE-ESTABLISH DAMAGED POINT
4	PK NAIL	198989.34	1273188.66	19.09	
5	IRON ROD	198924.13	1272394.71	16.17	DEA 2005. SEE SHEET 2 FOR POINT LOCATION

LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.41WALL SPOT ELEVATION
- 1 FOOT CONTOUR INTERVAL
- 5 FOOT CONTOUR INTERVAL
- APPROXIMATE PROPERTY LINE
- PROJECT LIMITS
- APPROXIMATE EXISTING TOP OF BANK
- RAIL SPUR
- EXISTING RIPRAP
- 106 PROJECT LIMITS COORDINATE LOCATION
- SURVEY CONTROL POINT

NOTES:

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (NAD-83/91), U.S. FEET.
2. CONTOURS ARE SHOWN IN FEET AT AN INTERVAL OF 1 FOOT AND INDICATE ELEVATIONS IN REFERENCE TO MEAN LOWER LOW WATER (MLLW). THE BENCH MARK USED IS "DEA 2005" MLLW ELEVATION 16.17'.
3. HORIZONTAL POSITIONS FOR NAVIGATION AND DATA COLLECTION WERE DETERMINED BY USING A TRIMBLE 4700 G.P.S. SYSTEM OPERATING IN DIFFERENTIAL MODE, USING THE G.P.S. CONTINUOUSLY OPERATING REFERENCE STATION (CORS).
4. BATHYMETRIC DATA WAS COLLECTED USING KNUDSEN 320M ECHOSOUNDER WITH A 6 DEGREE SINGLE BEAM TRANSDUCER, OPERATING AT 200 KHZ.
5. SURVEY DATA WAS COLLECTED PARALLEL WITH THE DOCK USING A TEN FOOT LINE SPACING. THE SURVEY DATA COLLECTED ALONG EACH SURVEY LINE WAS THINNED USING A "SHOAL BIAS" METHOD TO AN APPROXIMATE HORIZONTAL SPACING OF 2 FEET.
6. THERE MAY BE BOTTOM FEATURES THAT ARE NOT SHOWN ON THIS MAP DUE TO THE LINE SPACING INTERVAL. THIS SURVEY DOES NOT INCLUDE BATHYMETRIC DATA BETWEEN THE ADJACENT SURVEY LINES.
7. THIS BATHYMETRIC SURVEY IS REPRESENTATIVE OF THE CONDITION OF THE BOTTOM AT THE TIME OF THE SURVEY, BASED ON THE LINE SPACING INTERVAL AND THINNING METHOD USED. THE CONDITION OF THE BOTTOM MAY CHANGE AT ANY TIME AFTER THE DATE OF THIS SURVEY.
8. BATHYMETRIC DATA WAS COLLECTED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS HYDROGRAPHIC MANUAL EM-1112-02-1003 (JANUARY 2002).
9. DATA COLLECTED: OCTOBER 5, 2004
10. TOPOGRAPHIC & HYDROGRAPHIC BASE INFORMATION PROVIDED BY MINISTER-GLAESER SURVEYING INC, 2200 E. EVERGREEN BLVD., VANCOUVER, WA 98661; MGS JOB#: 04-368; MGS DRAWING NAME: 04368T1.DWG.
11. BASELINE STATIONING

    (A) 0+00 N199489.85 E1273548.08

    (B) 7+00 N198847.04 E1273270.96

12. USE THE INDICATED BENCH MARK "DEA 2005" TO ESTABLISH SURVEY CONTROL POINTS IN ACCORDANCE WITH THE SPECIFICATIONS.
13. FOR ALL SURVEYS, THE HORIZONTAL DATUM THAT SHALL BE USED BY THE CONTRACTOR IS WASHINGTON STATE PLANE NORTH NORTHING AND EASTING COORDINATES IN FEET USED THE NORTH AMERICAN DATUM (NAD 1983/1991). ALL SURVEYS SHALL BE SHOWN IN MEAN LOWER LOW WATER (MLLW), RAW AND CORRECTED, IN FEET.
14. SURVEY INFORMATION FOR FIRST SOUTH PROPERTIES GROUND ELEVATIONS, PROPERTY BOUNDARY AND STORM DRAINAGE SYSTEM, OBTAINED FROM BUSH, ROED, & HITCHINGS INC. 2009 MINOR AVENUE EAST, SEATTLE, WA 98102; BRH JOB#:99322.02; BRH DRAWING NAME:XGRD.DWG. SURFACE CONTOURS REPRESENT PRE-PAVED CONDITION, FINAL GRADE MAY VARY.
15. CLEARLY MARK AN OFFSET BASELINE ON UPLAND AREA WEST OF THE PROJECT LIMITS
16. REFER TO SHEET 11 FOR PROJECT LIMIT COORDINATES.

SURVEY CONTROL PLAN

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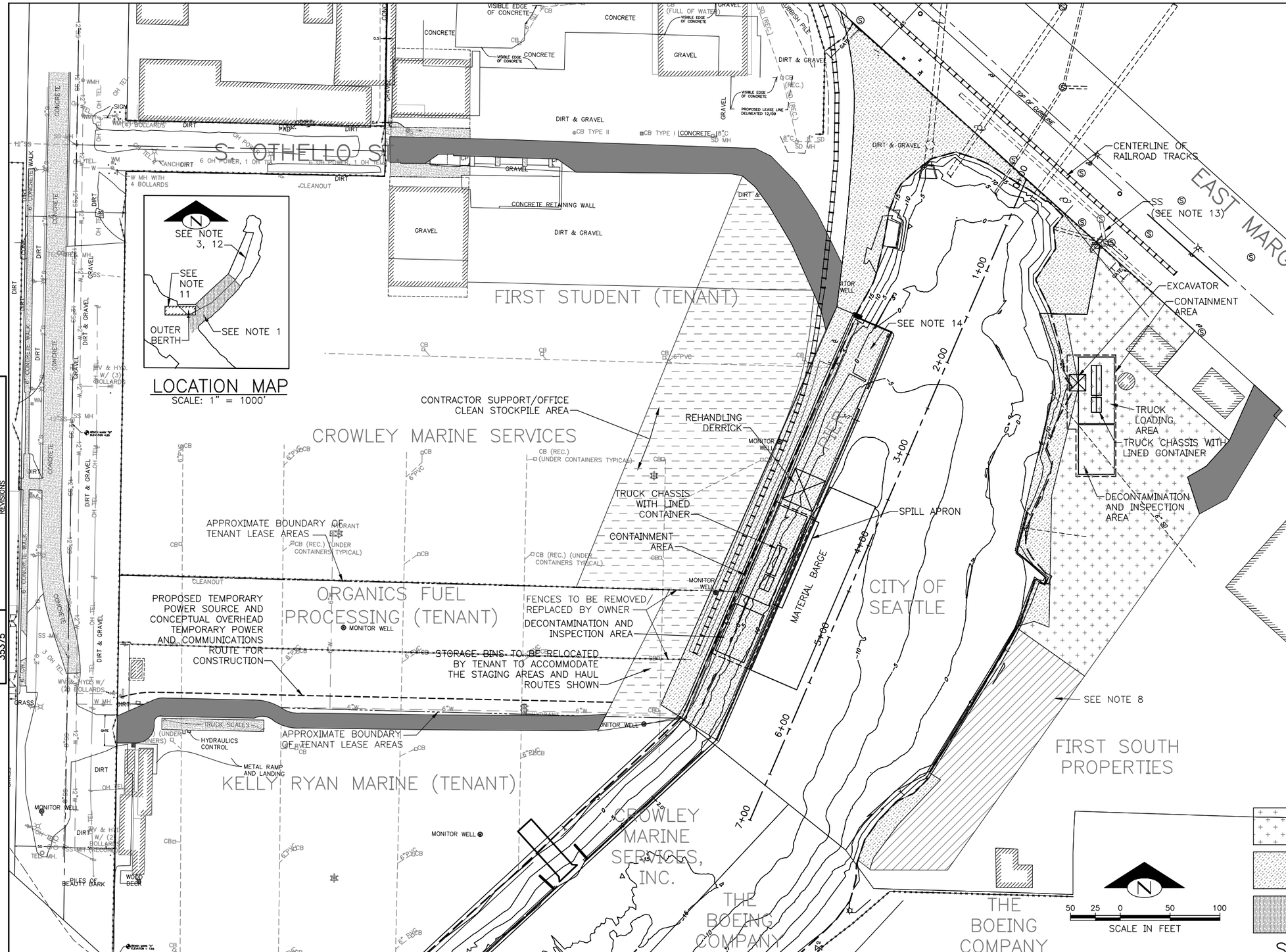
LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO

VAULT PLAN NO. 776-294

SHEET 6 OF 24



LOCATION MAP

SCALE: 1" = 1000'

LEGEND

- PROPERTY BOUNDARIES (KING COUNTY 2005)
- APPROXIMATE BOUNDARY OF TENANT LEASE AREAS
- APPROXIMATE TOP OF BANK
- PROJECT LIMITS
- RAIL SPUR

NOTES:

1. ALL MARINE ACCESS SHALL BE IN ACCORDANCE WITH CONTRACTOR'S VESSEL MANAGEMENT PLAN IN THE FINAL APPROVED RAWP. VESSELS SHALL NOT BE STAGED OUTSIDE THE PROJECT BOUNDARIES EXCEPT WHERE NECESSARY FOR THE CONSTRUCTION.
2. COORDINATE WITH THE ENGNIEER FOR NAVIGABLE ACCESS. NOTIFY THE ENGINEER IMMEDIATELY WHEN ANY MARINE ACCESS CONFLICTS ARE IDENTIFIED.
3. THE ENGINEER MAY IDENTIFY PERIODS THAT REQUIRE STANDBY DUE TO TRIBAL FISHING OR OTHER MARINE ACCESS ISSUES.
4. UPLAND STAGING AREAS ARE SHOWN FOR CONTRACTOR'S CONSIDERATION IN DEVELOPING THE RAWP. ACTUAL UPLAND STAGING AND ACCESS AREAS, SPECIFIC DATES AND DURATION OF THEIR USE, TO BE DETERMINED IN FINAL APPROVED RAWP. CONTRACTOR SHALL MINIMIZE THE EXTENT AND DURATION OF USE OF STAGING AREAS "A" AND "D".
5. COORDINATE WITH THE ENGINEER FOR UPLAND ACCESS THROUGH CROWLEY MARINE SERVICES AND FIRST SOUTH PROPERTIES. NOTIFY THE ENGINEER IMMEDIATELY WHEN ANY ACCESS CONFLICTS ARE IDENTIFIED.
6. PROVIDE TEMPORARY FENCING AROUND STAGING AREAS AND ON-SITE TRAFFIC CONTROL IN ACCORDANCE WITH THE SPECIFICATIONS.
7. AVAILABLE DATES FOR STAGING AREAS ARE AS FOLLOWS:
   a. AREA "A" – SEPTEMBER 14, 2011 – JANUARY 1, 2012
   b. AREA "B" – SEPTEMBER 14, 2011 – MARCH 1, 2012
   c. AREA "C" – SEPTEMBER 14, 2011 – MARCH 1, 2012
   d. AREA "D" – SEPTEMBER 14, 2011 – JANUARY 1, 2012
8. AREA "D" SHALL ONLY BE USED FOR 10 CONSECUTIVE CALENDAR DAYS FOR EXCAVATION AND 10 CONSECUTIVE CALENDAR DAYS FOR CAPPING BETWEEN SEPTEMBER 14, 2011 AND JANUARY 1, 2012. CONTRACTOR TO PROVIDE DATES IN RAWP.
9. TRANSLOADING LAYOUTS SHOWN ARE CONCEPTUAL. PROVIDE DETAILS IN RAWP.
10. LIVE LOAD LIMIT ON EXISTING PIER IS 500 PSF
11. BARGE OWNED BY OTHERS MAY BE MOORED IN OUTER BERTH. CONTRACTOR SHALL NOT BLOCK ACCESS TO OUTER BERTH.
12. VESSELS OWNED BY OTHERS WILL NOT BE MOORED IN THE MIDDLE BERTH OR WITHIN PROJECT LIMITS. OWNER'S DESIGNEE WILL OPERATE RESEARCH VESSELS AS REQUIRED DURING THE WORK.
13. APPROXIMATE LOCATION OF POTENTIAL TREATED WASTEWATER DISCHARGE LOCATION TO SANITARY SEWER IS SHOWN. VERIFY LOCATION, CITY TO OBTAIN DISCHARGE PERMIT FROM KING COUNTY. COMPLY WITH ALL PERMIT CONDITIONS.
14. PIER TO BE DEMOLISHED. REFER TO SHEET 5 FOR GENERAL SEQUENCING REQUIREMENTS.

- STAGING AREA A
- STAGING AREA B
- MARINE ACCESS AND STAGING
- STAGING AREA C
- STAGING AREA D
- HAUL ROUTES

SITE ACCESS AND STAGING PLAN

MARK	DATE	NATURE REVISIONS	MADE	CHK'D	REV'D

VAULT SERIAL NO. 35375

integral consulting inc.
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SEATTLE, WASHINGTON 98104
206.230.9600

0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

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DEPARTMENT OF FINANCE & ADMINISTRATIVE SERVICES
SEATTLE, WASHINGTON 20
BY:
PURCHASING & CONTRACTING SERVICES DIRECTOR

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DESIGNED	DRS 3/30/07	REVIEWED: DES.	CONST.
CHECKED	RMC 3/30/07	SDOT	PROJ. MGR.
DRAWN	TRN/WRM 3/30/07	RECEIVED	
CHECKED	DRS 8/5/10	REVISED AS BUILT	

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.

Seattle Public Utilities
City of Seattle
Ray Hoffman, Director
ORDINANCE NO.
FUND: DWF/SCL
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 7 OF 24

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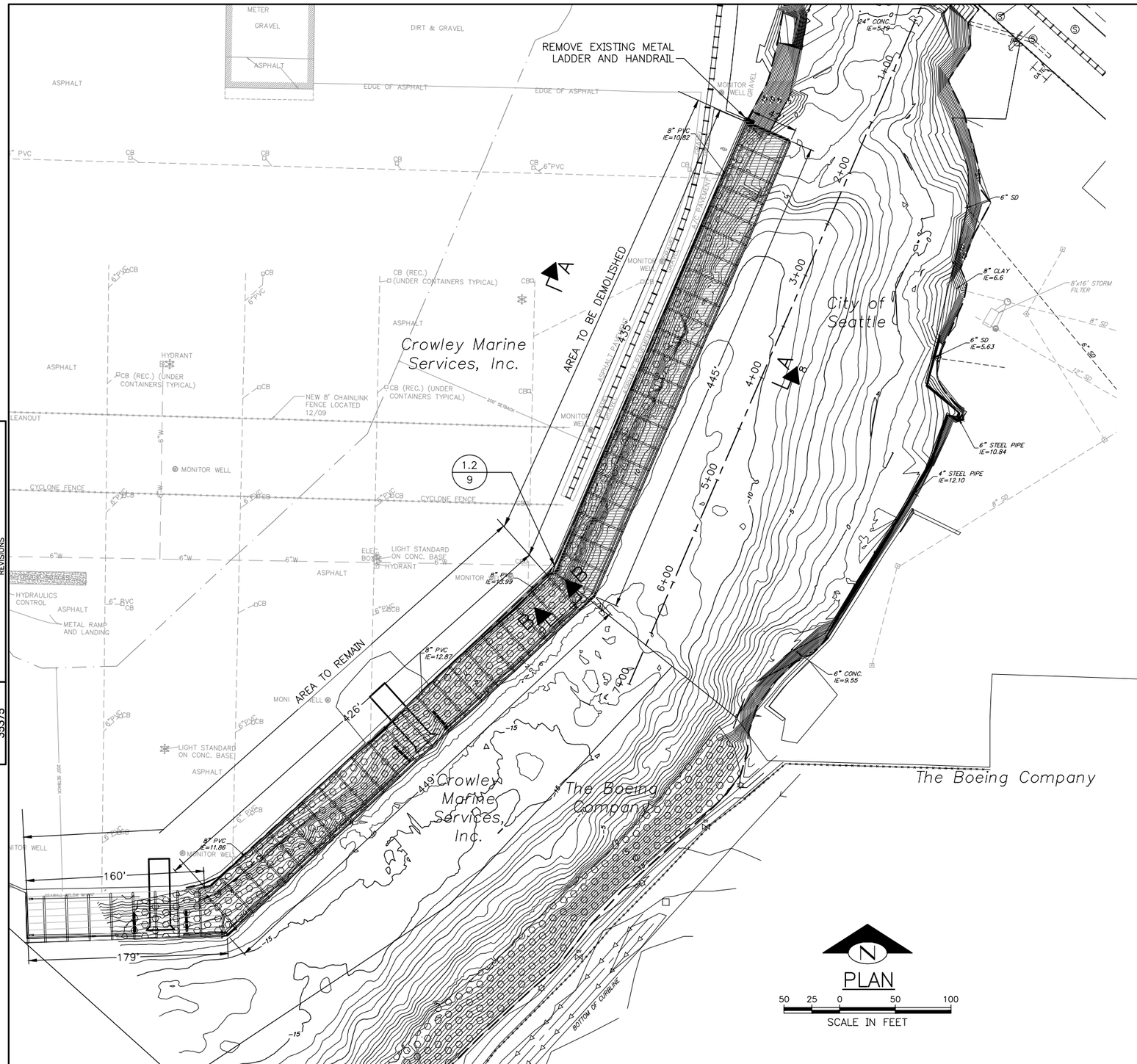

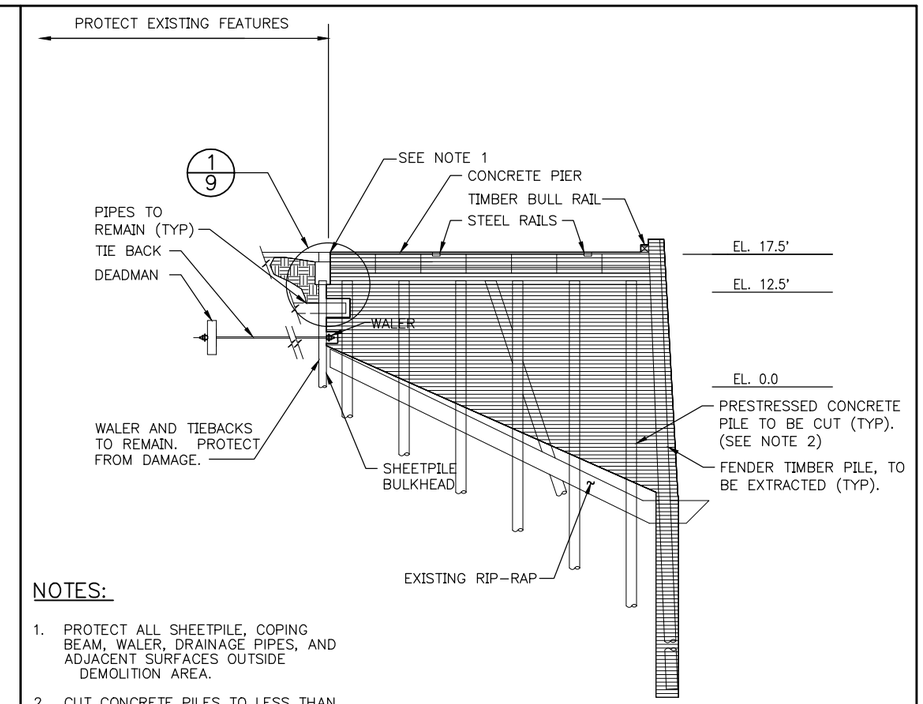

NOTES:

1. PROTECT ALL SHEETPILE, COPING BEAM, WALER, DRAINAGE PIPES, AND ADJACENT SURFACES OUTSIDE DEMOLITION AREA.
2. CUT CONCRETE PILES TO LESS THAN ONE FOOT ABOVE EXISTING MUDLINE. NO REINFORCING STEEL SHALL PROTRUDE ABOVE CUT STUBS.

TYPICAL ELEVATION SECTION A–A 8

DATUM
MLLW = 0.0 FT

10 0 10 20 30 FEET
SCALE: 1"=10'

GENERAL NOTES:

1. DEMOLITION IS LIMITED TO THE LIMITS INDICATED ON THE DRAWINGS.
2. VERIFY WITH CROWLEY MARINE SERVICES THAT EXISTING ELECTRICAL FEATURES ARE DE–ENERGIZED AND ABANDONED.
3. ELECTRICAL AND MECHANICAL FEATURES NOT SHOWN.
4. DEMOLISH AND DISPOSE OF ALL MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS.
5. DO NOT DISTURB EXISTING RIPRAP OR MUDLINE.
6. ALL PIER SECTIONS AND DETAILS ARE TAKEN FROM ORIGINAL DESIGN DRAWINGS – MARINE POWER AND EQUIPMENT, INC., DESIGN DRAWING NOS. 601633 AND 601638 EXISTING CONDITIONS MAY VARY
7. VERIFY PIER CONFIGURATION AND DIMENSIONS. SUBMIT CONDITIONS DOCUMENTATION MEMO IN ACCORDANCE WITH THE SPECIFICATIONS.
8. MAXIMUM ALLOWABLE LIVE LOAD ON THE PIER IS 500 PSF BEFORE THE START OF DEMOLITION.

LEGEND:

AREA TO BE DEMOLISHED

CALL 48 HOURS BEFORE YOU DIG 1–800–424–5555

DEMOLITION PLAN – PIER

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
35375						

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776–294
SHEET 8 OF 24

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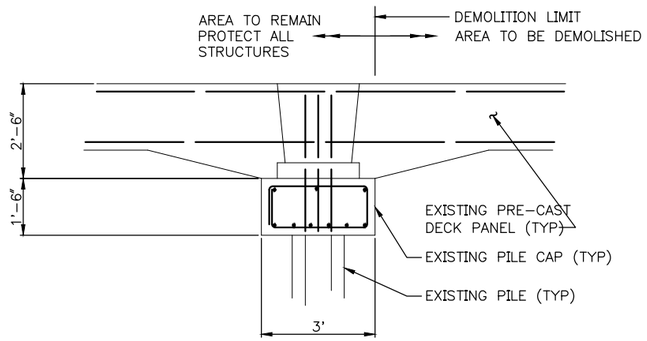
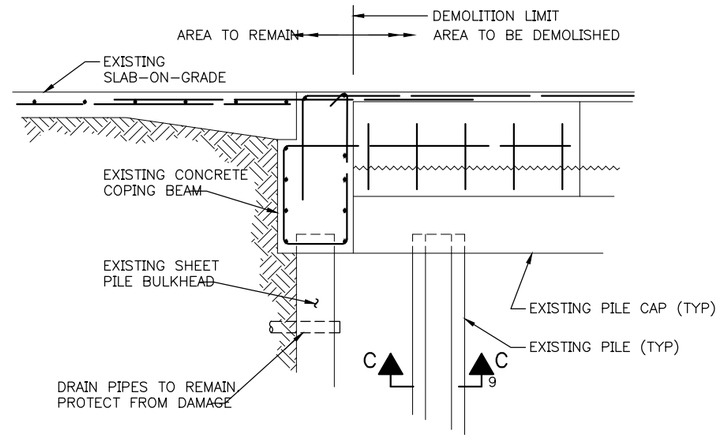


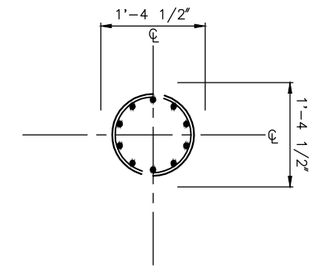
SECTION B–B 8

SCALE: NONE
EXISTING CONDITION



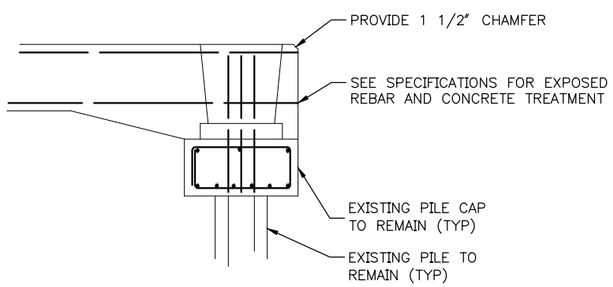
DETAIL 1/8

SCALE: NONE
EXISTING CONDITION



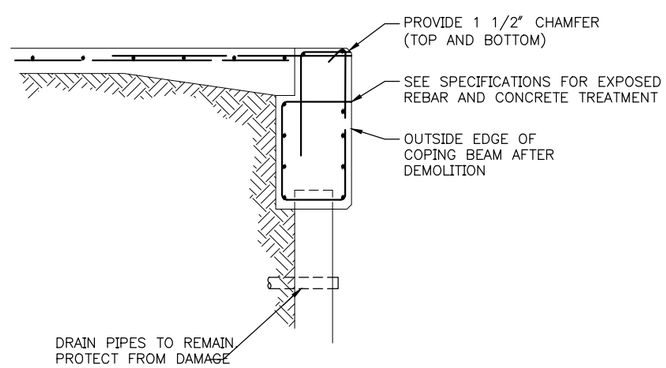
SECTION C–C 9

SCALE: NONE
TYPICAL EXISTING REINFORCED CONCRETE PILE SECTION



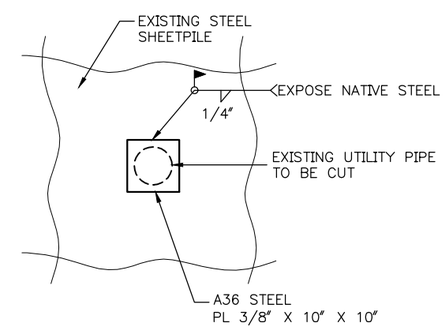
SECTION B.1–B.1 8

SCALE: NONE
POST DEMOLITION



DETAIL 1.1/8

SCALE: NONE
POST DEMOLITION



DETAIL 1.2/8

SCALE: NONE
TYPICAL DETAIL OF
SEALING SHEETPILE AT
TERMINATED PIPES

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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Seattle Public Utilities
City of Seattle
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DEMOLITION DETAILS – PIER

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 9 OF 24

LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL
- PROJECT LIMITS
- APPROXIMATE PROPERTY LINE
- APPROXIMATE EXISTING TOP OF BANK
- RAIL SPUR
- EXISTING RIPRAP
- PHOTO NUMBER
- PHOTO VIEW

NOTES:

1. HANDLE ALL WOOD DEBRIS THAT APPEARS TO BE CHEMICALLY TREATED IN ACCORDANCE WITH CONTRACTOR'S DISPOSAL PLAN. CONDUCT ANY SAMPLING AND ANALYSIS OF DEBRIS AS REQUIRED BY THE DISPOSAL FACILITY.
2. EXTRACT ALL WOODEN PILING BY VIBRATORY EXTRACTION OR DEAD LINE PULL (PHOTOS 1,3,9).
3. PROTECT EXISTING WOODEN BULKHEAD OUTSIDE OF EXCAVATION LIMITS.
4. SEE SHEETS 8–9 FOR PIER DEMOLITION PLANS AND DETAILS.
5. REMOVE ALL VISIBLE DERELICT PILING AND DEBRIS, INCLUDING TIMBER SKIDS AND SUPPORT PILING, PRIOR TO DREDGING (PHOTOS 1,3,4,9).
6. REMOVE BULKHEADS THAT CURRENTLY RETAIN SOILS DURING BANK EXCAVATION (PHOTOS 1,2,6,7,8). EXCAVATE AFFECTED BANK AREAS ON SAME DAY THAT BULKHEAD IS REMOVED TO LIMIT EROSION.
7. PROTECT ALL OUTFALLS DURING DEMOLITION.
8. ECOLOGY BLOCKS AND TANKS TO BE REMOVED BY OWNER, REMOVE DEBRIS DURING BANK EXCAVATION (PHOTO 5).
9. SAW CUT CONCRETE PAD OR EXISTING A/C PAVMENT AT TOP OF EXCAVATION LIMITS, WHERE PRESENT (PHOTO 5)
10. PROTECT EXISTING WOOD PILE FENDERS ON EAST AND WEST SIDE OF I–5 OUTFALL (PHOTO 10)

N

50 25 0 50 100
SCALE IN FEET

CALL 48 HOURS BEFORE YOU DIG
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DEMOLITION PLAN
MUDFLATS AND BANKS

MARK	DATE	NATURE REVISIONS	MADE	CHK'D	REV'D

VAULT SERIAL NO. 35375

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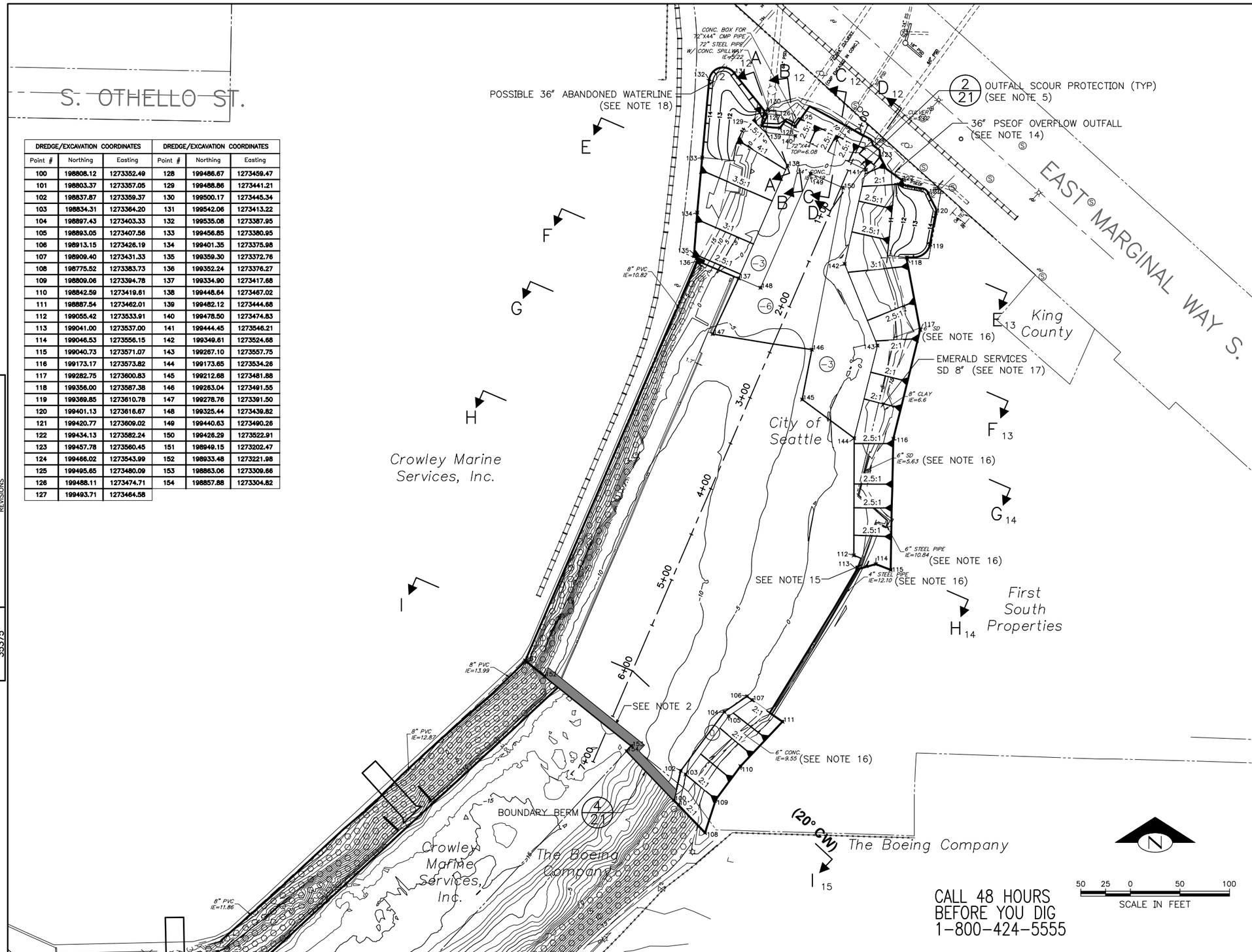
LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776–294
SHEET 10 OF 24

DREDGE/EXCAVATION COORDINATES			DREDGE/EXCAVATION COORDINATES		
Point #	Northing	Easting	Point #	Northing	Easting
100	198808.12	1273352.49	128	199486.67	1273459.47
101	198803.37	1273357.05	129	199488.86	1273441.21
102	198837.87	1273359.37	130	199500.17	1273445.34
103	198834.31	1273364.20	131	199542.06	1273413.22
104	198897.43	1273403.33	132	199535.08	1273387.95
105	198893.05	1273407.56	133	199456.85	1273380.95
106	198913.15	1273426.19	134	199401.35	1273375.98
107	198909.40	1273431.33	135	199359.30	1273372.76
108	198775.52	1273383.73	136	199352.24	1273376.27
109	198809.06	1273394.78	137	199334.90	1273417.68
110	198842.59	1273419.61	138	199448.64	1273467.02
111	198887.54	1273462.01	139	199482.12	1273444.68
112	199055.42	1273533.91	140	199478.50	1273474.83
113	199041.00	1273537.00	141	199444.45	1273546.21
114	199046.53	1273556.15	142	199349.61	1273524.68
115	199040.73	1273571.07	143	199267.10	1273557.75
116	199173.17	1273573.82	144	199173.65	1273534.26
117	199282.75	1273600.83	145	199212.68	1273481.88
118	199356.00	1273587.38	146	199263.04	1273491.55
119	199369.85	1273610.78	147	199278.76	1273391.50
120	199401.13	1273616.67	148	199325.44	1273439.82
121	199420.77	1273609.02	149	199440.63	1273490.26
122	199434.13	1273582.24	150	199426.29	1273522.91
123	199457.78	1273560.45	151	198949.15	1273202.47
124	199466.02	1273543.99	152	198933.48	1273221.98
125	199495.65	1273480.09	153	198863.06	1273309.86
126	199488.11	1273474.71	154	198857.88	1273304.82
127	199493.71	1273464.58			



LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL (EXISTING)
- 1 FOOT CONTOUR INTERVAL (EXISTING)
- FINAL GRADE
- APPROXIMATE PROPERTY LINE
- APPROXIMATE EXISTING TOP OF BANK
- PROJECT LIMITS
- DREDGE LIMITS
- REQUIRED DREDGE ELEVATION (FT MLLW)
- DREDGE COORDINATE LOCATION
- EXISTING RIPRAP
- BOUNDARY BERM
- RAIL SPUR

NOTES:

1. EXISTING BATHYMETRIC CONTOURS SHOWN. REFER TO SHEET 6 FOR BASEMAP SURVEY NOTES.
2. COMPLETE PRE-DREDGE SURVEY BEFORE START OF DREDGING, IN ACCORDANCE WITH THE SPECIFICATIONS. PLACE BOUNDARY BERM BEFORE START OF DREDGING.
3. SLOPE DREDGING/EXCAVATION SHALL PROCEED FROM THE TOP OF THE SLOPE DOWNWARD TO THE INDICATED LINES AND CONTROL POINTS. EXCAVATED SLOPES SHALL BE UNIFORM AND NO STEEPER THAN 2H:1V EXCEPT WHERE OTHERWISE SPECIFIED. SLOPE CALLOUTS ARE APPROXIMATE.
4. PRIOR TO CAPPING, REMOVE ANY MATERIALS THAT HAVE SLOUGHED OR SETTLED AT THE TOE OF THE SLOPE DURING OR SUBSEQUENT TO THE DREDGING.
5. PROVIDE A MINIMUM 18-INCH THICK LAYER OF CAP ARMOR ON CUT SLOPES IN FRONT OF OUTFALLS WITHIN 8 HOURS OF DREDGING THE OUTFALL AREA, AS SHOWN ON SHEET 21.
6. COMPLETE POST-DREDGE SURVEY WITHIN 24 HOURS OF COMPLETION OF THE DREDGING, IN ACCORDANCE WITH THE SPECIFICATIONS.
7. CONDUCT ADDITIONAL DREDGING AND RE-SURVEYING IF THE POST DREDGE SURVEY INDICATES THE REQUIRED DEPTHS AND GRADES HAVE NOT BEEN MET.
8. DREDGE OVERDEPTH ALLOWANCE IS 1 FOOT.
9. COORDINATE WITH ENGINEER FOR ACCESS, TIMING, AND MOVEMENT OF VESSELS.
10. WITHIN 48 HOURS AFTER ALL DREDGING IS COMPLETE AND ACCEPTED, PLACE SLOPE CAP ON EMBANKMENT IN RA3.
11. PROTECT ALL EXISTING STRUCTURES TO REMAIN.
12. EXISTING DEBRIS NOT SHOWN.
13. HANDLE, TRANSPORT, AND DISPOSE OF ALL DREDGED MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS.
14. APPROXIMATE LOCATION OF EAST MARGINAL WAY PUMP STATION EOF OUTFALL (36-INCH) IS SHOWN. LOCATE AND PROTECT EXISTING OUTFALL.
15. TIMBER BULKHEAD TO REMAIN BETWEEN COORDINATES 112 AND 113.
16. CUT OUTFALL FLUSH WITH EXCAVATION AND GROUT IN ACCORDANCE WITH SPECIFICATIONS.
17. LOCATE AND PROTECT EMERALD SERVICES SD AND PUBLIC OUTFALLS AT HEAD OF SLIP.
18. ABANDONED WATER LINE MAY BE ENCOUNTERED IN THIS AREA. WATERLINE IS BELIEVED TO BE 36" WOOD STAVE CONSTRUCTION. IF ENCOUNTERED, REMOVE TO 3 FEET BEYOND THE LIMITS OF THE EXCAVATION SHOWN AND PLUG PIPE ENDS WITH A MINIMUM OF 2 CUBIC YARDS OF FILTER MATERIAL.

DREDGING/EXCAVATION PLAN

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 11 OF 24

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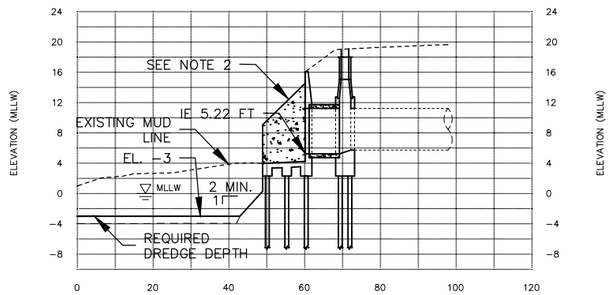
NOTES:

1. GEORGETOWN FLUME RE-PIPE IS 24" HDPE INSIDE 44"X72" CMP.
2. EXCAVATE EXISTING SEDIMENT ACCUMULATIONS FROM I-5 SPILL APRON.
3. PROTECT EXISTING OUTFALLS

LEGEND:

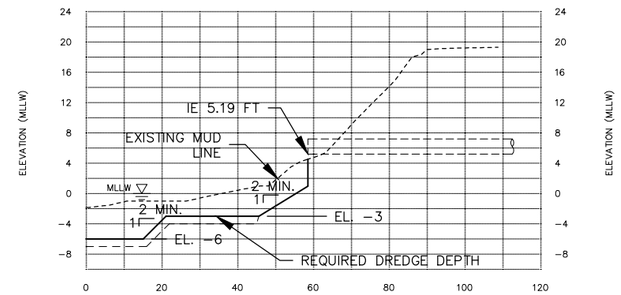
- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE

I-5 STORM DRAIN, 72"



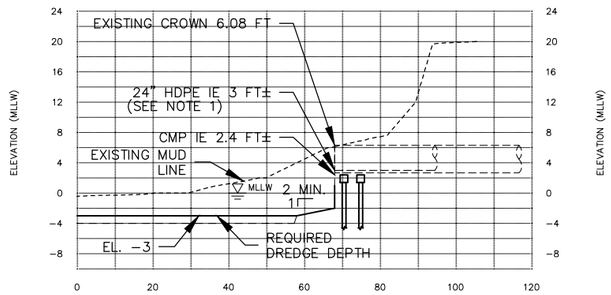
SECTION A-A 11

NORTH BOEING FIELD S.D., 24"



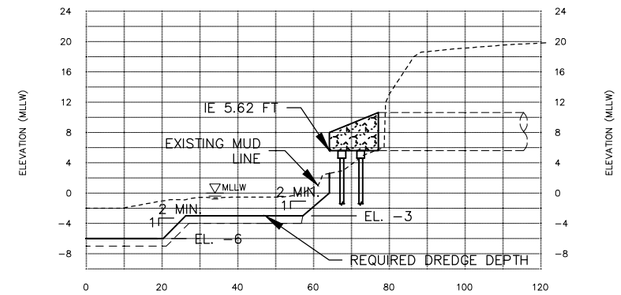
SECTION C-C 11

GEORGETOWN FLUME, 44"X72" CMP

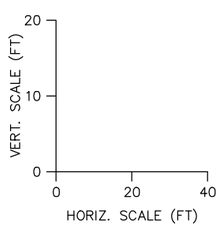


SECTION B-B 11

KING COUNTY AIRPORT S.D.#3/PS44 EOF, 60"



SECTION D-D 11



DREDGING/EXCAVATION SECTIONS A-D

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
35375						

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DRAWN TRN/WRM 3/30/07	RECEIVED
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Seattle Public Utilities
City of Seattle
Ray Hoffman, Director
ORDINANCE NO. APPROVED
FUND: DWF/SCL
SCALE: H. 1"=40', V. 1"=20' INSPECTOR'S BOOK

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

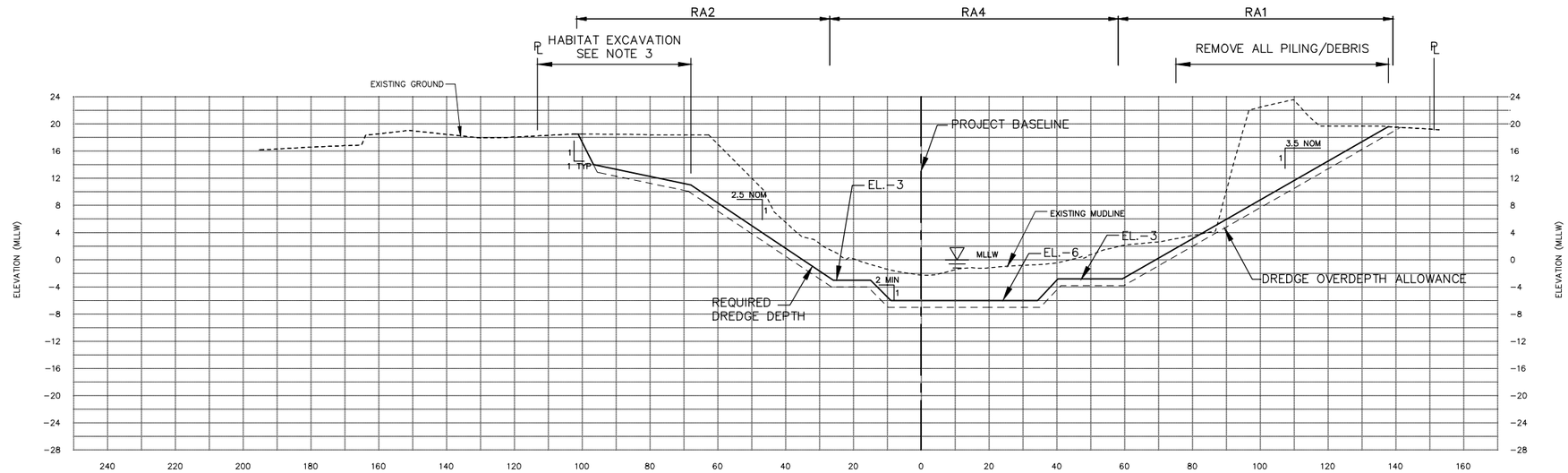
JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 12 OF 24

NOTES:

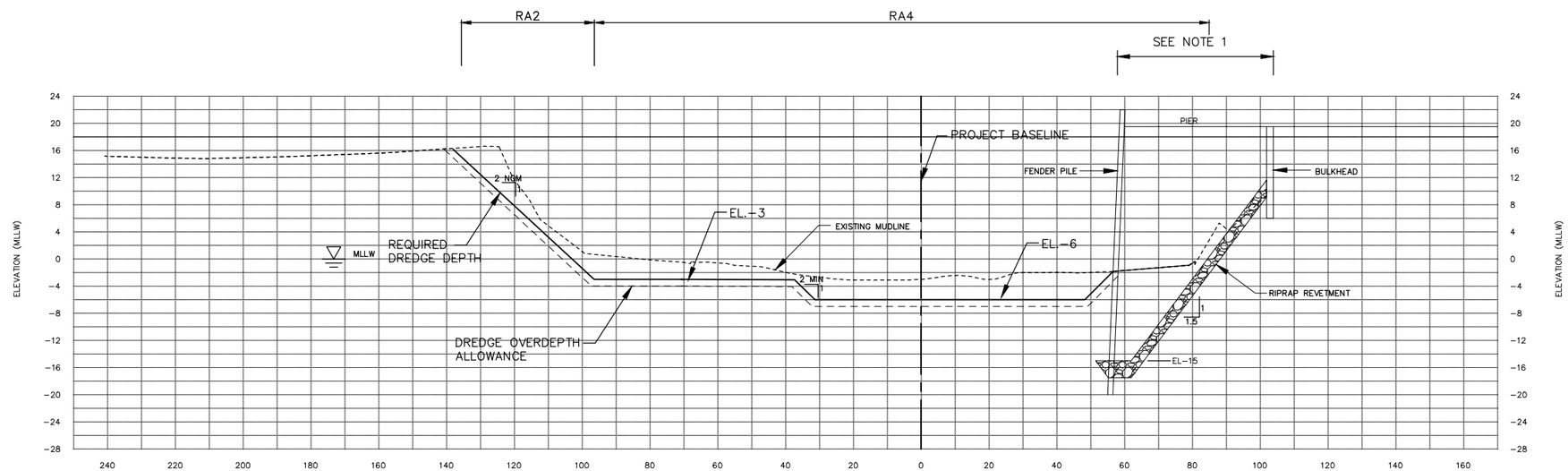
1. BULKHEAD, REVETMENT, AND FENDER PILE DETAILS FROM MARINE POWER AND EQUIPMENT CO., INC. DESIGN DRAWING NO. 533-YD5-42CP. UNDER-PIER PILING NOT SHOWN. AS-BUILT CONDITIONS MAY VARY.
2. REFER TO SHEET 11 FOR DREDGING AND EXCAVATION NOTES.
3. EXCAVATE HABITAT EXCAVATION AREAS TO CONTOURS SHOWN ON SHEET 11.

LEGEND:

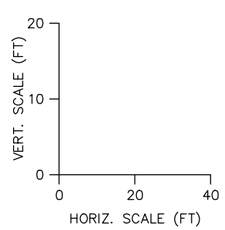
- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE



SECTION E-E 11 STA 1+00 (LOOKING UPSTATION, TYP)



SECTION F-F 11 STA 2+00



DREDGING/EXCAVATION SECTIONS E-F

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 13 OF 24

NOTES:

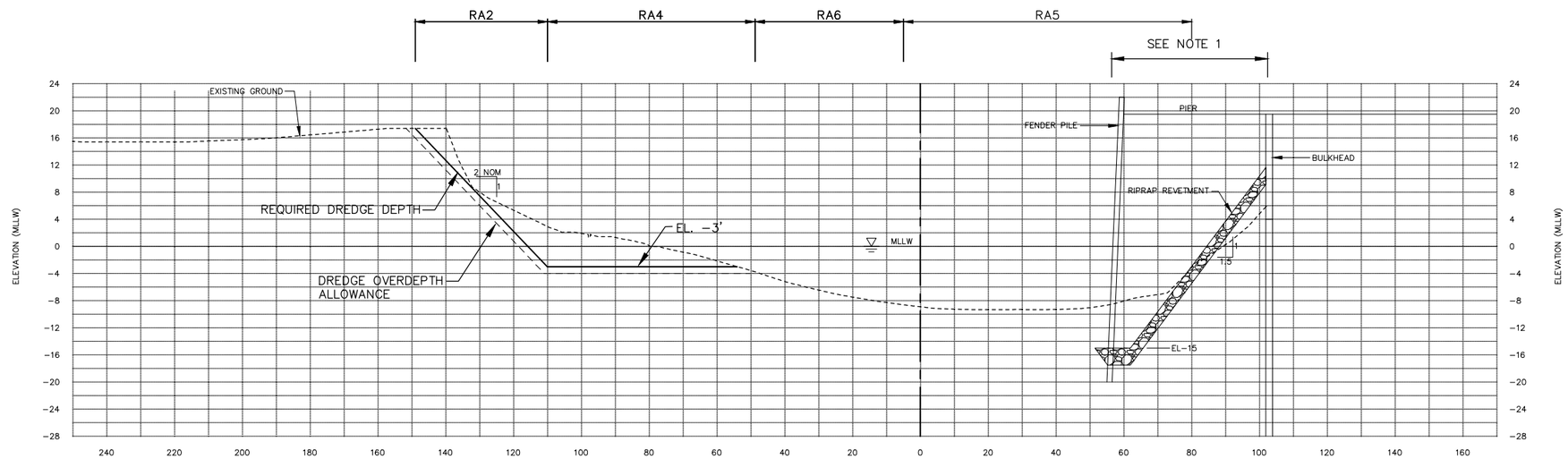
1. BULKHEAD, REVETMENT, AND FENDER PILE DETAILS FROM MARINE POWER AND EQUIPMENT CO., INC. DESIGN DRAWING NO. 533-YD5-42CP. UNDER-PIER PILING NOT SHOWN. AS-BUILT CONDITIONS MAY VARY.
2. REFER TO SHEET 11 FOR DREDGING AND EXCAVATION NOTES.
3. BULKHEAD TO REMAIN FROM STA 4+00 TO STA 5+80, 2H:1V EXCAVATION EXTENDS UPSTATION BEHIND REMAINING BULKHEAD FOR GRADE TRANSITION, AS SHOWN ON SHEET 11.

LEGEND:

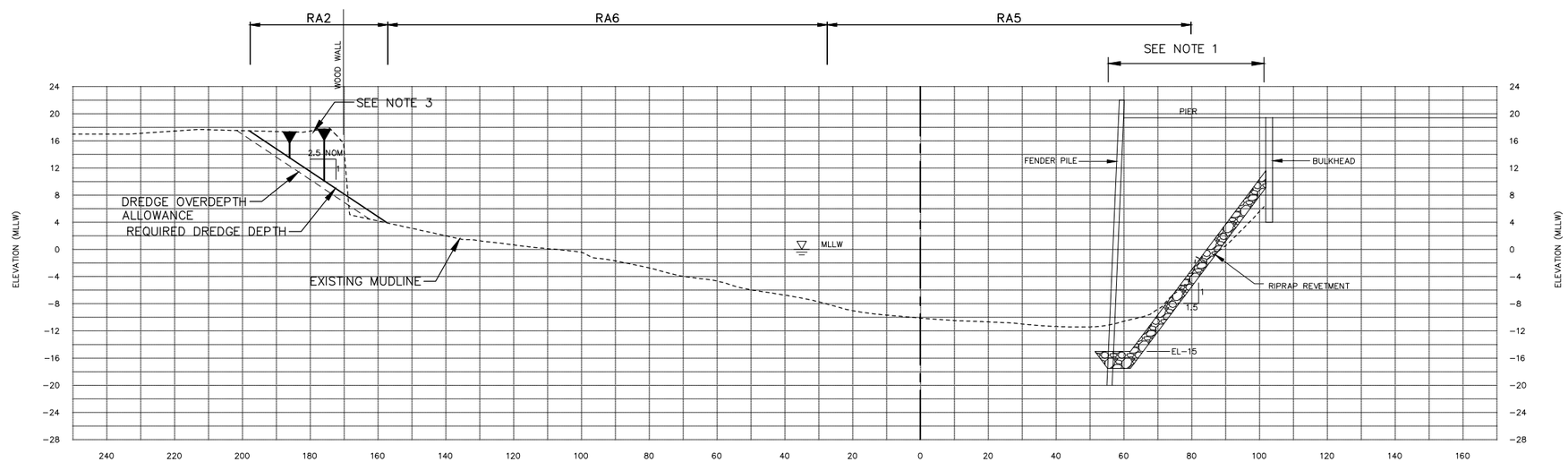
- - - - - - - - - - EXISTING MUDLINE

———————— REQUIRED DREDGE DEPTH

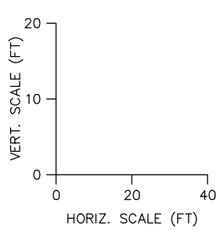
- - - - - - - - - - DREDGE OVERDEPTH ALLOWANCE



SECTION G-G 11 STA 2+80 (LOOKING UPSTATION, TYP.)



SECTION H-H 11 STA 4+00



DREDGING/EXCAVATION SECTIONS G-H

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 14 OF 24

NOTES:

1. BULKHEAD, REVETMENT, AND FENDER PILE DETAILS FROM MARINE POWER AND EQUIPMENT CO., INC. DESIGN DRAWING NO. 533-YD5-42CP. UNDER-PIER PILING NOT SHOWN.
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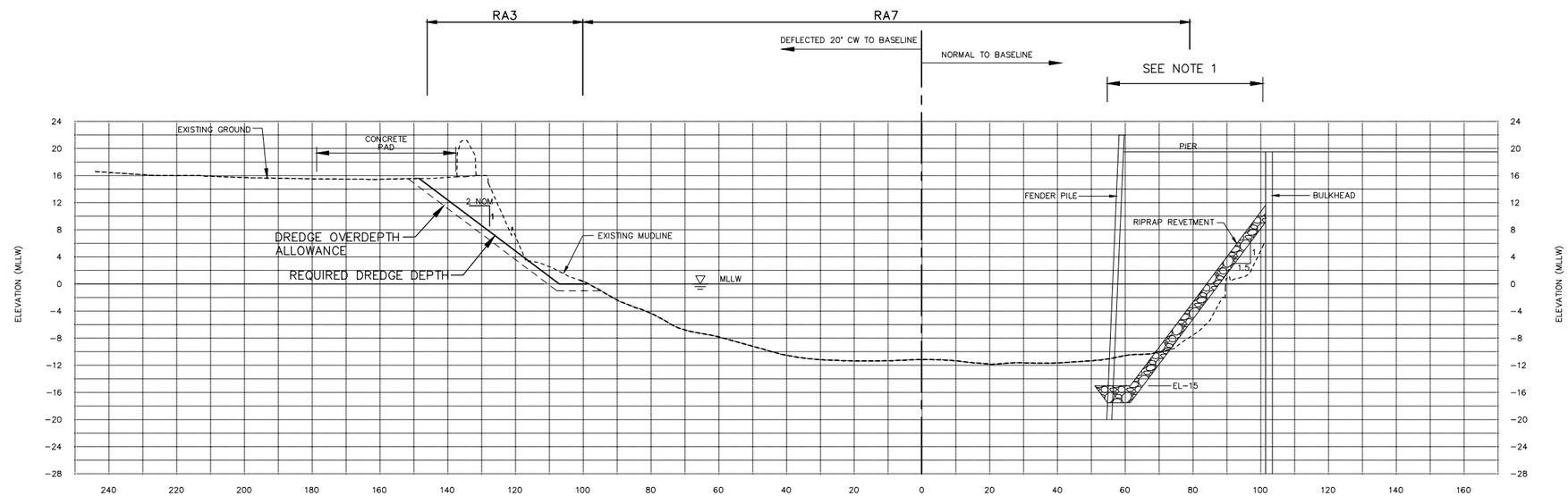
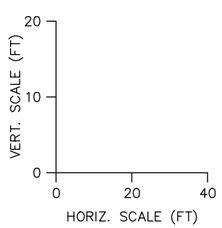
LEGEND:

- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE



SECTION I-I 11 STA 6+00 (LOOKING UPSTATION)



DREDGING/EXCAVATION SECTION I

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
35375						

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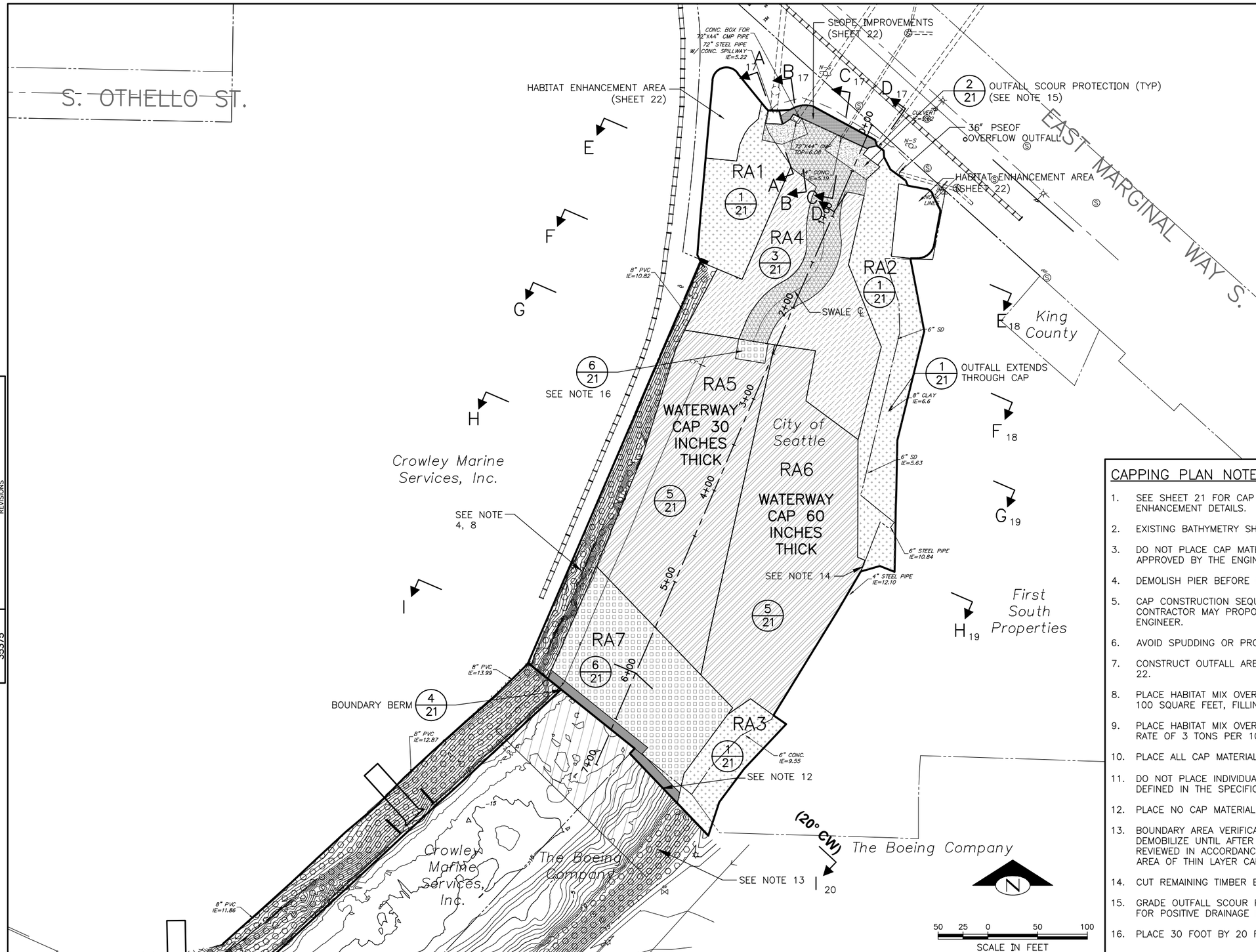
LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045
R/W
CO
VAULT PLAN NO. 776-294
SHEET 15 OF 24



LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.41WALL SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL (EXISTING)
- 1 FOOT CONTOUR INTERVAL (EXISTING)
- APPROXIMATE PROPERTY LINE
- PROJECT LIMITS
- RAIL SPUR
- EXISTING RIPRAP
- OUTFALL SCOUR PROTECTION
- SLOPE CAP
- ARMORED CAP
- WATERWAY CAP
- OUTFALL AREA CAP – ARMORED
- OUTFALL AREA CAP – UNARMORED
- BOUNDARY BERM
- CAP ARMOR W/HABITAT MIX

CAPPING PLAN NOTES:

1. SEE SHEET 21 FOR CAP DETAILS. SEE SHEET 22 AND 23 FOR FINISH GRADING AND HABITAT ENHANCEMENT DETAILS.
2. EXISTING BATHYMETRY SHOWN OUTSIDE OF CAP AREAS.
3. DO NOT PLACE CAP MATERIAL UNTIL FINAL DREDGING AND EXCAVATION SURVEY HAS BEEN APPROVED BY THE ENGINEER.
4. DEMOLISH PIER BEFORE CAPPING IN RA5, RA6, OR RA7.
5. CAP CONSTRUCTION SEQUENCING SHALL BE AS FOLLOWS: RA3, RA2, RA1, RA4, RA5, RA6, RA7. CONTRACTOR MAY PROPOSE ALTERNATIVE SEQUENCING IN RAWP, SUBJECT TO APPROVAL BY THE ENGINEER.
6. AVOID SPUDDING OR PROPWASH IN CONSTRUCTED CAP AREAS.
7. CONSTRUCT OUTFALL AREA CAP IN RA4 TO THE FINISH LINES AND GRADES SHOWN ON SHEET 22.
8. PLACE HABITAT MIX OVER EXISTING RIPRAP IN FORMER PIER AREA, AT A RATE OF 3 TONS PER 100 SQUARE FEET, FILLING THE VOIDS IN THE RIPRAP.
9. PLACE HABITAT MIX OVER ALL CAP ARMOR MATERIAL IN RA1, RA2, RA3, RA4, AND RA7, AT A RATE OF 3 TONS PER 100 SQUARE FEET, FILLING THE VOIDS IN THE RIPRAP.
10. PLACE ALL CAP MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS.
11. DO NOT PLACE INDIVIDUAL LIFTS OF CAP MATERIAL IN THICKNESS' GREATER THAN THOSE DEFINED IN THE SPECIFICATIONS.
12. PLACE NO CAP MATERIAL OUTSIDE THE PROJECT LIMITS, UNLESS DIRECTED BY THE ENGINEER
13. BOUNDARY AREA VERIFICATION SAMPLING BY THE ENGINEER. THE CONTRACTOR WILL NOT DEMOBILIZE UNTIL AFTER THE POST-CONSTRUCTION BOUNDARY SAMPLE ANALYSIS HAVE BEEN REVIEWED IN ACCORDANCE WITH THE SPECIFICATIONS. HATCHED AREA INDICATES POTENTIAL AREA OF THIN LAYER CAPPING, TO BE DETERMINED BY THE ENGINEER.
14. CUT REMAINING TIMBER BULKHEAD FLUSH WITH FINAL CAP SURFACE.
15. GRADE OUTFALL SCOUR PROTECTION FOR POSITIVE DRAINAGE TOWARD SWALE. GRADE SWALE FOR POSITIVE DRAINAGE FROM OUTFALLS TO RA5.
16. PLACE 30 FOOT BY 20 FOOT ARMORED CAP IN RA5 AT SWALE OUTLET.

CAPPING PLAN

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Ray Hoffman, Director
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 16 OF 24

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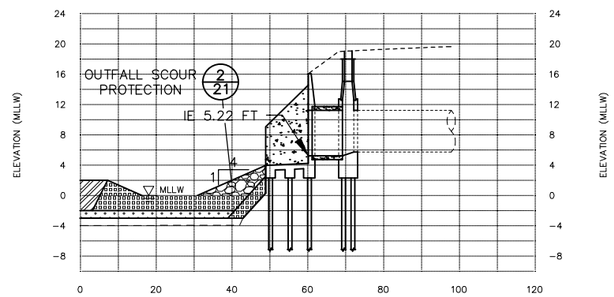
NOTES:

1. PLACE MIN 18" (MAX 24") THICK LAYER OF CAP ARMOR MATERIAL ON OUTFALL AREA SLOPES BETWEEN ELEVATION +5 AND ELEVATION +12.

LEGEND:

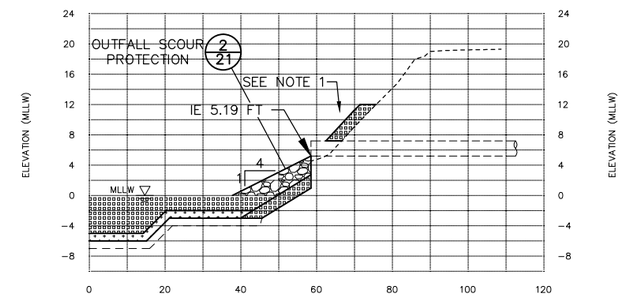
- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE
- HEAVY LOOSE RIPRAP
- CAP ARMOR
- FILTER MATERIAL
- WATERWAY CAP MATERIAL

I–5 STORM DRAIN, 72"



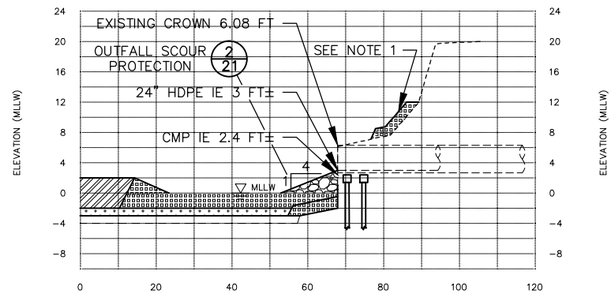
SECTION A–A 16

NORTH BOEING FIELD S.D., 24"



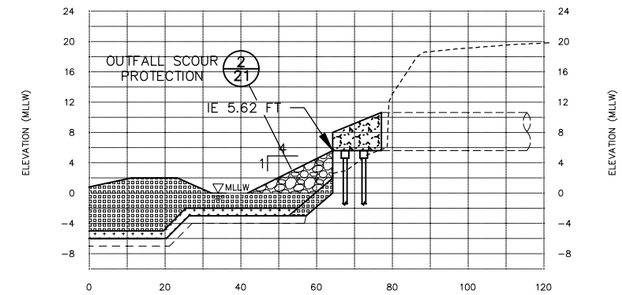
SECTION C–C 16

GEORGETOWN FLUME, 44"X72" CMP

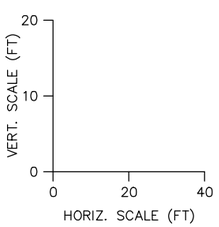


SECTION B–B 16

KING COUNTY AIRPORT S.D.#3/PS44 EOF, 60"



SECTION D–D 16



CAPPING SECTIONS A–D

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

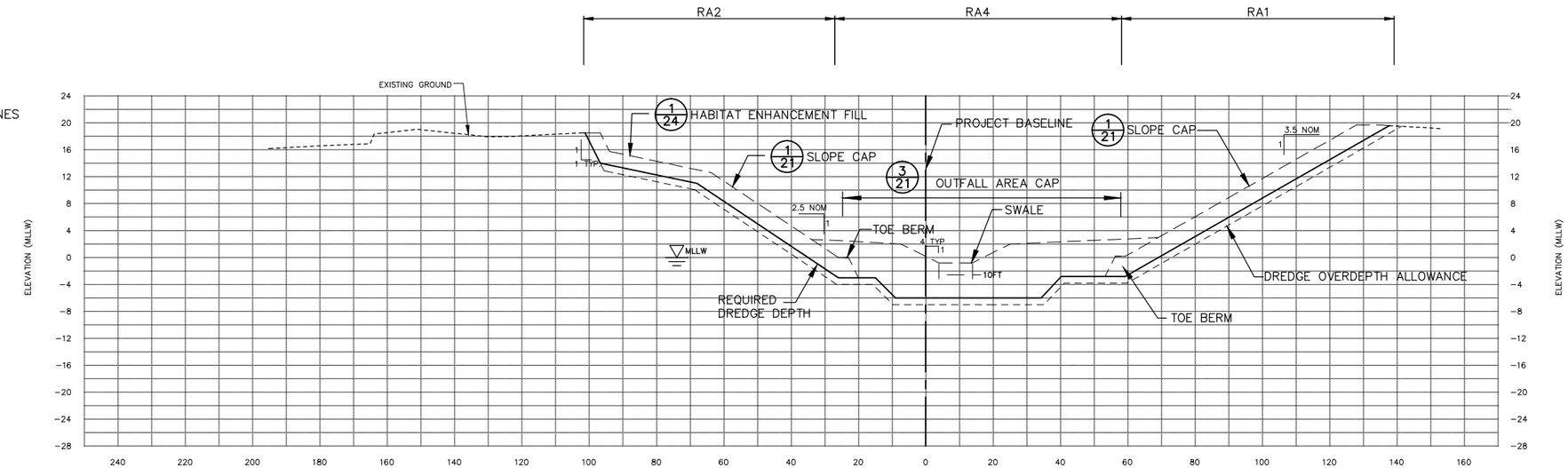
JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 17 OF 24

NOTES:

1. DEMOLISH PIER BEFORE CAPPING IN RA5, 6, OR 7.
2. CONSTRUCT OUTFALL AREA CAP IN RA4 TO FINAL LINES AND GRADES SHOWN ON SHEET 16.

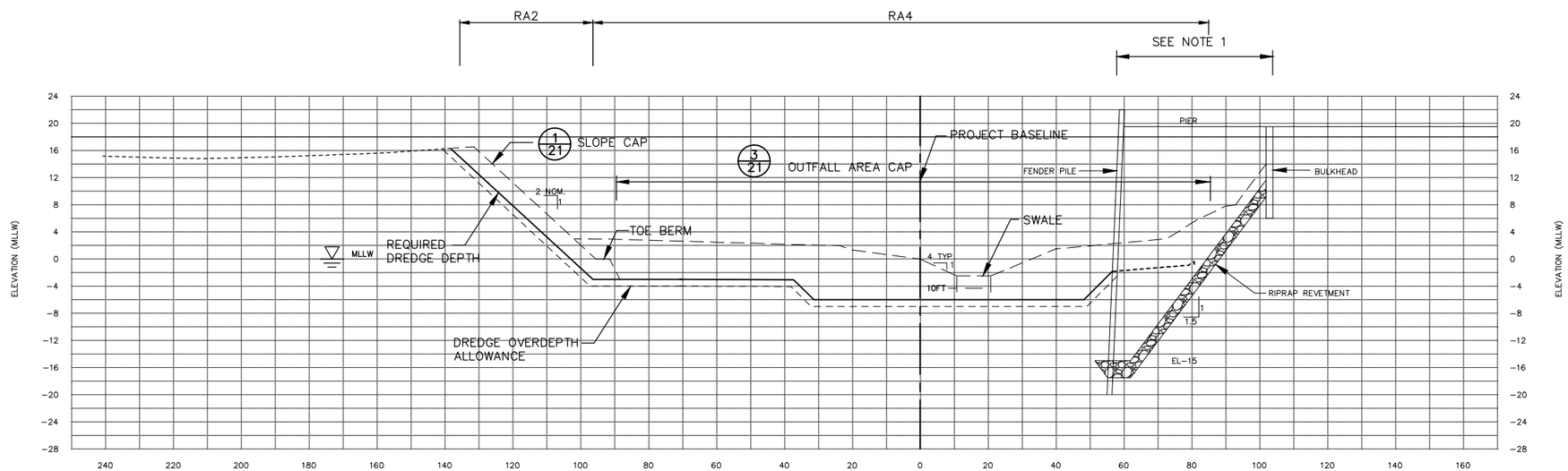
LEGEND:

- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE
- CAPPING LINE



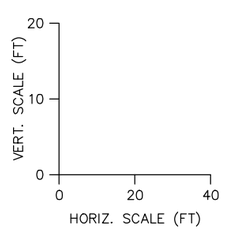
SECTION E–E 16

STA 1+00 (LOOKING UPSTATION, TYP)



SECTION F–F 16

STA 2+00



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VAULT PLAN NO. 776-294
SHEET 18 OF 24

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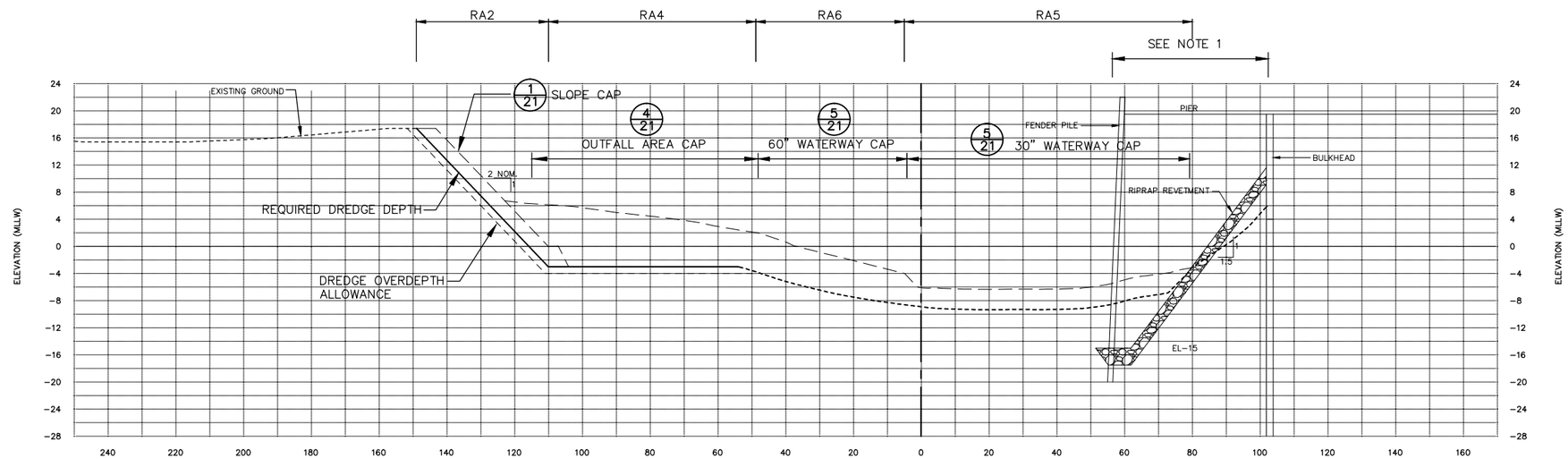
NOTES:

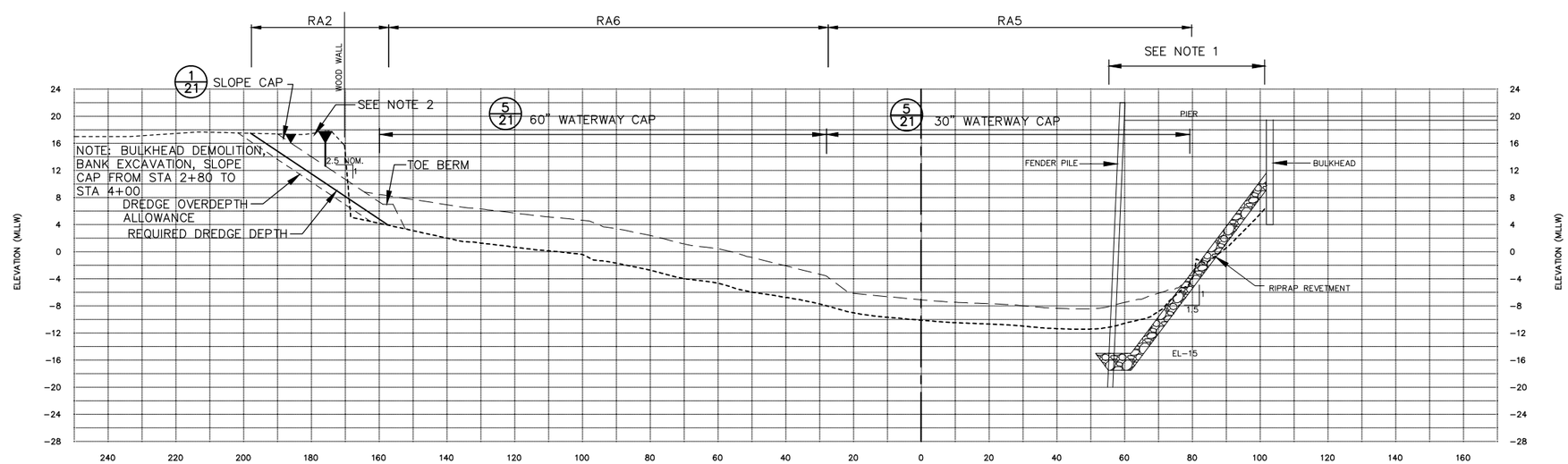
1. DEMOLISH PIER BEFORE CAPPING IN RA5, 6, OR 7.
2. BULKHEAD TO REMAIN FROM STA 4+00 TO 5+80.

LEGEND:

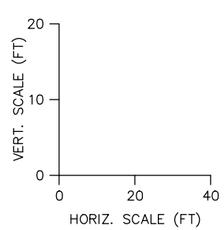
- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE
- CAPPING LINE



SECTION G-G 16 STA 2+80 (LOOKING UPSTATION, TYP.)



SECTION H-H 16 STA 4+00



CAPPING SECTIONS G-H

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
35375						

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CHECKED RMC 3/30/07	
DRAWN TRN/WRM 3/30/07	RECEIVED
CHECKED DRS 8/5/10	REVISED AS BUILT

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Seattle Public Utilities
City of Seattle
Ray Hoffman, Director
ORDINANCE NO. APPROVED
FUND: DWF/SCL
SCALE: H. 1"=40', V. 1"=20' INSPECTOR'S BOOK

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

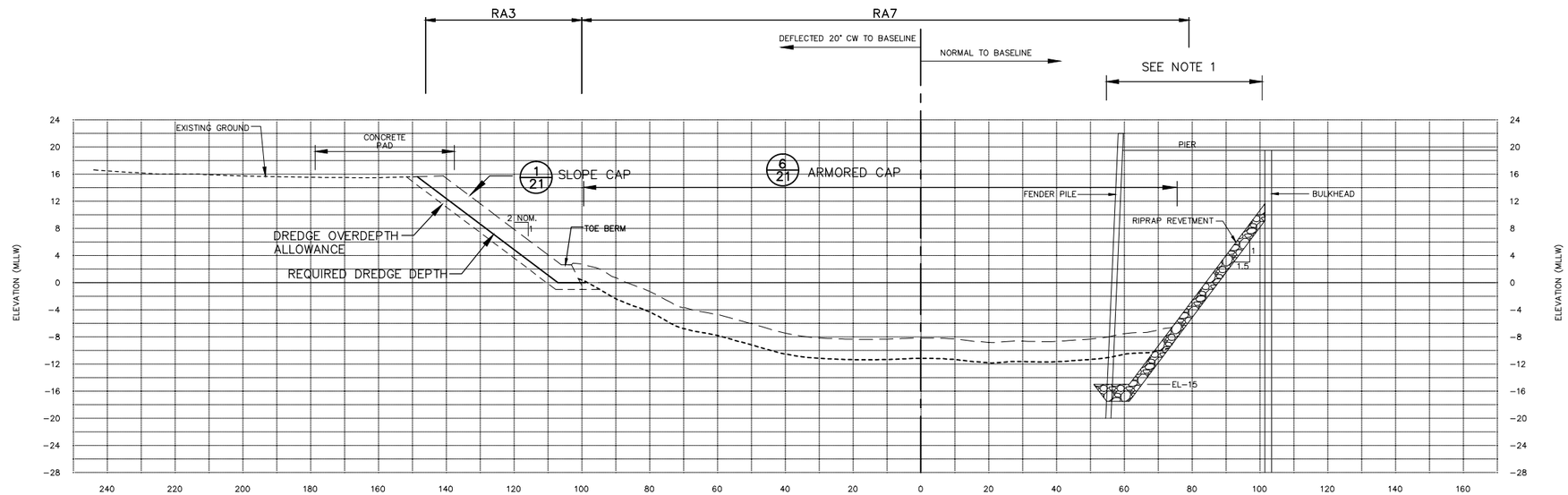
JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 19 OF 24

NOTES:

1. DEMOLISH PIER BEFORE CAPPING IN RA5, 6, OR 7.

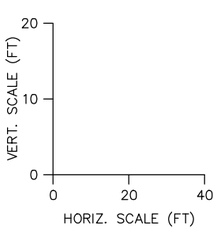
LEGEND:

- EXISTING MUDLINE
- REQUIRED DREDGE DEPTH
- DREDGE OVERDEPTH ALLOWANCE
- CAPPING LINE



SECTION I–I 16

STA 6+00 (LOOKING UPSTATION)



CAPPING SECTION I

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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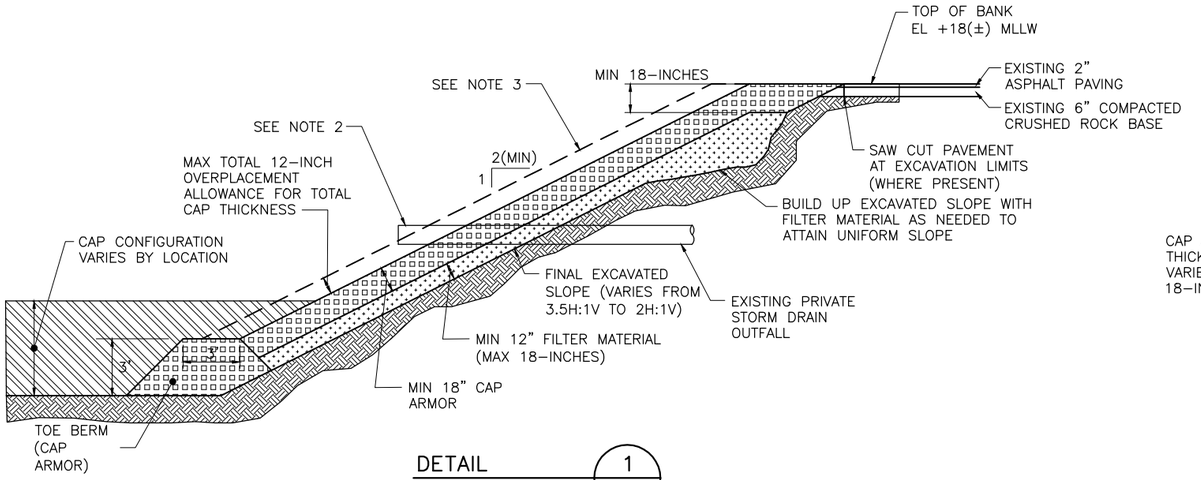
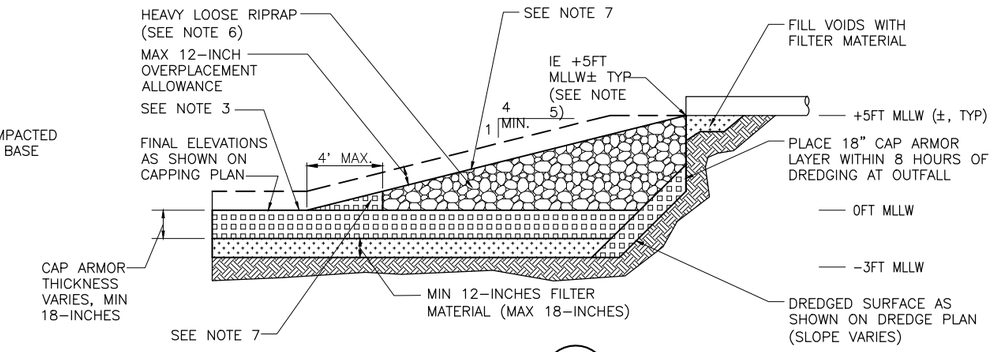
LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

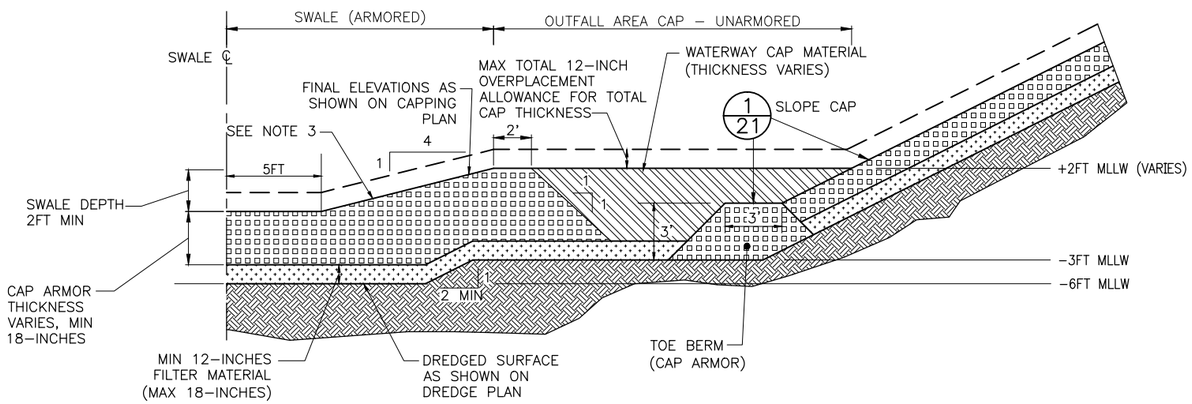
JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776-294
SHEET 20 OF 24



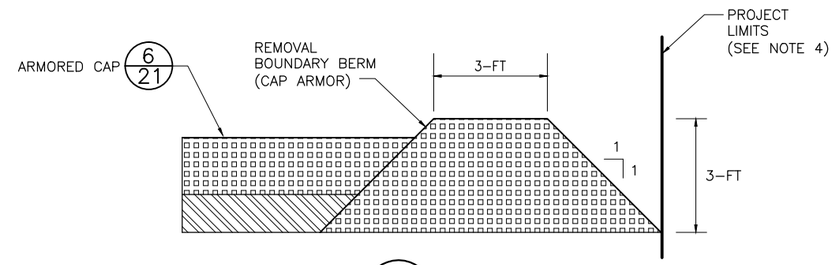
DETAIL 1/VAR
SCALE: NONE
TYPICAL SECTION – SLOPE CAP



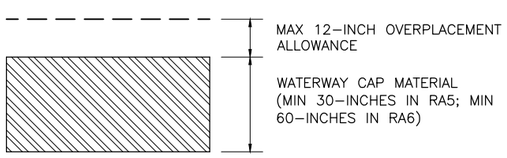
DETAIL 2/VAR
SCALE: NONE
TYPICAL SECTION – OUTFALL SCOUR PROTECTION



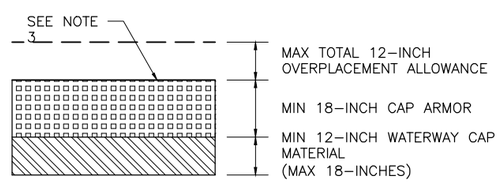
DETAIL 3/VAR
SCALE: NONE
TYPICAL SECTION – OUTFALL AREA CAP



DETAIL 4/VAR
SCALE: NONE
TYPICAL SECTION – BOUNDARY BERM



DETAIL 5/VAR
SCALE: NONE
TYPICAL SECTION – WATERWAY CAP



DETAIL 6/VAR
SCALE: NONE
TYPICAL SECTION – ARMORED CAP

NOTES:

1. FOR SLOPE CAPS, FILTER MATERIAL AND CAP ARMOR SHALL BE PLACED IN THE FOLLOWING SEQUENCE:
   A. PLACE TOE BERM.
   B. START PLACEMENT OF FILTER MATERIAL AND CAP ARMOR FROM THE TOE BERM AND WORK UPSLOPE.
   C. COVER FILTER MATERIAL WITH CAP ARMOR MATERIAL THE SAME DAY IT IS PLACED.
2. FOR EMERALD SERVICES 8" CLAY PIPE OUTFALL – CUT EXISTING OUTFALL SUCH THAT 6 TO 12 INCHES OF PIPE PROTRUDES FROM FINISHED SURFACE. REPLACE TIDE FLEX CHECK VALVE AS PER MANUFACTURER'S SPECIFICATIONS. FOR OTHER PRIVATE OUTFALLS – AS INDICATED, CUT FLUSH WITH EXCAVATED SURFACE AND GROUT IN ACCORDANCE WITH SPECIFICATIONS.
3. HABITAT MIX SHALL BE APPLIED OVER CAP ARMOR AT THE RATE OF 3 TONS PER 100 SQUARE FEET.
4. PLACE NO MATERIAL OUTSIDE PROJECT LIMITS.
5. DO NOT PLACE HEAVY LOOSE RIPRAP AT ELEVATIONS ABOVE OUTFALL INVERT.
6. HEAVY LOOSE RIPRAP SHALL COMPRISE THE MAXIMUM PRACTICABLE PORTION OF THE SCOUR PROTECTION, IN PLAN AND SECTION, IN ACCORDANCE WITH THE SPECIFICATIONS.
7. APPLY CAP ARMOR TO SURFACE OF HEAVY LOOSE RIPRAP TO FILL VOIDS, SMOOTH GRADES, AND FEATHER TRANSITION TO CAP SURFACE.

LEGEND:

- FILTER MATERIAL
- WATERWAY CAP MATERIAL
- CAP ARMOR
- HEAVY LOOSE RIPRAP

CAP AND OUTFALL SCOUR PROTECTION DETAILS

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776–294
SHEET 21 OF 24

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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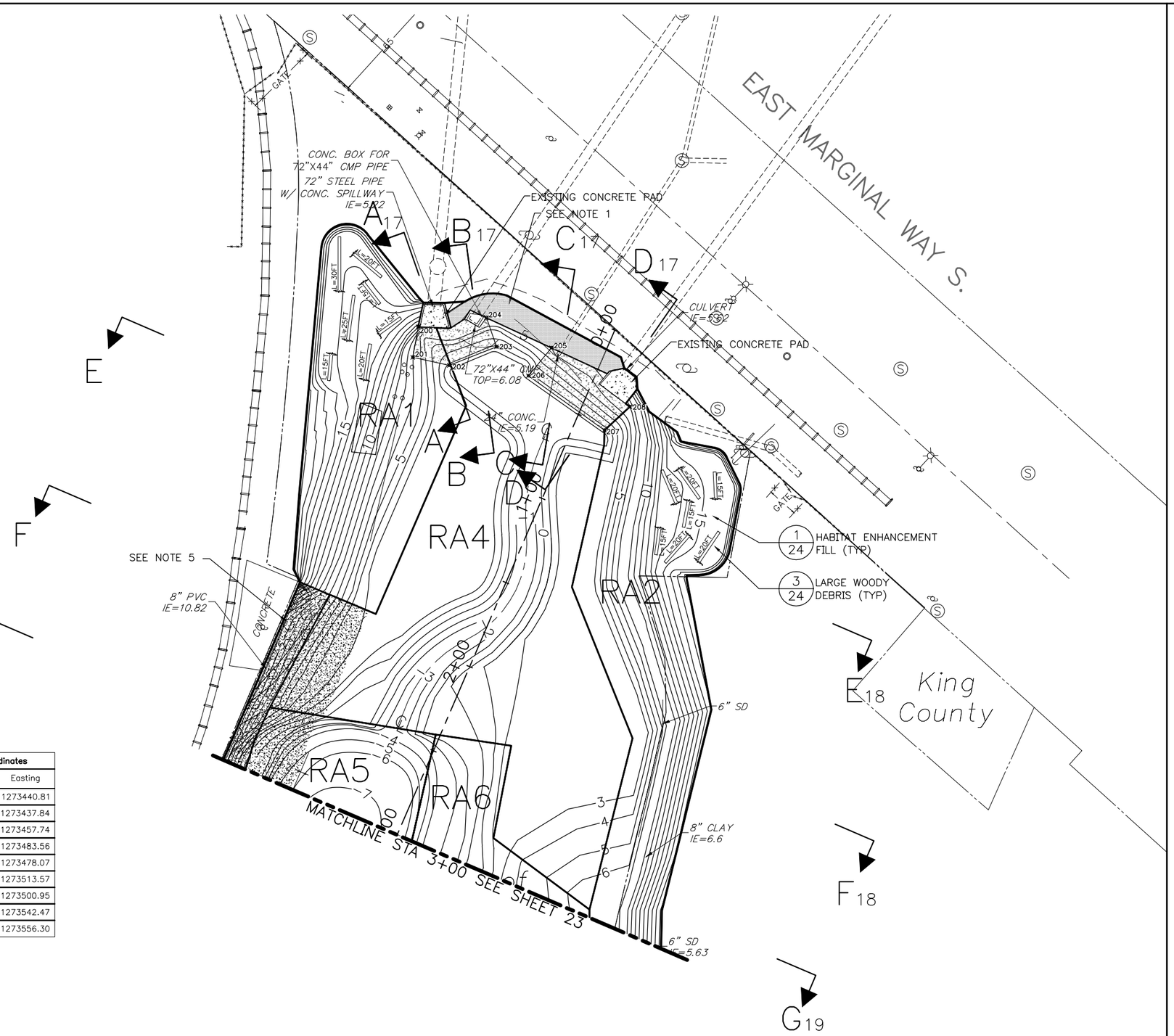

Scour Pad Coordinates		
Point #	Northing	Easting
200	199491.68	1273440.81
201	199475.03	1273437.84
202	199470.64	1273457.74
203	199480.80	1273483.56
204	199496.62	1273478.07
205	199480.24	1273513.57
206	199464.99	1273500.95
207	199435.27	1273542.47
208	199448.02	1273556.30

LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.41 WALL — SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL (EXISTING)
- 1 FOOT CONTOUR INTERVAL (EXISTING)
- FINAL GRADE
- APPROXIMATE PROPERTY LINE
- PROJECT LIMITS
- RAIL SPUR
- MATCHLINE
- LARGE WOODY DEBRIS
- EXISTING RIPRAP
- OUTFALL SCOUR PROTECTION
- CAP ARMOR W/HABITAT MIX
- EXISTING CONCRETE

NOTES:

1. SLOPE IMPROVEMENTS IN SHADED REGION (TO +12FT) PLACE 18–IN TO 24–IN LAYER OF CAP ARMOR MATERIAL. PLACE HABITAT MIX OVER CAP ARMOR MATERIAL AT A RATE OF 3 TONS PER 100 SQUARE FEET.
2. CONSTRUCT OUTFALL AREA CAP IN RA4 TO THE FINISH LINES AND GRADES AS SHOWN
3. FINISH LINES AND GRADES SHOWN IN RA1, RA2, RA5, AND RA6 ARE APPROXIMATE. CONSTRUCT CAPS TO SPECIFIED THICKNESSES AND TOLERANCES.
4. GRADE SWALE FOR POSITIVE DRAINAGE FROM OUTFALLS TO RA5. NO PONDING SHALL OCCUR AT LOW TIDE.
5. PLACE CAP ARMOR FOR TRANSITION FROM RA1 CAP TO EXISTING SHEET PILE BULKHEAD. MAXIMUM SLOPE 1.5H:1V FOR TRANSITION.

N

30 15 0 30 60
SCALE IN FEET

FINAL GRADING AND HABITAT ENHANCEMENT PLAN – SHEET 1

VAULT SERIAL NO.	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

JOB NO. PC C309045 R/W CO
VAULT PLAN NO. 776–294
SHEET 22 OF 24

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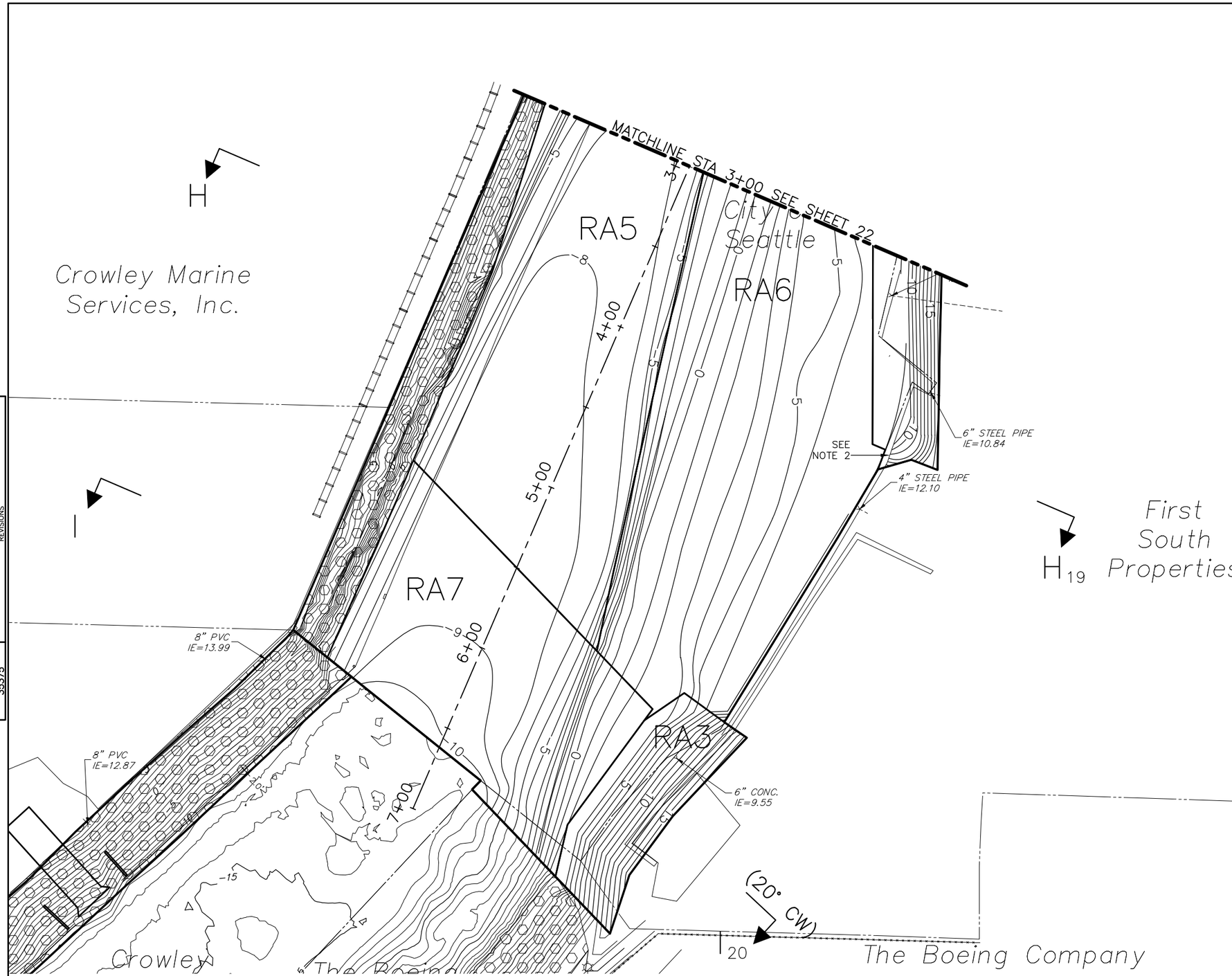

LEGEND

- POWER POLE
- SANITARY MANHOLE
- LUMINARE
- IRRIGATION CONTROL VALVE
- GUY WIRE
- 19.41WALL — SPOT ELEVATION
- 5 FOOT CONTOUR INTERVAL (EXISTING)
- 1 FOOT CONTOUR INTERVAL (EXISTING)
- FINAL GRADE
- APPROXIMATE PROPERTY LINE
- PROJECT LIMITS
- RAIL SPUR
- MATCHLINE
- EXISTING RIPRAP

NOTES:

1. FINISH LINES AND GRADES SHOWN ARE APPROXIMATE. CONSTRUCT CAPS TO SPECIFIED THICKNESSES AND TOLERANCEES.
2. CUT REMAINING TIMBER BULKHEAD FLUSH WITH FINAL CAP SURFACE.

N

30 15 0 30 60
SCALE IN FEET

FINAL GRADING AND HABITAT ENHANCEMENT PLAN – SHEET 2

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LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

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SHEET 23 OF 24

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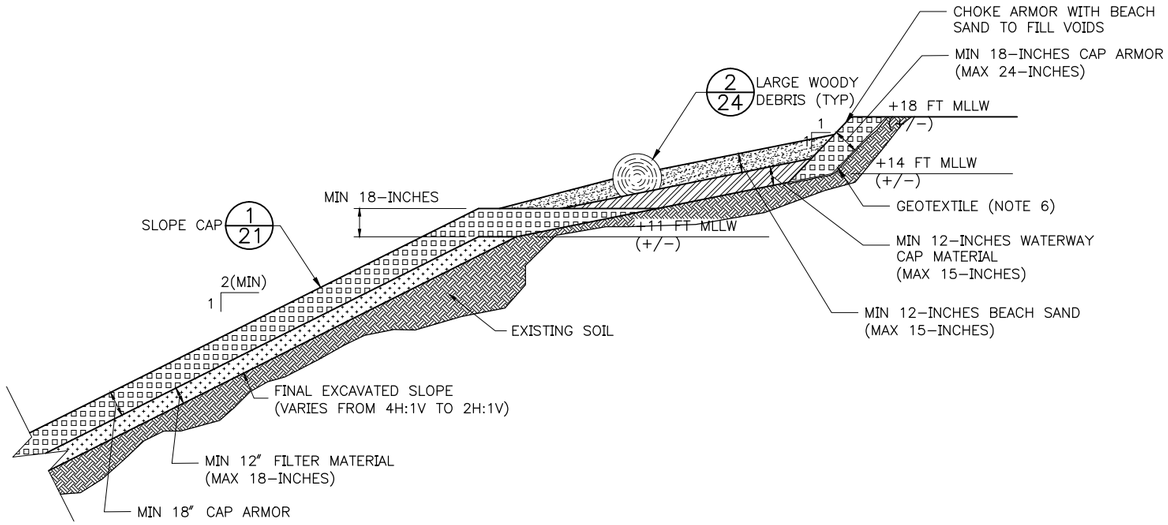


DETAIL 1/VAR

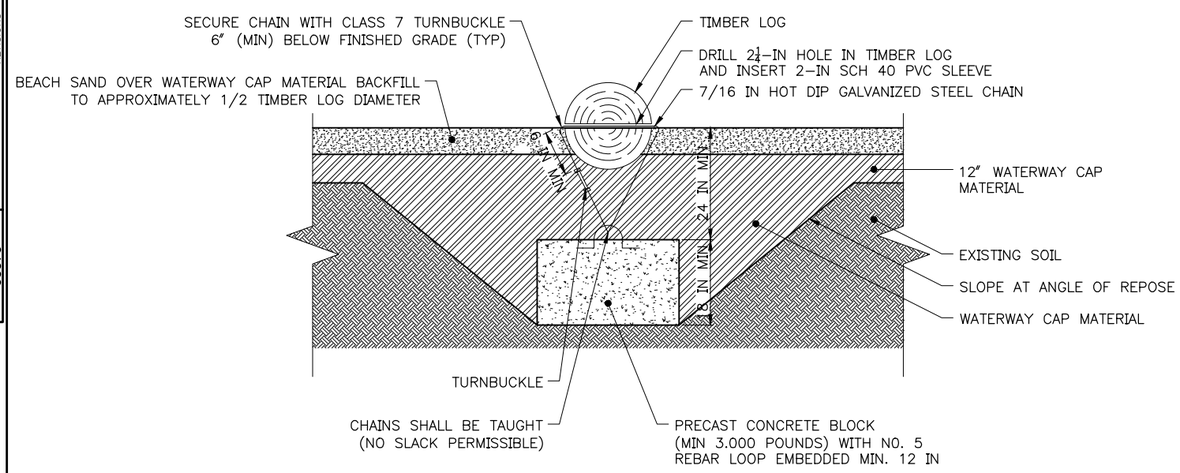
SCALE: NONE
TYPICAL SECTION – HABITAT ENHANCEMENT FILL

NOTES:

1. ALL TIMBER LOGS SHALL BE CEDAR OR FIR
2. ALL TIMBER LOGS SHALL HAVE A NOMINAL DIAMETER OF 21 TO 36 INCHES.
3. TIMBER LOG LENGTHS SPECIFIED DO NOT INCLUDE LENGTH OF ATTACHED ROOTWAD. ACTUAL LENGTH MAY BE –1FT TO +4FT OF SPECIFIED LENGTH.
4. THE END OF THE TIMBERLOG WITH NO ROOTWAD SHALL BE ROUGHENED WITH CHAINSAW OR EQUIVALENT.
5. CAST IN PLACE CONCRETE ANCHOR BLOCKS MAY BE USED THAT MEET OR EXCEED THE WEIGHT REQUIREMENTS SHOWN ON THE DRAWINGS. ENGINEER MUST APPROVE USE OF CAST IN PLACE ANCHOR BLOCKS.
6. GEOTEXTILE SHALL MEET WSDOT STANDARD SPECIFICATIONS 9–33.2 TABLE 3 (SEPARATION). INSTALL IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS 2–12.3.

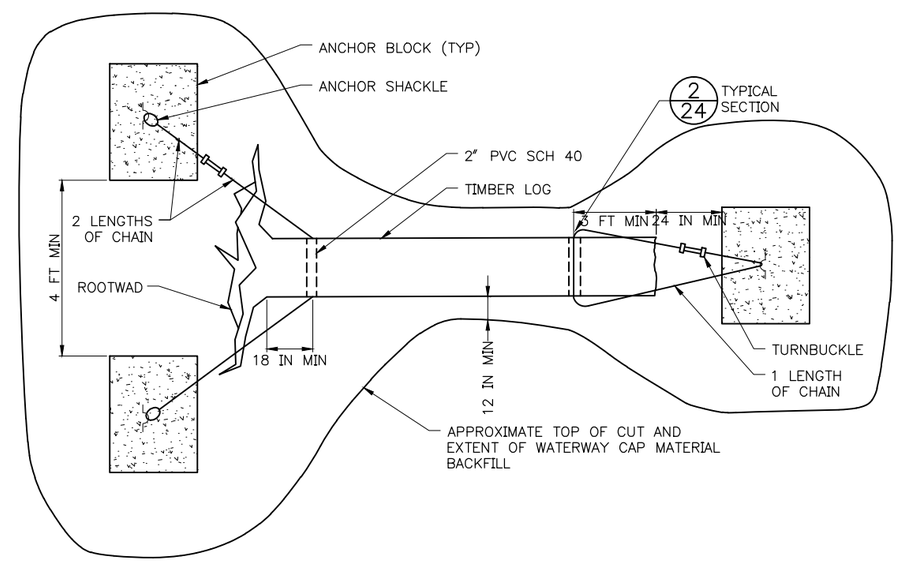
LEGEND:

- CONCRETE ANCHOR BLOCK
- WATERWAY CAP MATERIAL
- CAP ARMOR
- BEACH SAND



DETAIL 2/24

SCALE: NONE
TYPICAL SECTION – LARGE WOODY DEBRIS



DETAIL 3/22

SCALE: NONE
TYPICAL PLAN – LARGE WOODY DEBRIS

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HABITAT ENHANCEMENT DETAILS

LOWER DUWAMISH WATERWAY SLIP 4 EARLY ACTION

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SHEET 24 OF 24