

ALA SPIT RESTORATION PROJECT

NEARSHORE RESTORATION  
AND ARMOR REMOVAL  
SECT. 32, TWP. 34 N., R. 2 E., W.M.

JL No. 00462-0004

ISLAND COUNTY COMMISSIONERS  
Helen Price Johnson, District 1  
Jill Johnson, District 2  
Richard Hannold, District 3

RECOMMENDED  
FOR APPROVAL

APPROVED BY:

VICINITY MAP:



DRIVING DIRECTIONS:

From WA-20 turn east on West Troxell Rd. Follow for 3.8 miles and turn left onto Geck Rd. Parking is available at the base of the spit.

Alexis C. Blue, P.E.  
Project Engineer

William E. Oakes, P.E.  
Director/County Engineer

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Connie W. Bowers, P.E.  
Asst. County Engineer

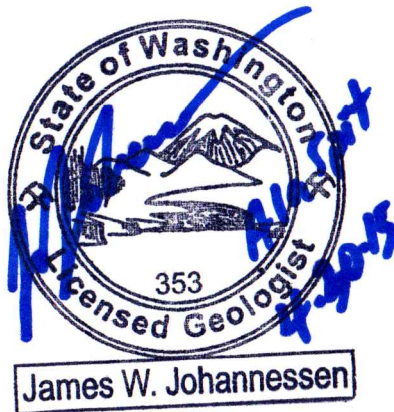
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Office of the  
**ISLAND COUNTY ENGINEER**  
1 NE 6th Street  
Coupeville, WA 98239-5000  
Tel: 360-679-7331 \* Fax: 360-678-4550



SURVEYED BY: Jonathan Waggoner, CGS Adam Morrow, PLS, PSE		DATE: 3/20-21/14, 11/6/14 FEB. 2015	
DRAWN BY: Jonathan Waggoner, CGS		DATE PLOTTED: 4/30/15	
DESIGNED BY: Jim Johannessen, LEG	INITIAL JWJ	DATE 4/30/15	
CHECKED BY: Alexis Blue, PE	ACB	4/30/15	



4/30/15	ISLAND COUNTY COMMENTS - 100%	ADT
4/20/15	ISLAND COUNTY COMMENTS - 100%	ADT
4/9/15	ISLAND COUNTY COMMENTS - 90%	JFW
DATE	REVISIONS	BY

SCALE:	
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ALA SPIT RESTORATION PROJECT	
COVER SHEET, VICINITY MAP, AND INDEX	

PLAN REF. No. CV
SHEET 1 OF 16

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LEGEND: PLAN LINES

FEATURE	EXISTING	PROPOSED
CONTOURS, MAJOR		
CONTOURS, MINOR		
PAVEMENT		
CONCRETE		
ROCK ARMOR		
MEAN HIGHER HIGH WATER (MHHW)		
LOG LINE		
EXTENT OF UPLAND MUSCLE BEDS		
VEGETATION LINE		
STORM DRAIN		
LIMIT OF DISTURBANCE		
CONSTRUCTION ACCESS CORRIDOR		
SILT FENCE		

LEGEND: HATCH/SYMBOLS

FEATURE	EXISTING	PROPOSED
ROCK ARMOR		
COBBLE		
CONCRETE		
CONSTRUCTION ACCESS		
STOCKPILE AREA		
STAGING/PARKING AREA		
SEDIMENT BORROW AREA		
BEACH NOURISHMENT AREA		

LEGEND: CROSS SECTIONS

FEATURE	EXISTING	PROPOSED
SURFACE (GROUND SURVEY)		
SURFACE (LIDAR)		
MEAN HIGHER HIGH WATER + 11.04 FT MLLW		
EARTH/GROUND		
CONCRETE BULKHEAD		
ROCK SHORE ARMOR		
PROPOSED EXCAVATION		
1-4 INCH COBBLE		
NOURISHMENT SEDIMENT (BORROW)		
BACKSHORE PLANTING		

SURVEY NOTES:

Horizontal Datum: NAD83 State Plan WA North based on DGPS observation

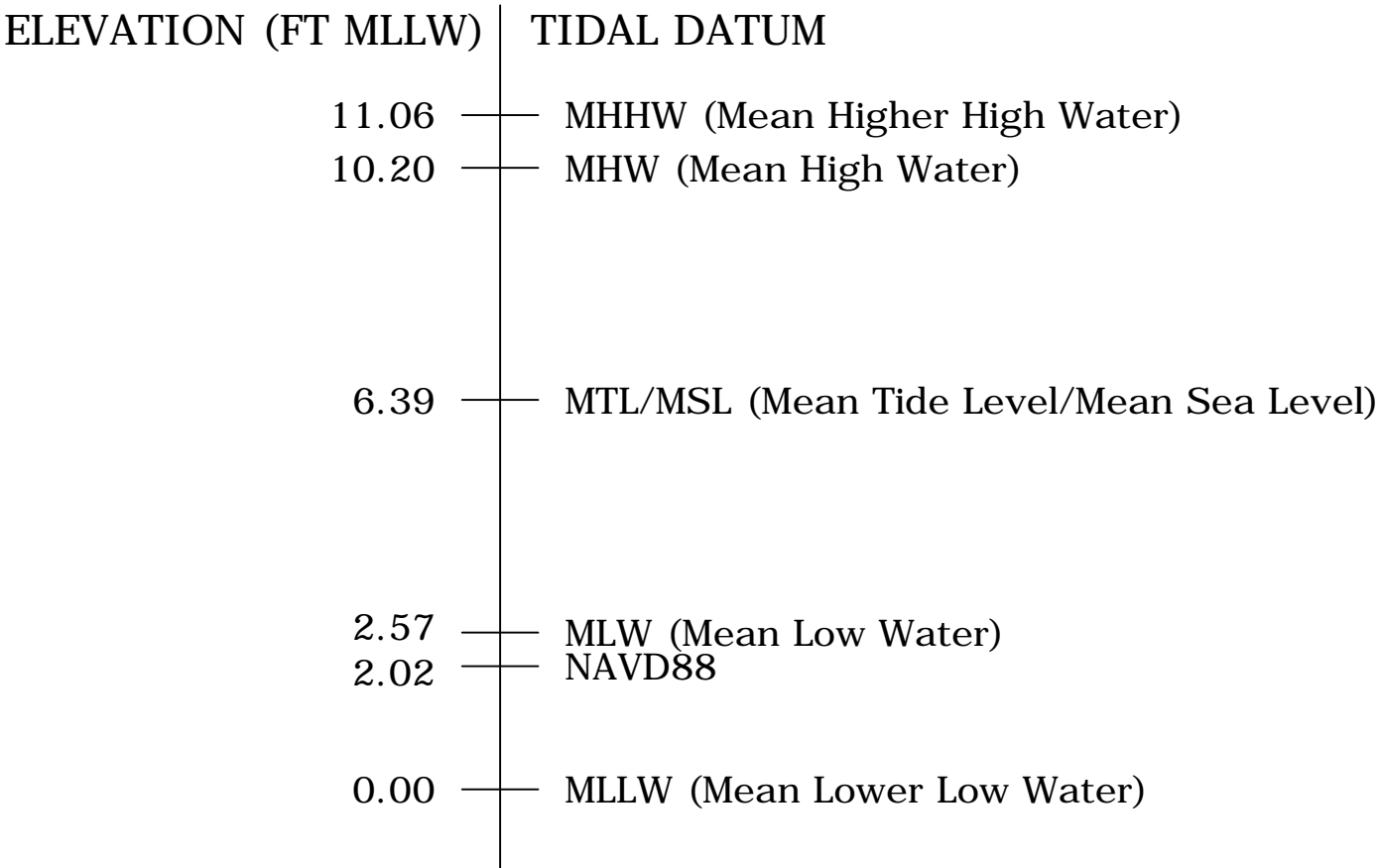
Vertical Datum: Local mean lower low water (MLLW) based on NAVD88 elevation for NGS monument TIDAL 1 (+ 10.71 ft NAVD88) and published conversion from NOAA benchmark at Sneeoosh Point (#9448576)  
0 ft NAVD88 = + 2.02 ft MLLW  
MHHW = + 11.06 ft MLLW

Topographic data initially obtained 3/20-21/14 with limited updates at neck of spit on 11/6/14. Additional topographic surveying at the base of the spit completed by Pacific Survey & Engineering from existing control in February 2015.

Additional topographic data obtained from the Puget Sound LiDAR Consortium, flown February 2002, show for reference only outside of primary action area for additional detail on bluffs, etc.

ABBREVIATIONS:

MHHW: Mean Higher High Water  
MHW: Mean High Water  
MLW: Mean Low Water  
MLLW: Mean Lower Low Water  
MTL: Mean Tide Level  
MSL: Mean Sea Level



MONUMENT LIST:

NAME	EASTING	NORTHING	ELEV. (MLLW)
PK1	1214258.07'	513062.25'	15.42'
PK2	1214412.57'	512973.95'	13.82'
PK3	1214441.54'	513007.69'	14.12'
TIDAL1	1214611.60'	514244.56'	12.72'

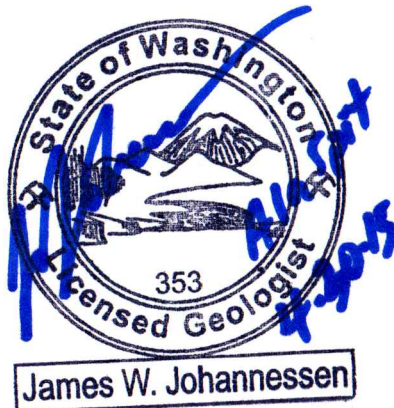


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4/9/15	SURVEY NOTES	JFW
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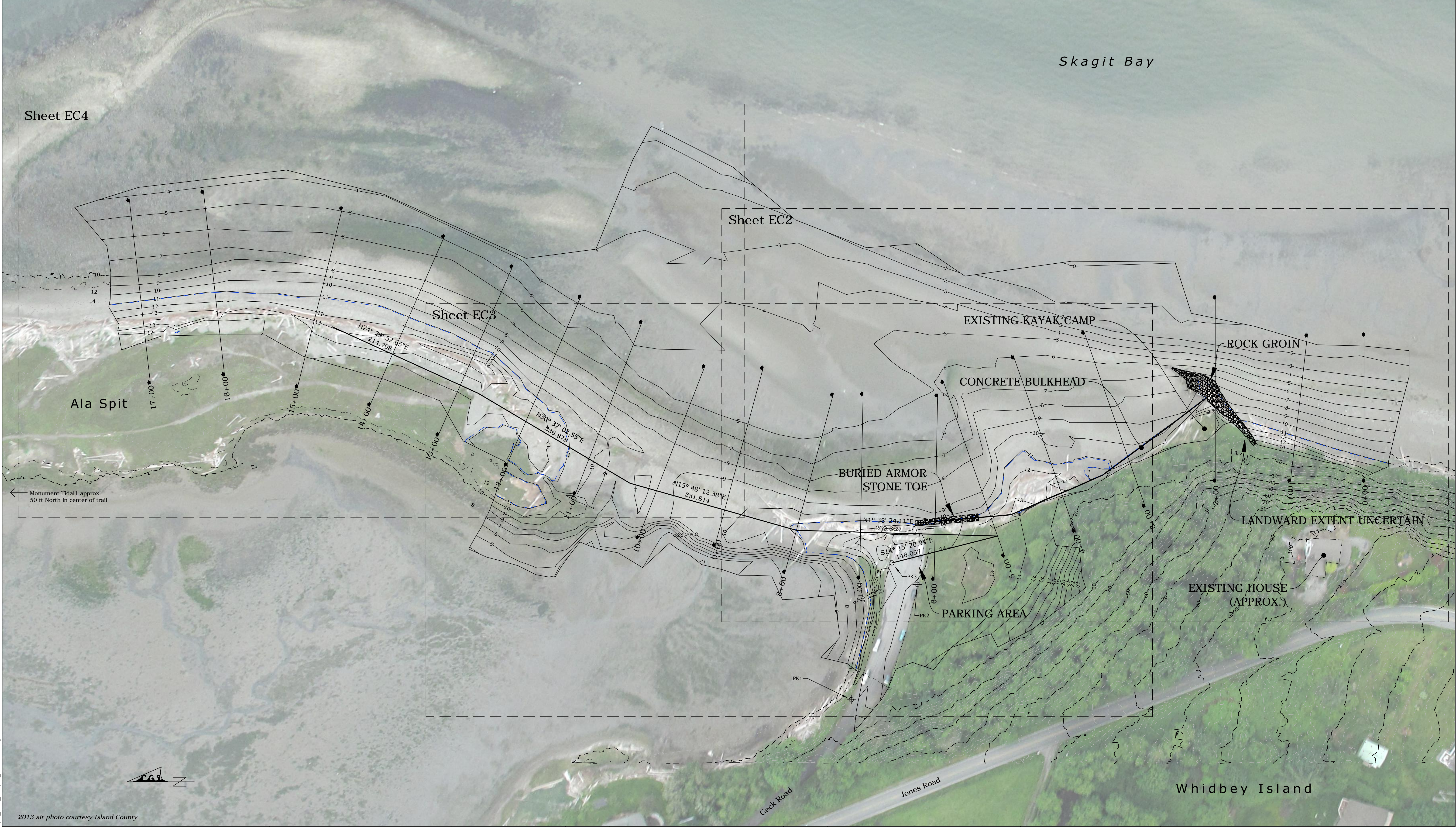
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JL. No. 00462-0004	C.R.P. No. 00-00
ALA SPIT RESTORATION PROJECT	
LEGEND AND NOTES	

PLAN REF. No.
LG
SHEET
2 OF 16







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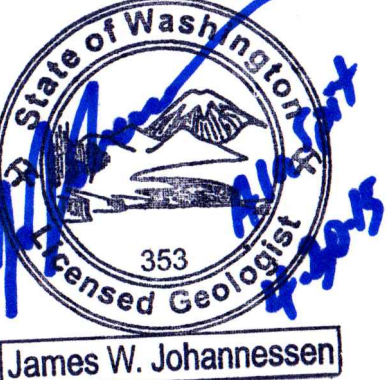
INITIAL  
JWJ

DATE  
4/30/15

CHECKED BY:  
Alexis Blue, PE

ACB

4/30/15



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SCALE:

0 60 120 180 240

FEET

1" = 60'

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ALA SPIT RESTORATION PROJECT

EXISTING CONDITIONS - OVERVIEW

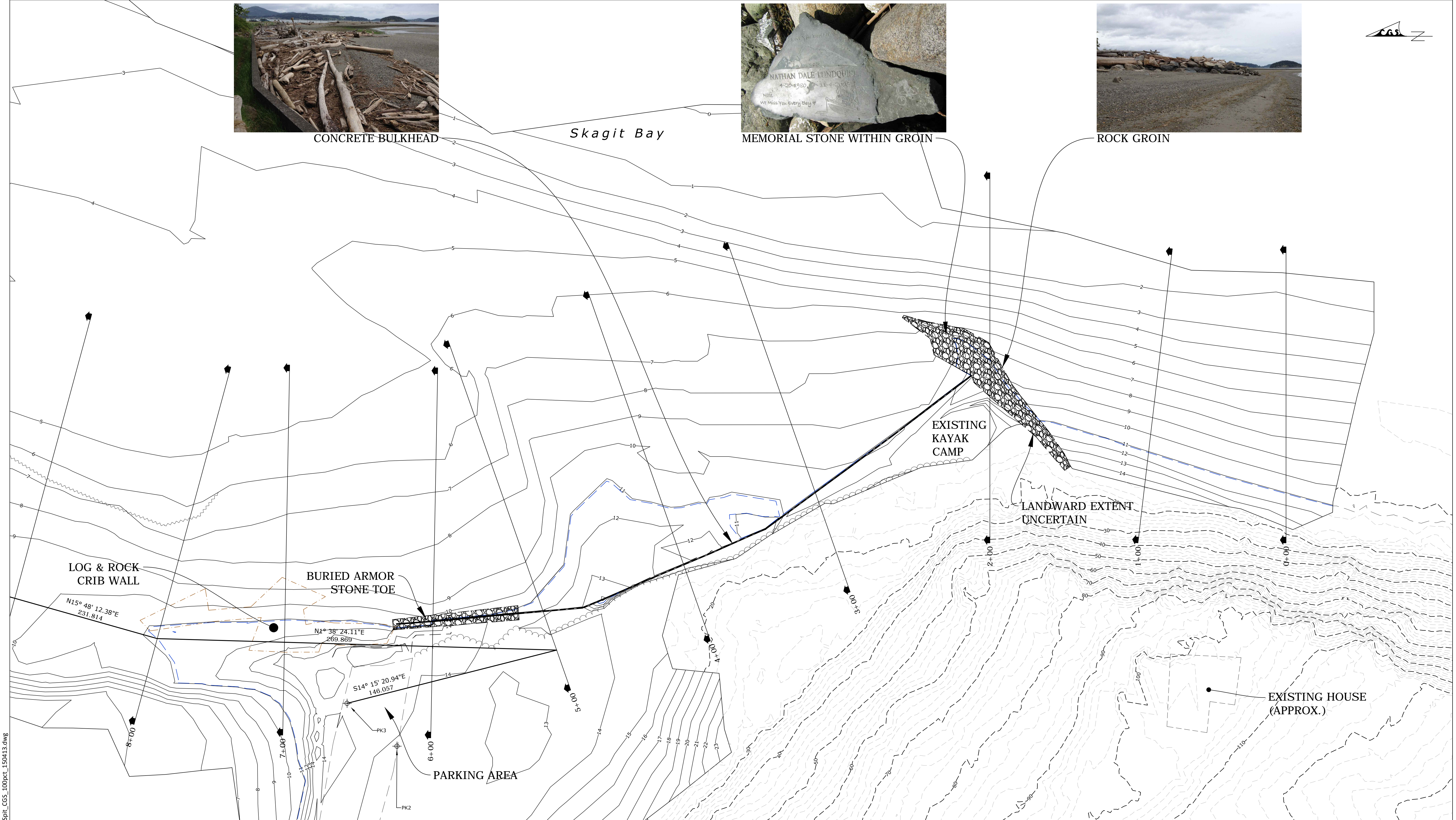
PLAN REF. No.

EC1

SHEET

3 OF 16





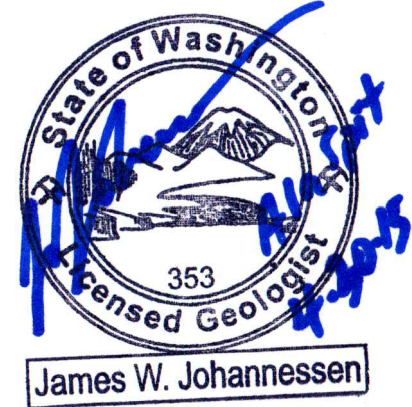
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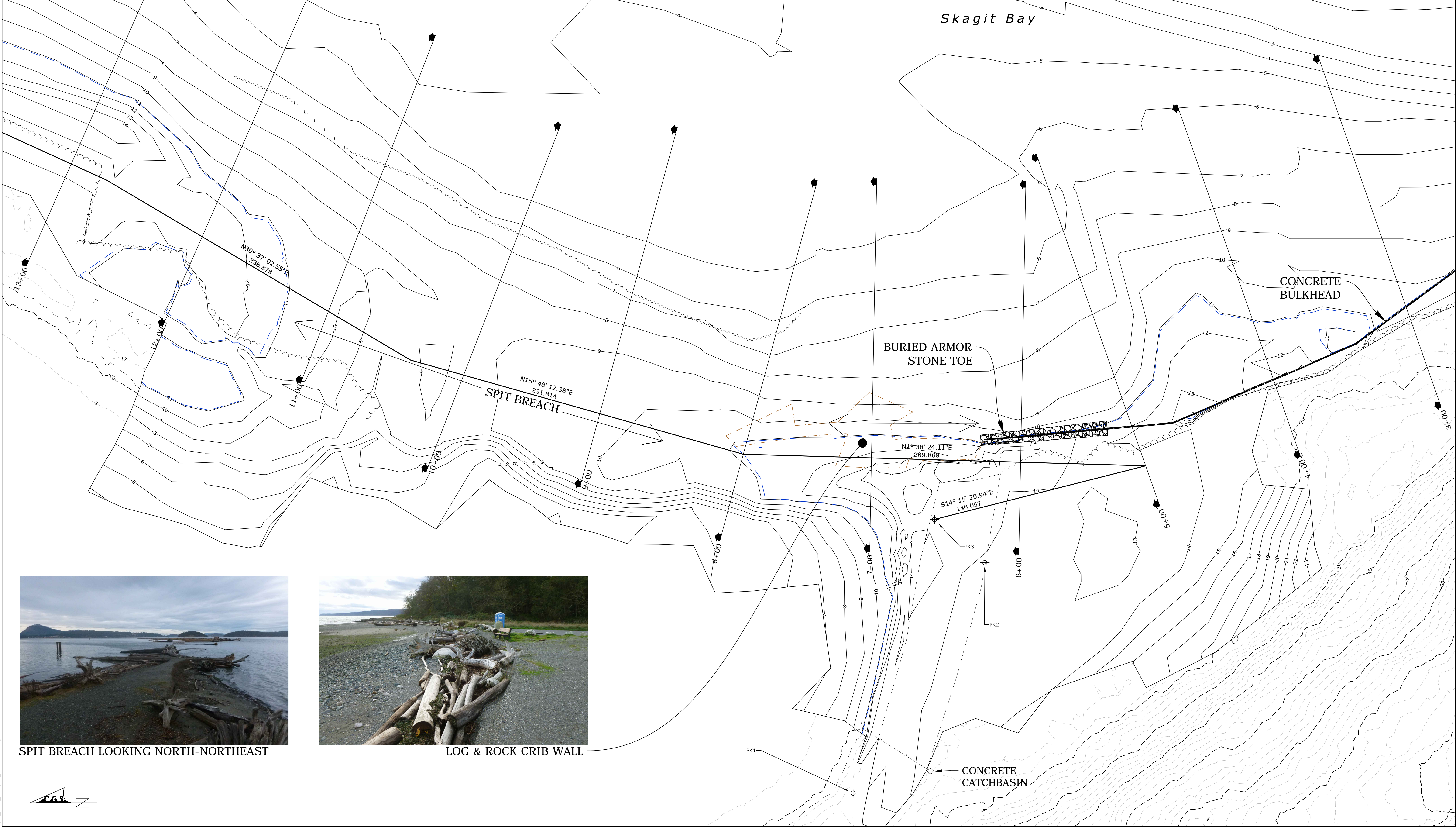
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SCALE: 0 30 60 90 120 FEET 1" = 30'	
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ALA SPIT RESTORATION PROJECT	EC2
EXISTING CONDITIONS - DETAIL A	SHEET 4 OF 16





SPIT BREACH LOOKING NORTH-NORTHEAST



LOG & ROCK CRIB WALL



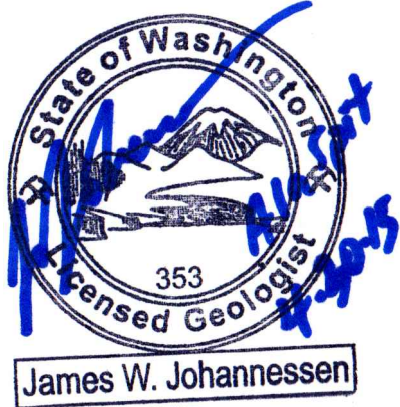
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FEET  
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**CGS**  
**COASTAL GEOLOGIC SERVICES**  
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ALA SPIT RESTORATION PROJECT		SHEET
EXISTING CONDITIONS - DETAIL B		5 OF 16





SPIT LOOKING NORTH-NORTHEAST



SPIT LOOKING NORTH-NORTHEAST

Skagit Bay



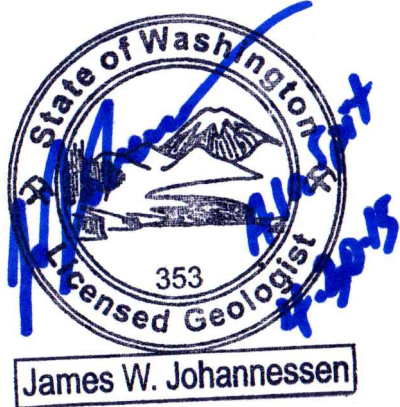
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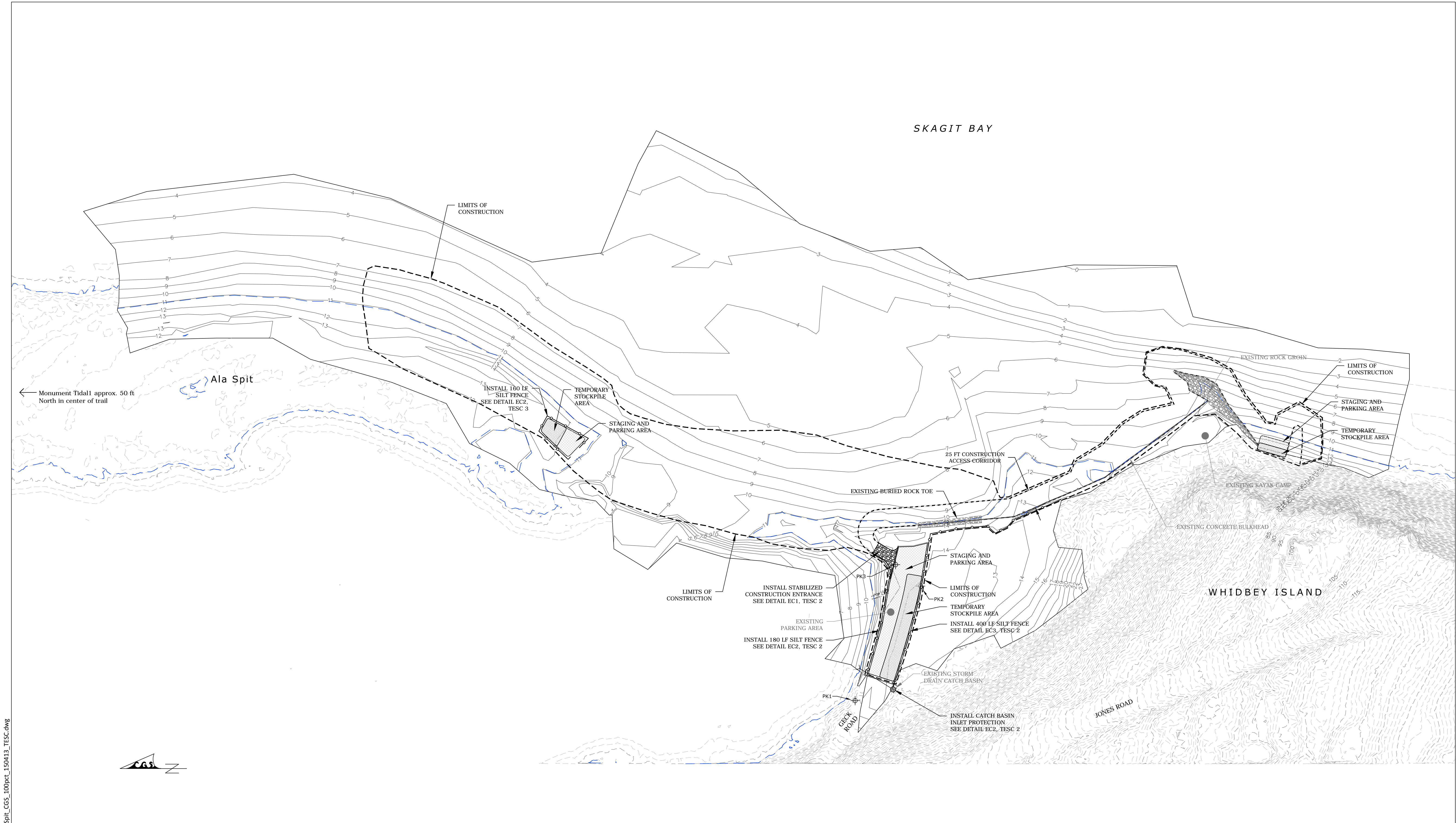
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ALA SPIT RESTORATION PROJECT		SHEET
EXISTING CONDITIONS - DETAIL C		6 OF 16





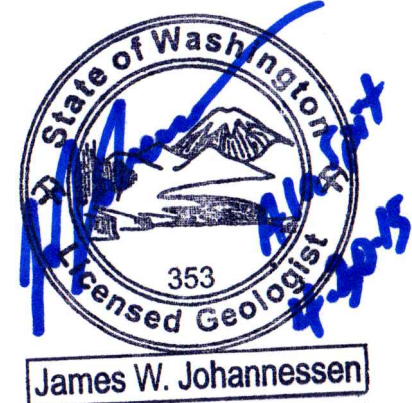
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DRAWN BY: Adam Tullis, CGS		DATE STARTED: 4/30/15	DATE PLOTTED: 4/30/15
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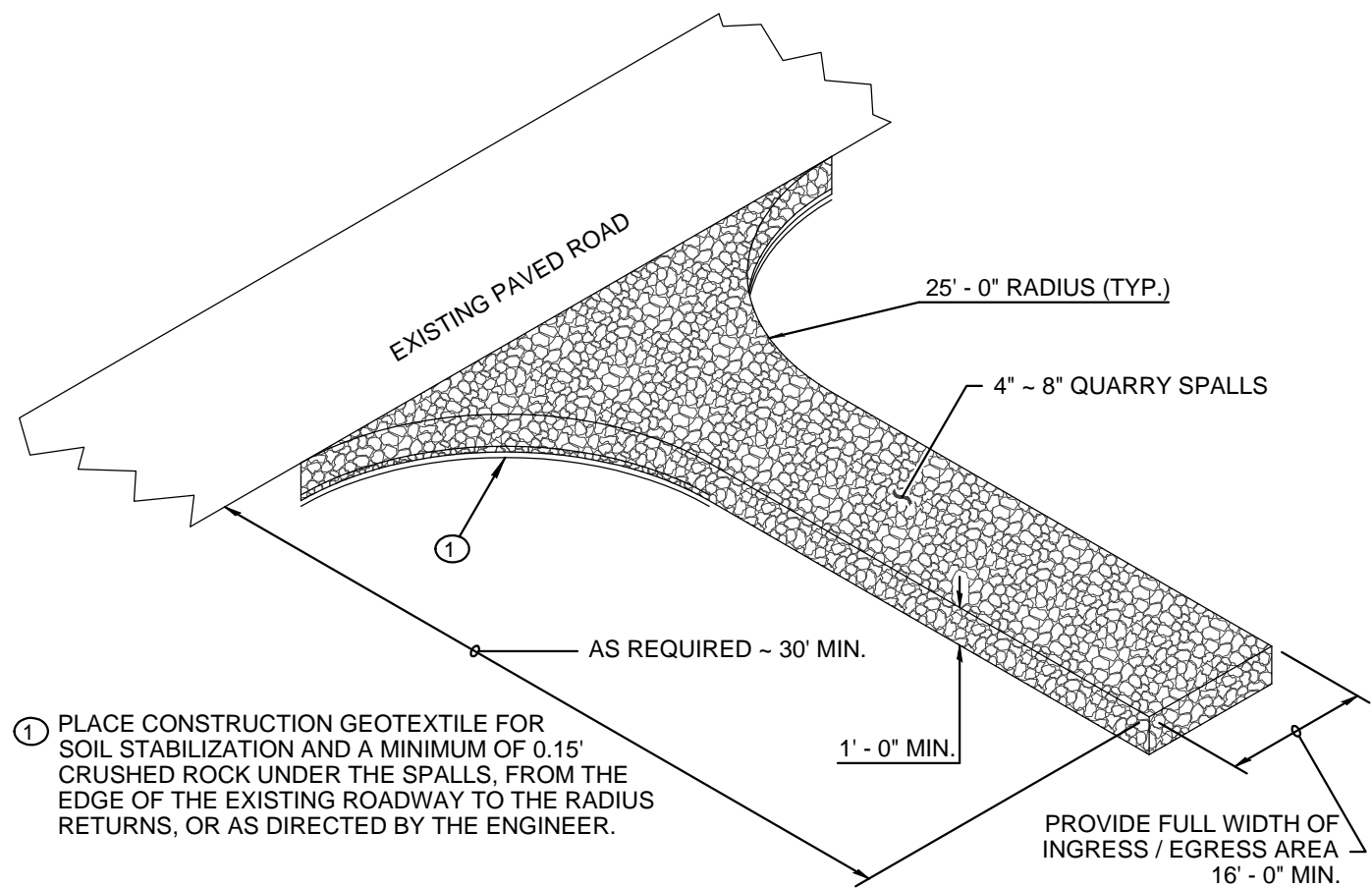
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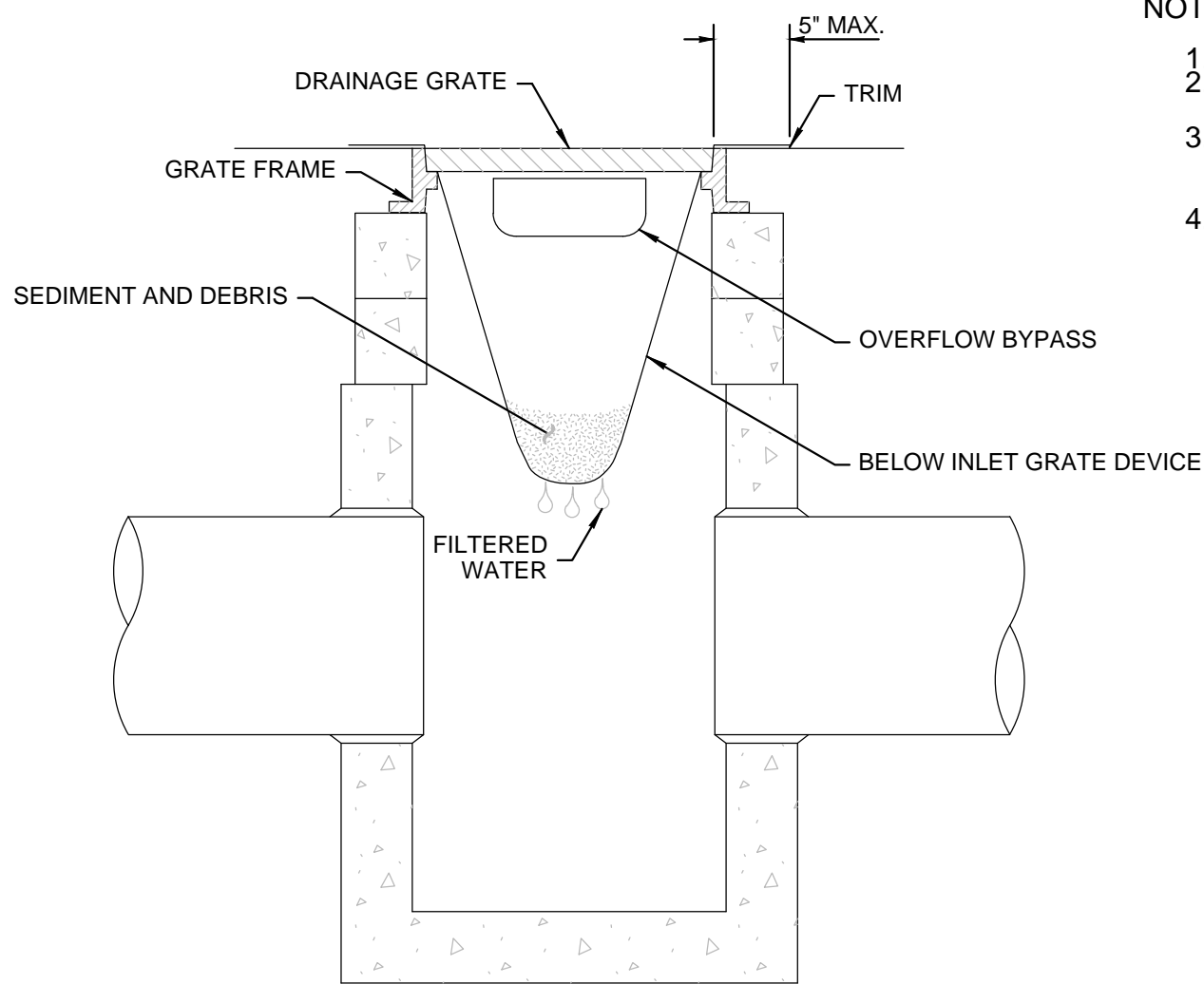


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ALA SPIT RESTORATION PROJECT		TESC1
TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) - SITE PLAN		SHEET
		7 OF 16





EC1 **STABILIZED CONSTRUCTION ENTRANCE DETAIL**  
N.T.S.

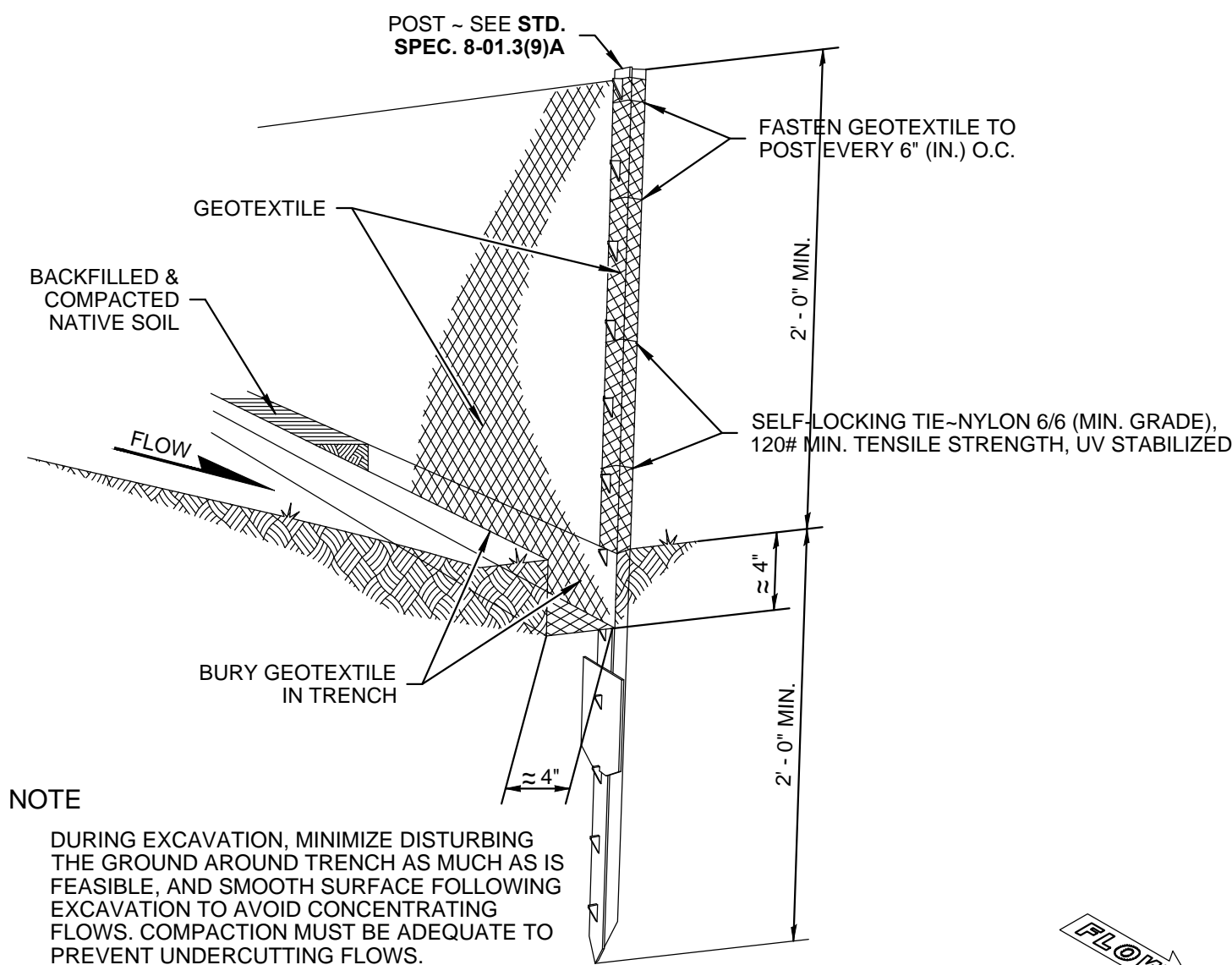
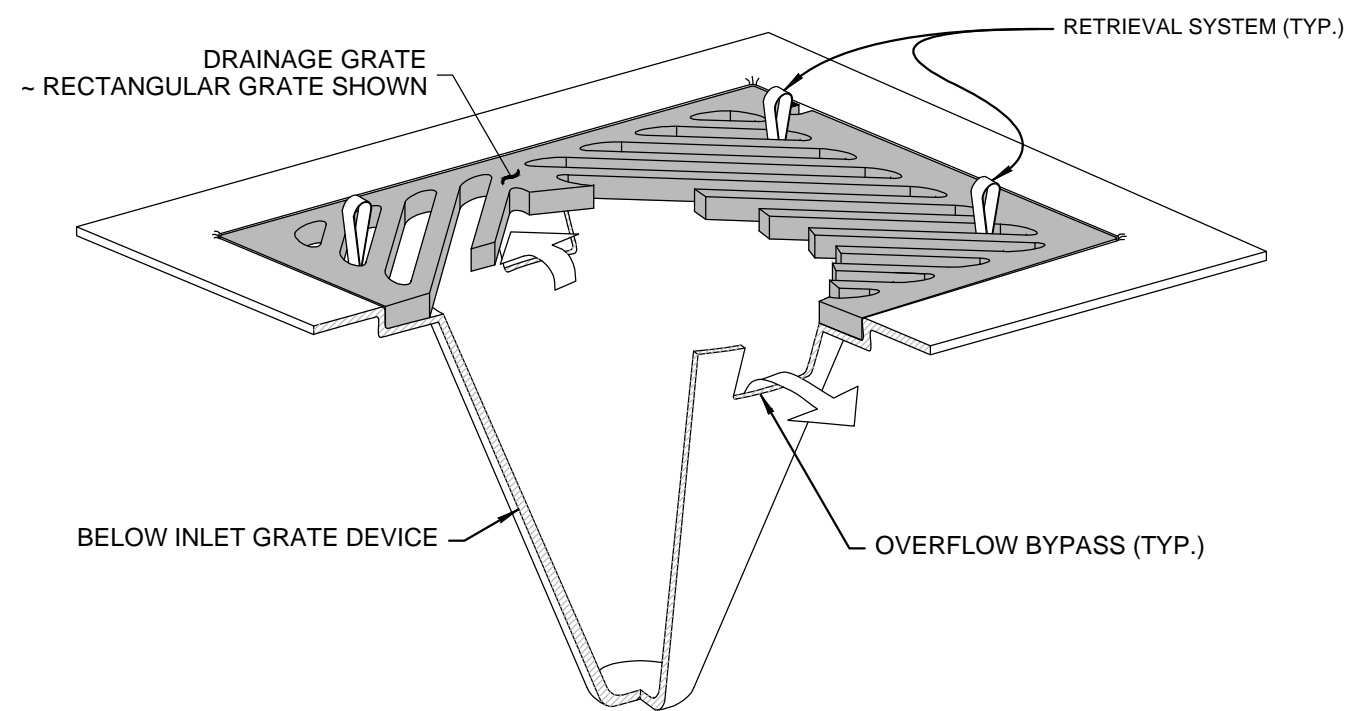


EC2 **CATCH BASIN INSERT**  
N.T.S.

NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
- 2.
3. The BIGD shall have a built-in high-flow relief system (overflow bypass).
4. The retrieval system must allow removal of the BIGD without spilling the collected material.

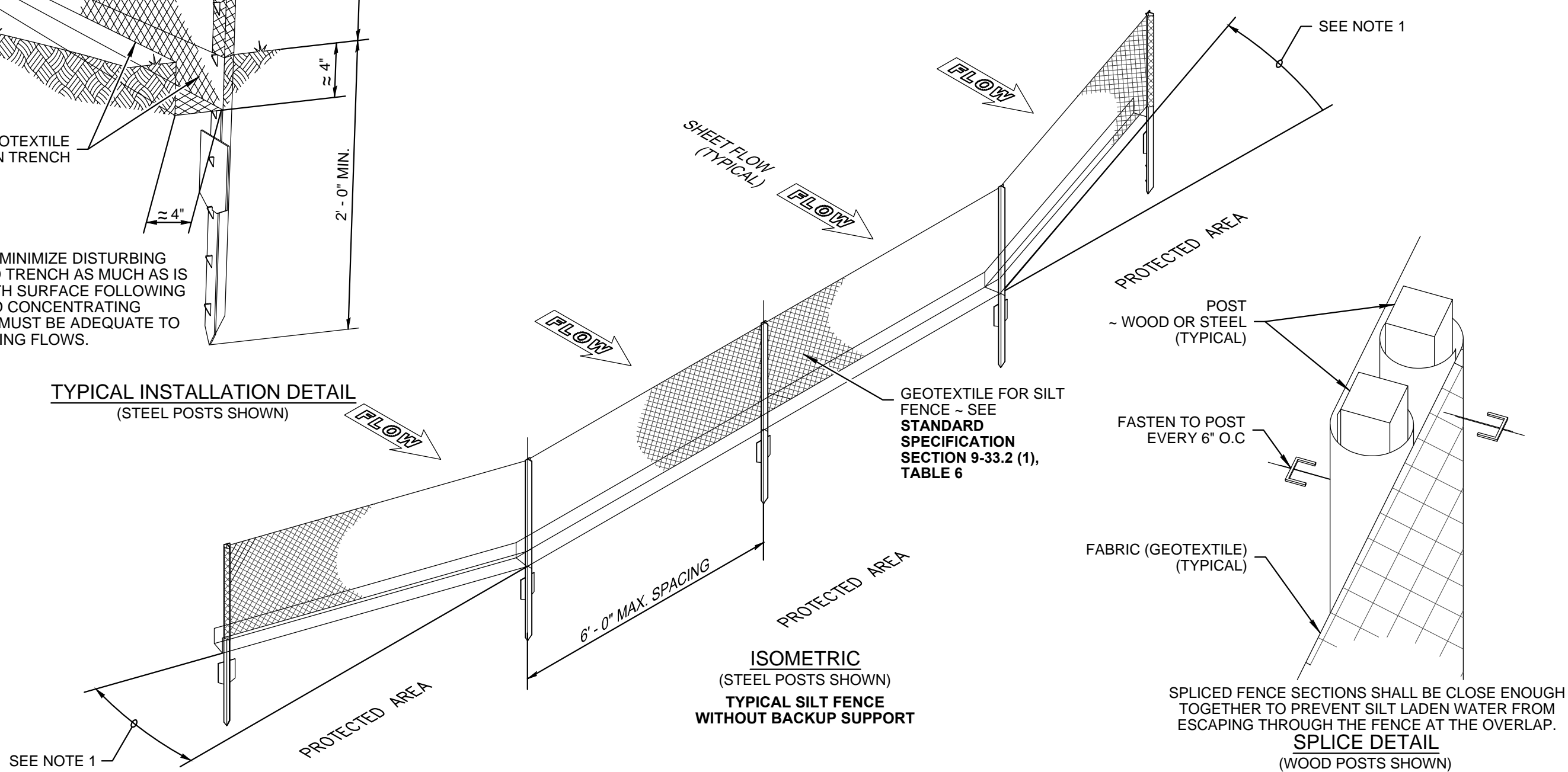
Perform maintenance in accordance with Standard Specification 8-01.3(15).



NOTES

1. Install the ends of the silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
2. Perform maintenance in accordance with **Standard Specifications 8-01.3(9)A and 8-01.3(15)**.
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.

TYPICAL INSTALLATION DETAIL  
(STEEL POSTS SHOWN)

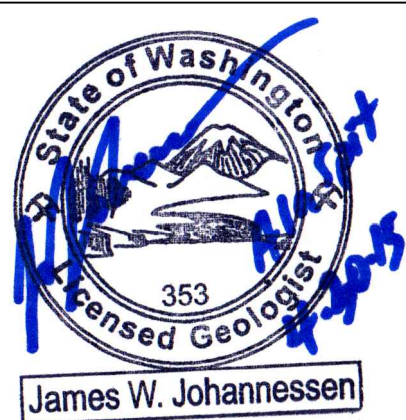


EC3 **SILT FENCE DETAIL**  
N.T.S.

EROSION AND SEDIMENT CONTROL NOTES:

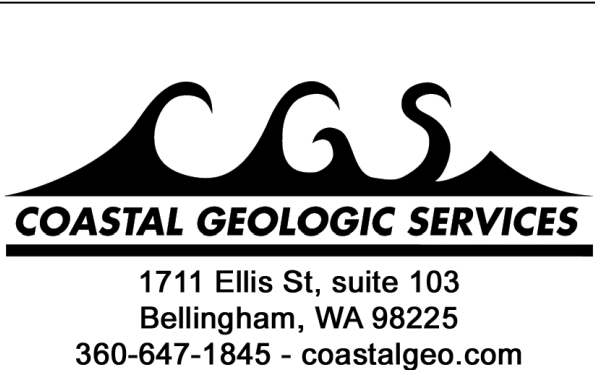
1. THE IMPLEMENTATION OF EROSION AND SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS.
3. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR'S ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.
4. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR SEVEN DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
5. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.
6. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED DAILY AND MAINTAINED WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.
7. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
8. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2 TO 3 INCHES.

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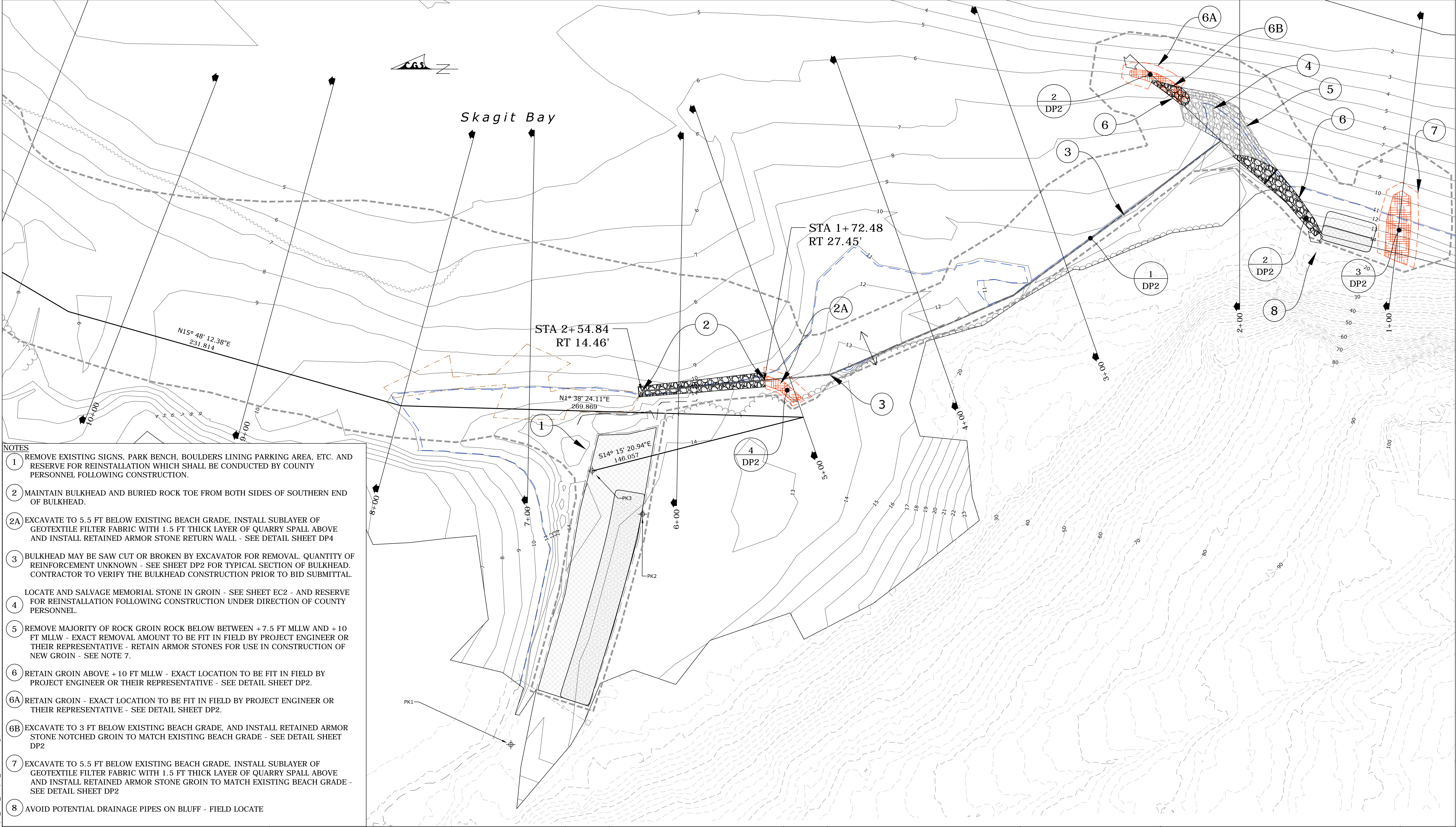
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SCALE:	
NOT TO SCALE	


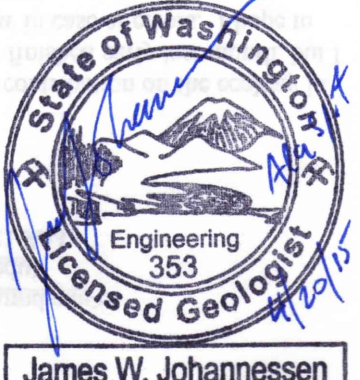



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ALA SPIT RESTORATION PROJECT		TESC2
TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) - DETAILS		SHEET
		8 OF 16





- NOTES
- 1 REMOVE EXISTING SIGNS, PARK BENCH, BOULDERS LINING PARKING AREA, ETC. AND RESERVE FOR REINSTALLATION WHICH SHALL BE CONDUCTED BY COUNTY PERSONNEL FOLLOWING CONSTRUCTION.
  - 2 MAINTAIN BULKHEAD AND BURIED ROCK TOE FROM BOTH SIDES OF SOUTHERN END OF BULKHEAD.
  - 2A EXCAVATE TO 5.5 FT BELOW EXISTING BEACH GRADE, INSTALL SUBLAYER OF GEOTEXTILE FILTER FABRIC WITH 1.5 FT THICK LAYER OF QUARRY SPALL ABOVE AND INSTALL RETAINED ARMOR STONE RETURN WALL - SEE DETAIL SHEET DP4
  - 3 BULKHEAD MAY BE SAW CUT OR BROKEN BY EXCAVATOR FOR REMOVAL. QUANTITY OF REINFORCEMENT UNKNOWN - SEE SHEET DP2 FOR TYPICAL SECTION OF BULKHEAD. CONTRACTOR TO VERIFY THE BULKHEAD CONSTRUCTION PRIOR TO BID SUBMITTAL.
  - 4 LOCATE AND SALVAGE MEMORIAL STONE IN GROIN - SEE SHEET EC2 - AND RESERVE FOR REINSTALLATION FOLLOWING CONSTRUCTION UNDER DIRECTION OF COUNTY PERSONNEL.
  - 5 REMOVE MAJORITY OF ROCK GROIN ROCK BELOW BETWEEN +7.5 FT MLLW AND +10 FT MLLW - EXACT REMOVAL AMOUNT TO BE FIT IN FIELD BY PROJECT ENGINEER OR THEIR REPRESENTATIVE - RETAIN ARMOR STONES FOR USE IN CONSTRUCTION OF NEW GROIN - SEE NOTE 7.
  - 6 RETAIN GROIN ABOVE +10 FT MLLW - EXACT LOCATION TO BE FIT IN FIELD BY PROJECT ENGINEER OR THEIR REPRESENTATIVE - SEE DETAIL SHEET DP2.
  - 6A RETAIN GROIN - EXACT LOCATION TO BE FIT IN FIELD BY PROJECT ENGINEER OR THEIR REPRESENTATIVE - SEE DETAIL SHEET DP2.
  - 6B EXCAVATE TO 3 FT BELOW EXISTING BEACH GRADE, AND INSTALL RETAINED ARMOR STONE NOTCHED GROIN TO MATCH EXISTING BEACH GRADE - SEE DETAIL SHEET DP2
  - 7 EXCAVATE TO 5.5 FT BELOW EXISTING BEACH GRADE, INSTALL SUBLAYER OF GEOTEXTILE FILTER FABRIC WITH 1.5 FT THICK LAYER OF QUARRY SPALL ABOVE AND INSTALL RETAINED ARMOR STONE GROIN TO MATCH EXISTING BEACH GRADE - SEE DETAIL SHEET DP2
  - 8 AVOID POTENTIAL DRAINAGE PIPES ON BLUFF - FIELD LOCATE

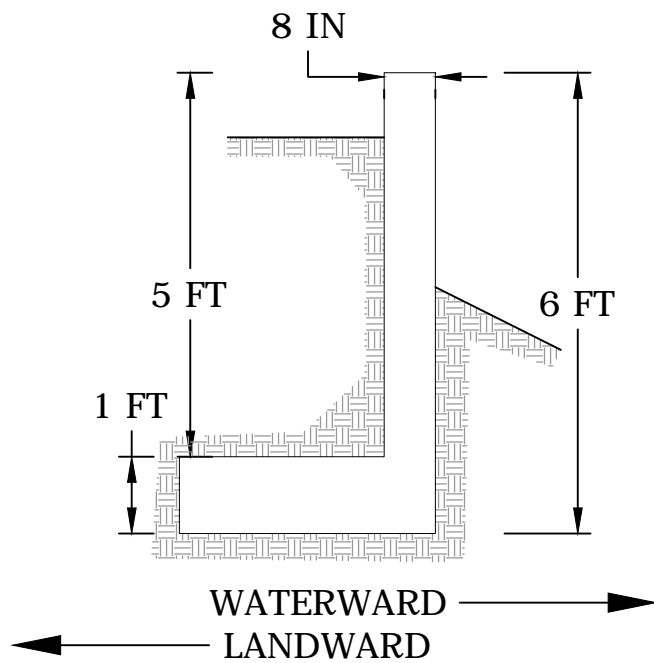
 <b>Office of the ISLAND COUNTY ENGINEER</b> 1 NE 6th Street Coupeville, WA 98239-5000 Tel: 360-679-7331 * Fax: 360-678-4550	SURVEYED BY: Jonathan Waggoner, CGS Adam Morrow, PLS, PSE	DATE: 3/20-21/14, 11/6/14 FEB. 2015	 <b>James W. Johannessen</b>			SCALE: 0 60 120 180 240 FEET 1" = 60'	 <b>COASTAL GEOLOGIC SERVICES</b> 1711 Ellis St, suite 103 Bellingham, WA 98225 360-647-1845 - coastalgeo.com	SECT. 32, TWP. 34N., R. 2E., W.M. JL. No. 00462-0004 C.R.P. No. 00-00	PLAN REF. No.
	DRAWN BY: Jonathan Waggoner, CGS	DATE PLOTTED: 4/20/15				SCALE APPLIES TO FULL SIZE (22" x 34") PRINTS ONLY. SCALE ACCORDINGLY FOR PRINTS OF OTHER SIZES.		ALA SPIT RESTORATION PROJECT	DP1
	DESIGNED BY: Jim Johannessen, LEG	INITIAL JWJ		DATE 4/20/15					SHEET
	CHECKED BY: Alexis Blue, PE	ACB		4/20/15				9 OF 16	
				DATE	REVISIONS	BY		DEMOLITION PLAN - SITE PLAN	

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NOTES

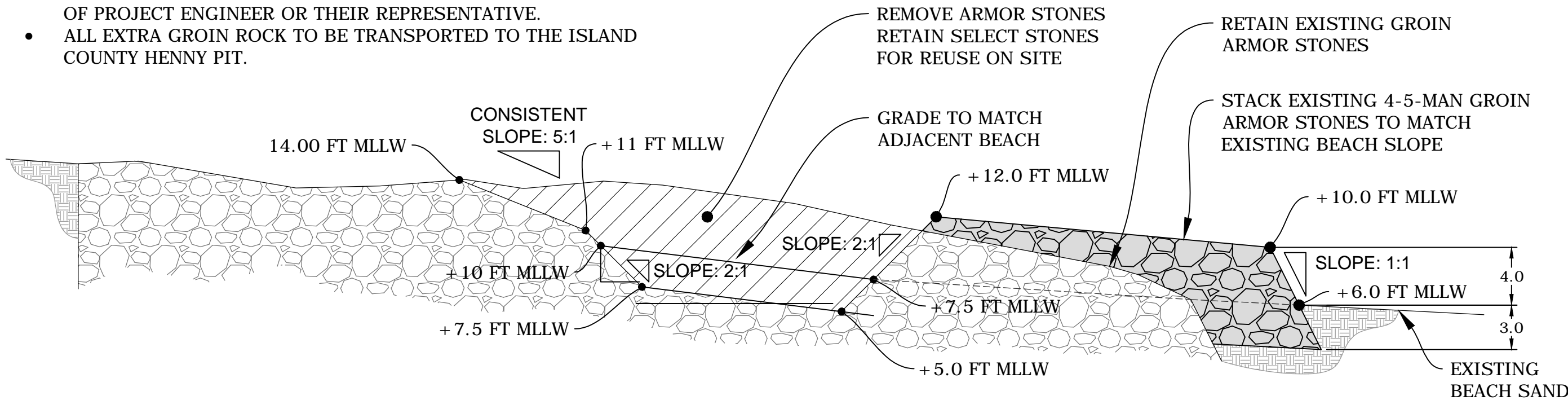
- REBAR REINFORCED WITH UNKNOWN SIZE, SPACING AND QUANTITY.
- HOLE LEFT BY BULKHEAD REMOVAL SHOULD BE FILLED WITH SOIL FROM BEHIND BULKHEAD.
- HEIGHT OF BULKHEAD MAY VARY ±1 FT.
- CONTRACTOR TO VERIFY THE BULKHEAD CONSTRUCTION PRIOR TO BID SUBMITTAL.



1 BULKHEAD TYPICAL SECTION  
N.T.S.

NOTES

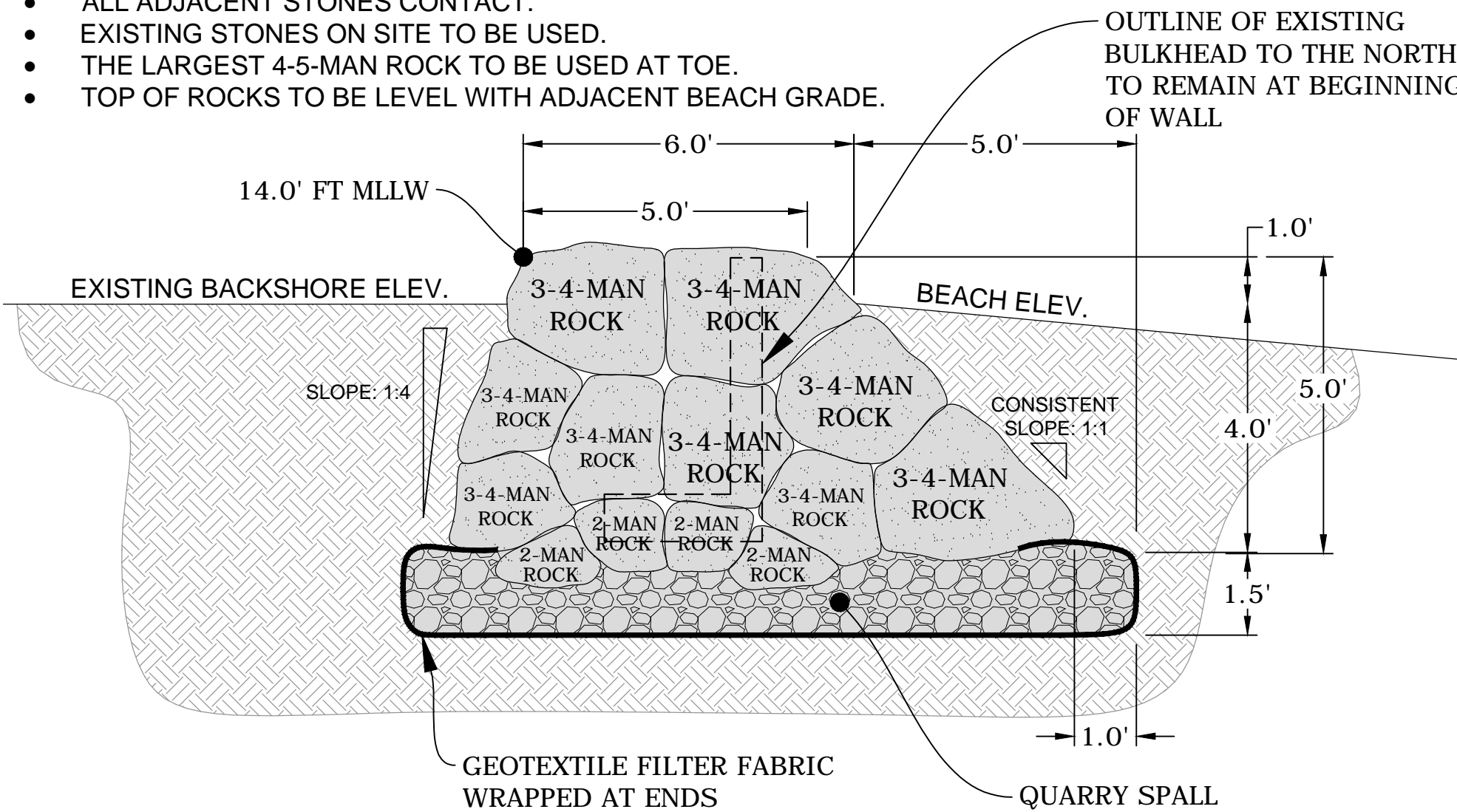
- BURIAL DEPTH UNKNOWN.
- RETAIN APPROPRIATE 2 TO 4-MAN ROCK FOR REUSE ON SITE.
- EXTENT OF REMOVAL TO BE FIT IN FIELD UNDER DIRECTION OF PROJECT ENGINEER OR THEIR REPRESENTATIVE.
- ALL EXTRA GROIN ROCK TO BE TRANSPORTED TO THE ISLAND COUNTY HENNY PIT.



2 GROIN REMOVAL DETAIL  
N.T.S, 2X VERTICAL EXAGGERATION

NOTES

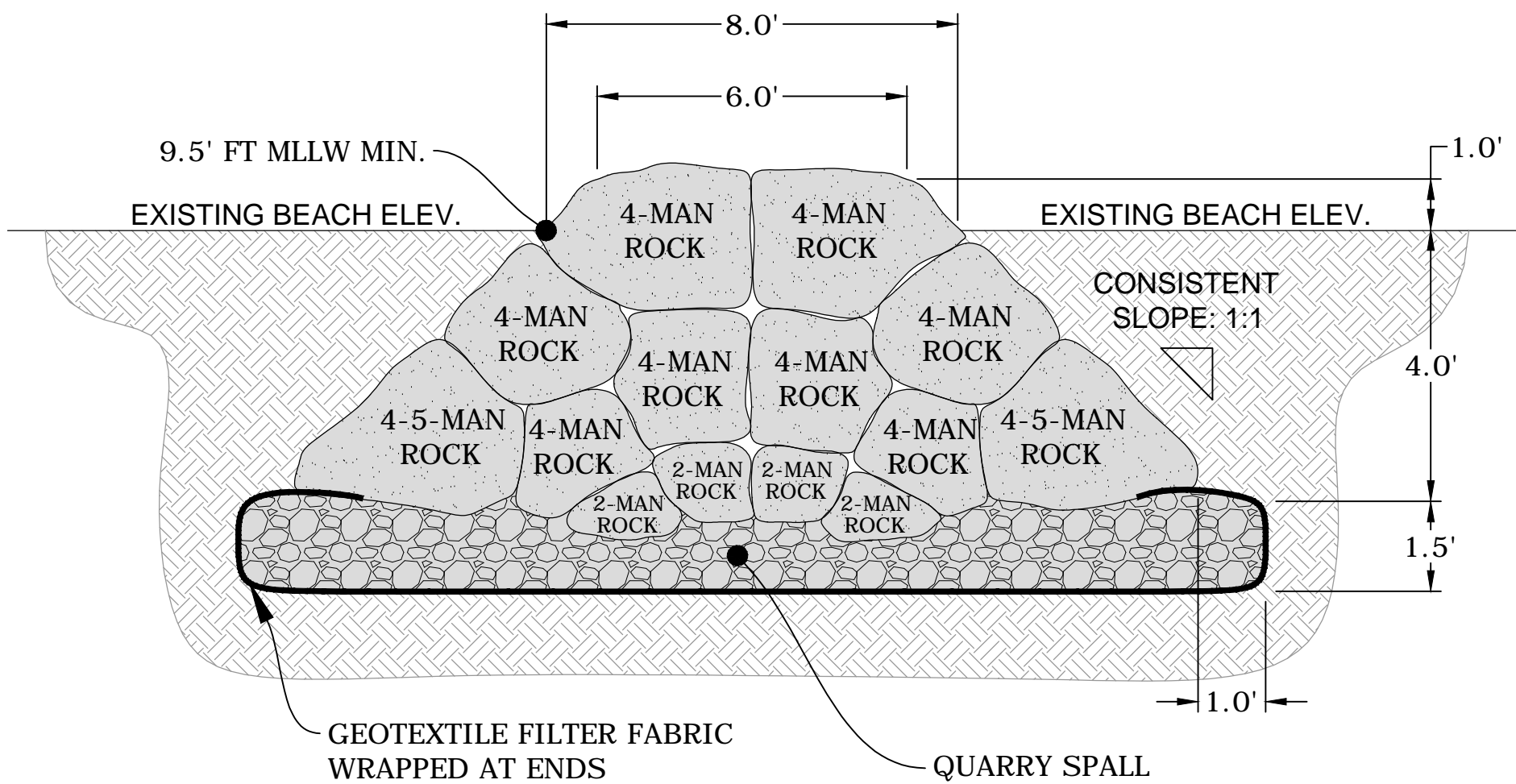
- 6"x6" MAXIMUM VOIDS BETWEEN ARMOR STONES ON SURFACE.
- ALL ADJACENT STONES CONTACT.
- EXISTING STONES ON SITE TO BE USED.
- THE LARGEST 4-5-MAN ROCK TO BE USED AT TOE.
- TOP OF ROCKS TO BE LEVEL WITH ADJACENT BEACH GRADE.



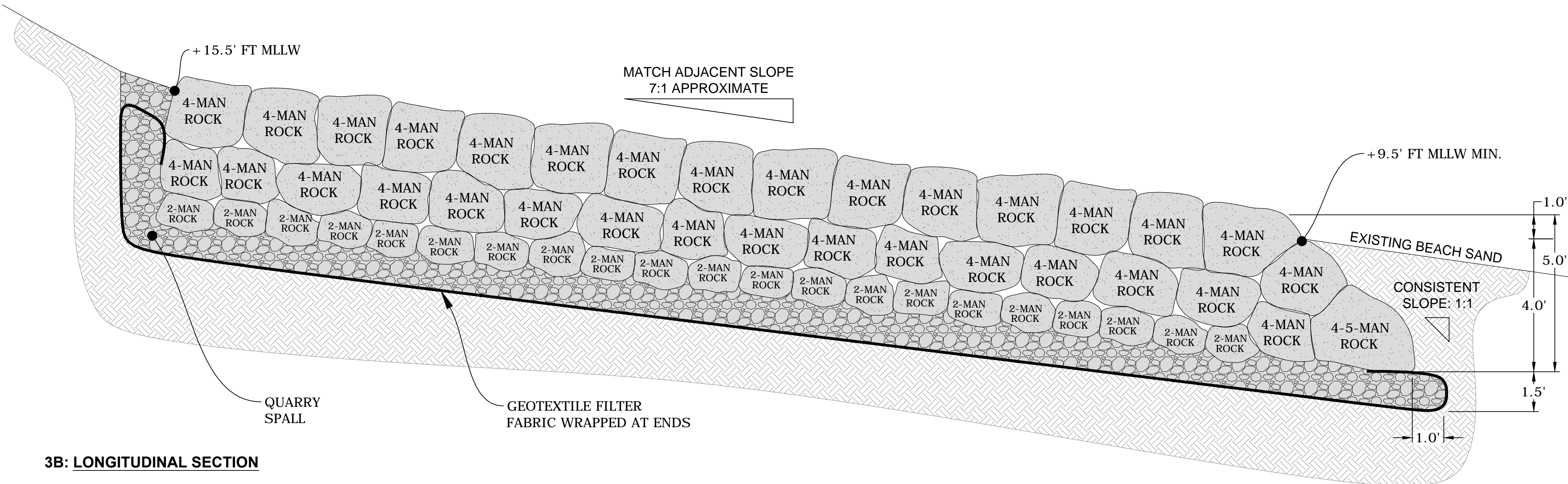
4 RETURN WALL INSTALLATION DETAIL  
N.T.S.

NOTES

- 6"x6" MAXIMUM VOIDS BETWEEN ARMOR STONES ON SURFACE.
- ALL ADJACENT STONES CONTACT.
- EXISTING STONES ON SITE TO BE USED.
- THE LARGEST 4-5-MAN ROCK TO BE USED AT TOE.
- TOP OF ROCKS TO BE LEVEL WITH ADJACENT BEACH GRADE.



3A: LATERAL SECTION



3B: LONGITUDINAL SECTION

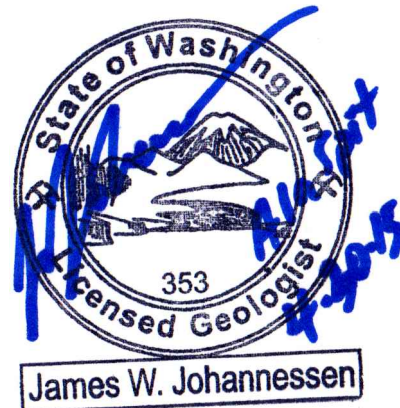
3 NEW GROIN INSTALLATION DETAIL  
N.T.S.



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CHECKED BY: Alexis Blue, PE	ACB	4/30/15	



DATE	REVISIONS	BY
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4/20/15	ISLAND COUNTY COMMENTS - 100%	ADT
4/10/15	ISLAND COUNTY COMMENTS - 90%	ADT

SCALE: 0 60 120 180 240 FEET 1" = 60'	
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JL No. 00462-0004 C.R.P. No. 00-00

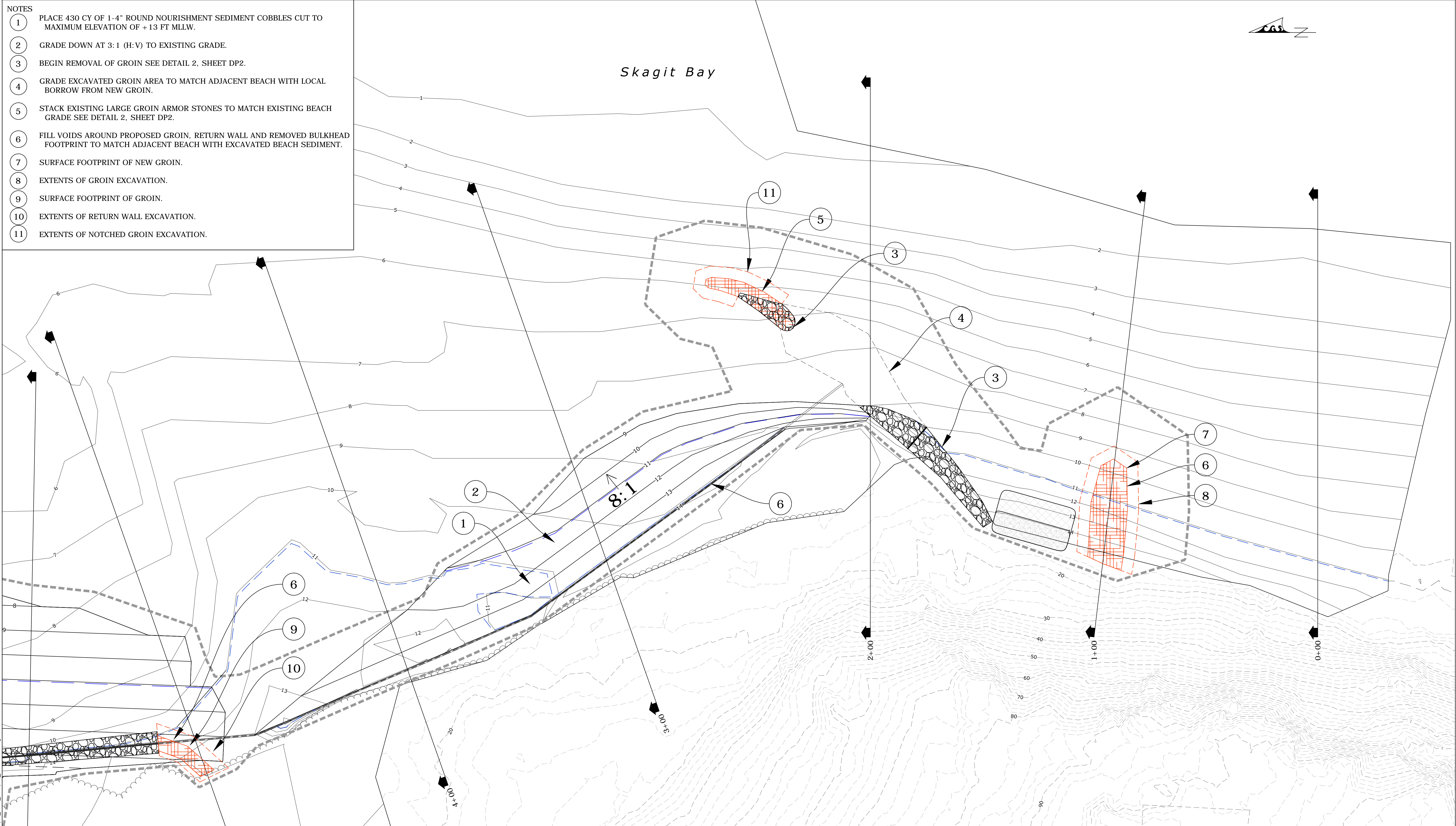
ALA SPIT RESTORATION PROJECT

DEMOLITION PLAN - DETAILS

PLAN REF. No.
DP2
SHEET
10 OF 16

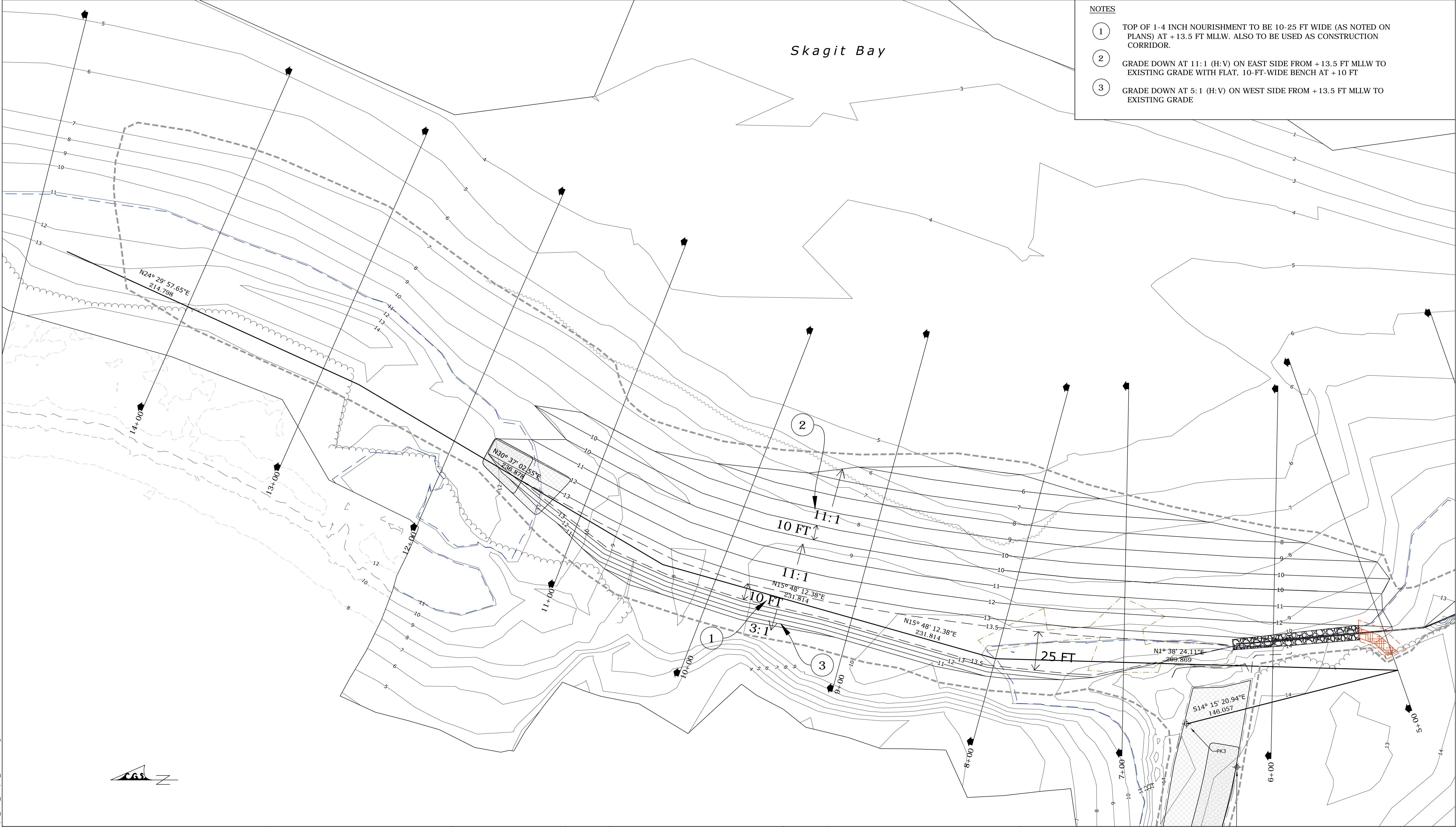


- NOTES
- 1 PLACE 430 CY OF 1-4" ROUND NOURISHMENT SEDIMENT COBBLES CUT TO MAXIMUM ELEVATION OF + 13 FT MLLW.
  - 2 GRADE DOWN AT 3: 1 (H:V) TO EXISTING GRADE.
  - 3 BEGIN REMOVAL OF GROIN SEE DETAIL 2, SHEET DP2.
  - 4 GRADE EXCAVATED GROIN AREA TO MATCH ADJACENT BEACH WITH LOCAL BORROW FROM NEW GROIN.
  - 5 STACK EXISTING LARGE GROIN ARMOR STONES TO MATCH EXISTING BEACH GRADE SEE DETAIL 2, SHEET DP2.
  - 6 FILL VOIDS AROUND PROPOSED GROIN. RETURN WALL AND REMOVED BULKHEAD FOOTPRINT TO MATCH ADJACENT BEACH WITH EXCAVATED BEACH SEDIMENT.
  - 7 SURFACE FOOTPRINT OF NEW GROIN.
  - 8 EXTENTS OF GROIN EXCAVATION.
  - 9 SURFACE FOOTPRINT OF GROIN.
  - 10 EXTENTS OF RETURN WALL EXCAVATION.
  - 11 EXTENTS OF NOTCHED GROIN EXCAVATION.



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	DRAWN BY: Jonathan Waggoner, CGS Adam Tullis, CGS	DATE PLOTTED: 4/30/15				SCALE APPLIES TO FULL SIZE (22" x 34") PRINTS ONLY. SCALE ACCORDINGLY FOR PRINTS OF OTHER SIZES.			
	DESIGNED BY: Jim Johannessen, LEG	INITIAL JWJ	DATE 4/30/15	4/30/15	ISLAND COUNTY COMMENTS - 100%	ADT		ALA SPIT RESTORATION PROJECT	SHEET 11 OF 16
	CHECKED BY: Alexis Blue, PE	ACB	4/30/15	4/10/15	ISLAND COUNTY COMMENTS - 90%	ADT			
				DATE	REVISIONS	BY			





NOTES

- 1 TOP OF 1-4 INCH NOURISHMENT TO BE 10-25 FT WIDE (AS NOTED ON PLANS) AT +13.5 FT MLLW. ALSO TO BE USED AS CONSTRUCTION CORRIDOR.
- 2 GRADE DOWN AT 11:1 (H:V) ON EAST SIDE FROM +13.5 FT MLLW TO EXISTING GRADE WITH FLAT, 10-FT-WIDE BENCH AT +10 FT
- 3 GRADE DOWN AT 5:1 (H:V) ON WEST SIDE FROM +13.5 FT MLLW TO EXISTING GRADE

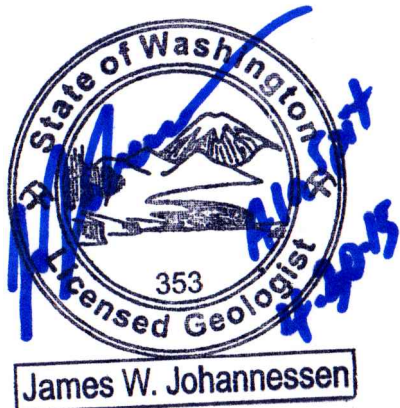
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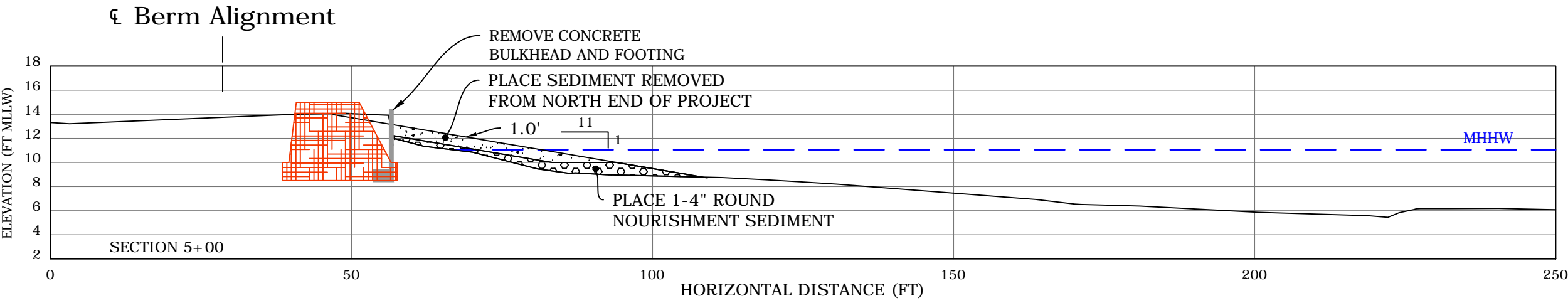
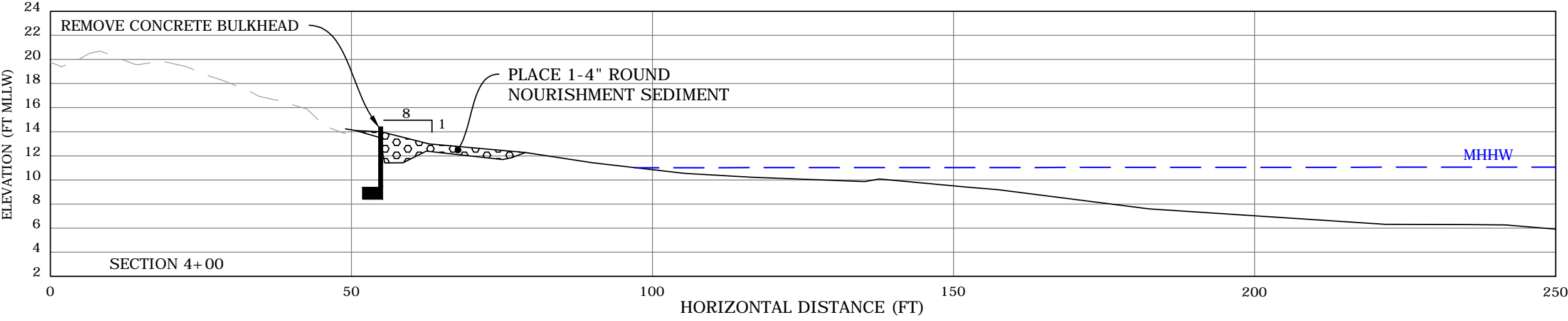
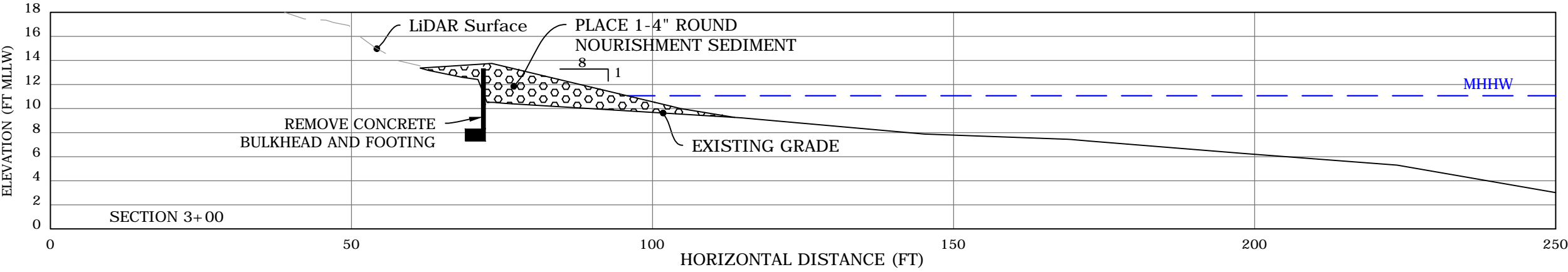
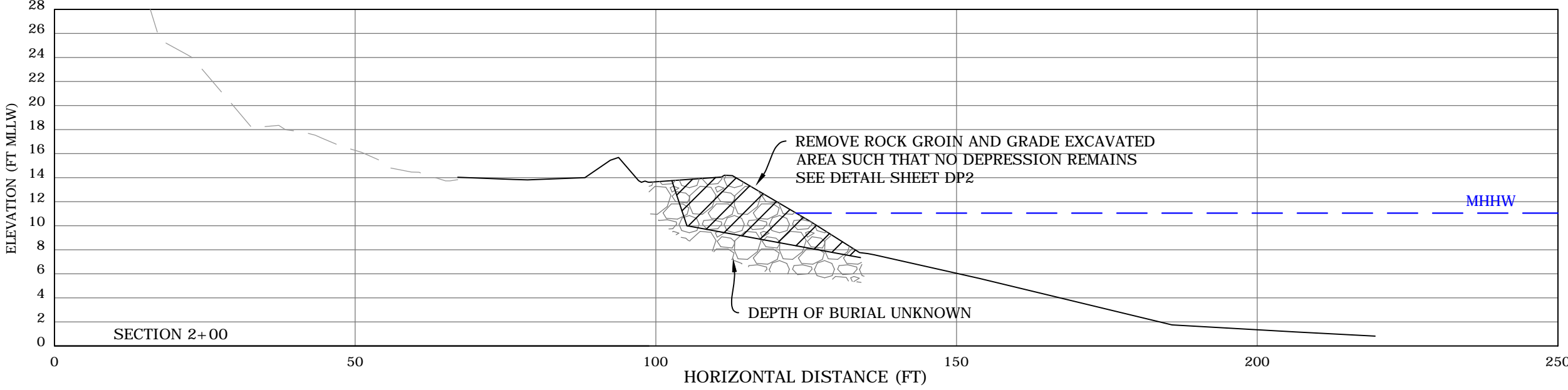
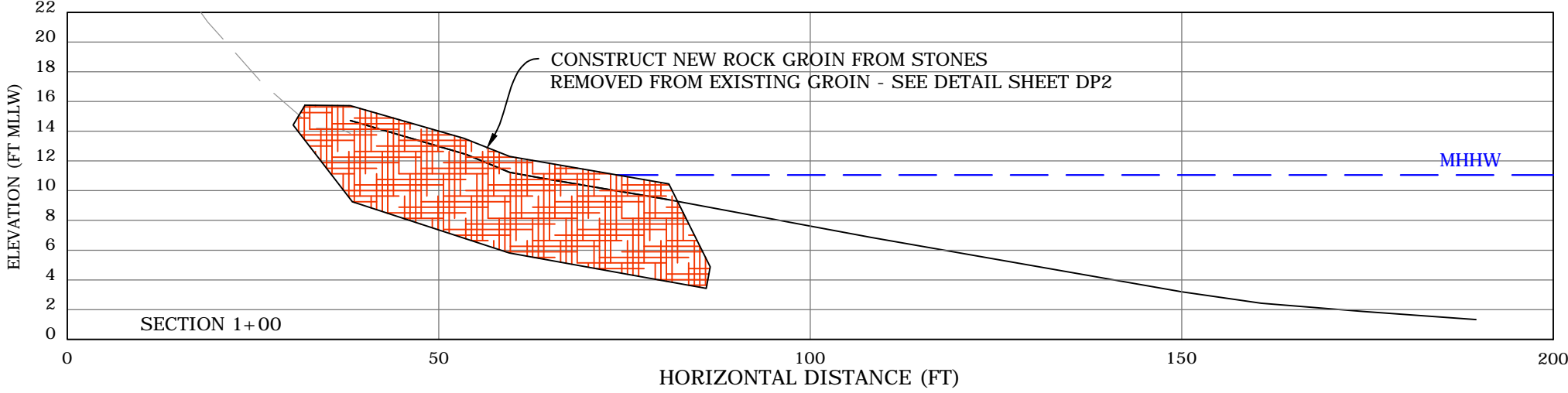
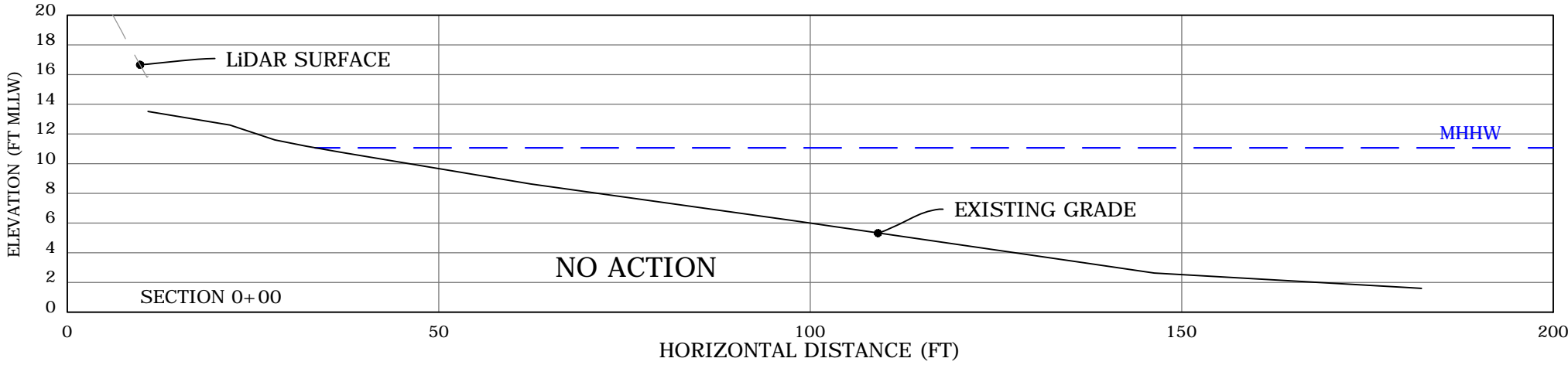
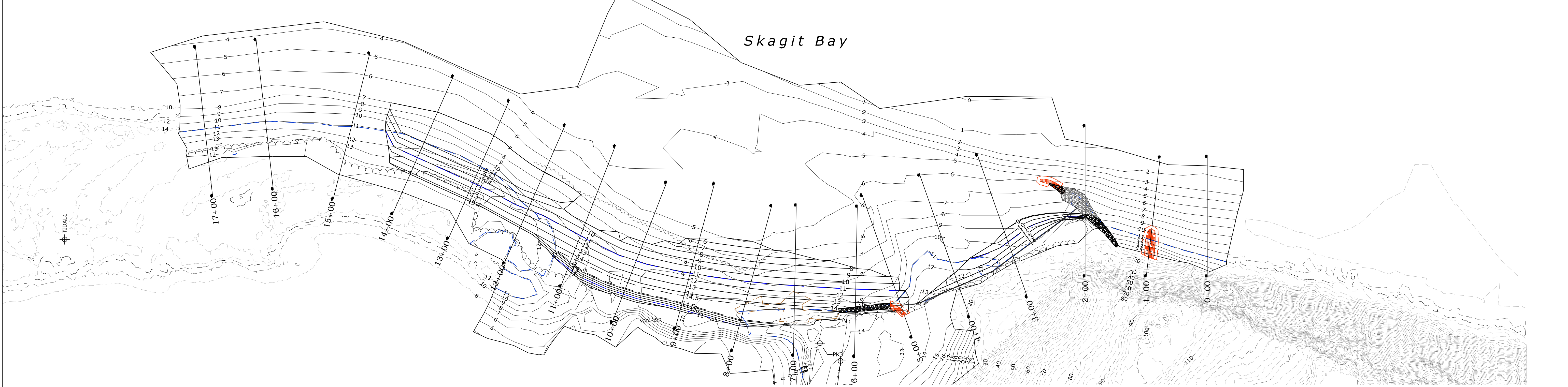
SECT. 32, TWP. 34N., R. 2E., W.M. JL. No. 00462-0004 C.R.P. No. 00-00	
ALA SPIT RESTORATION PROJECT	
GRADING PLAN - GRAVEL SUBLAYER	

PLAN REF. No.
GP2
SHEET
12 OF 16









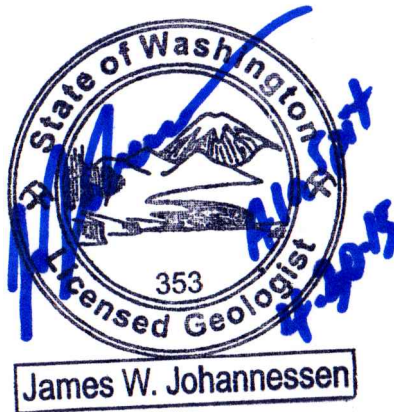
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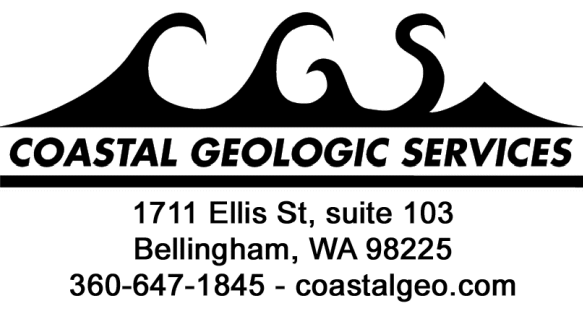
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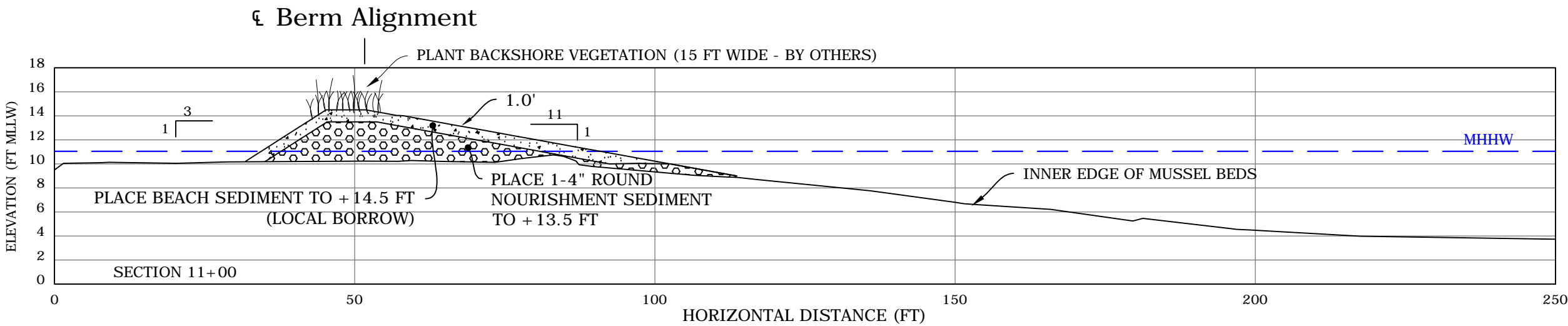
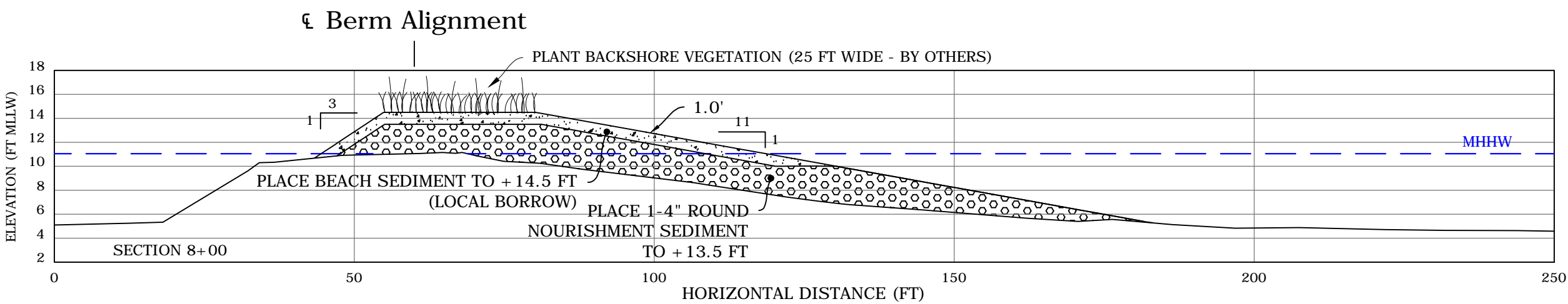
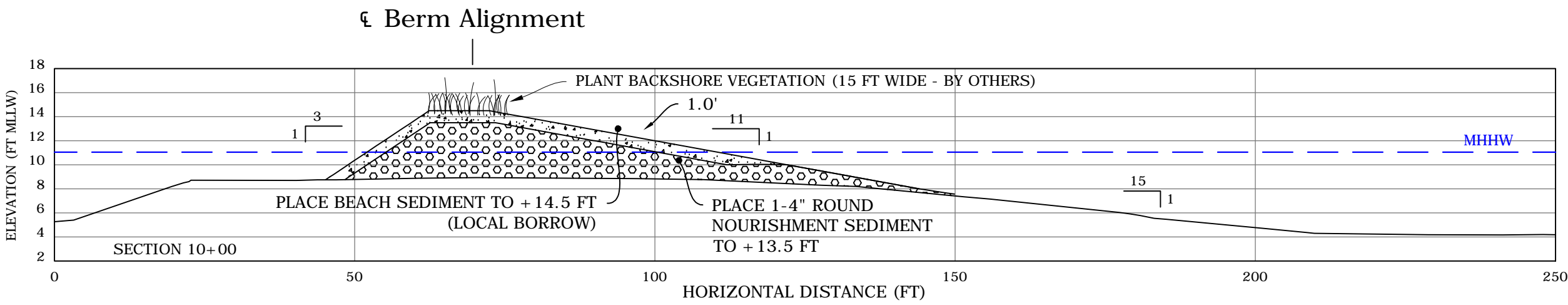
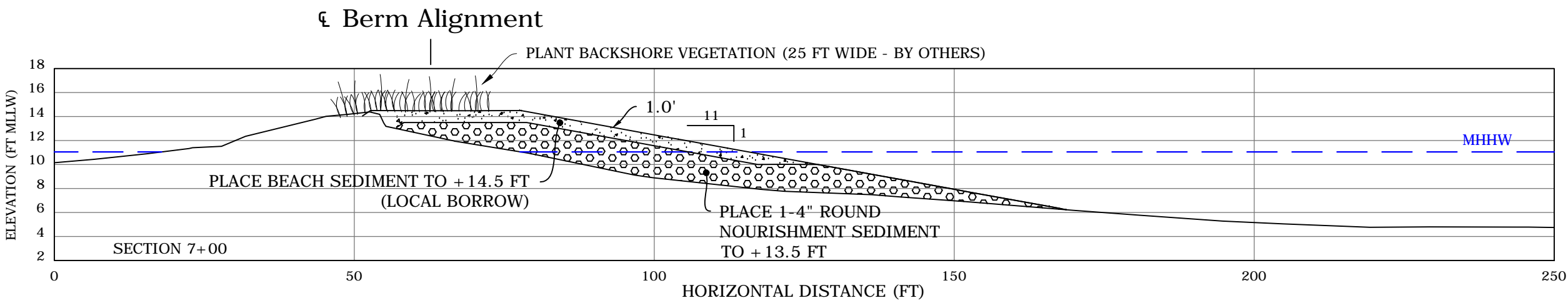
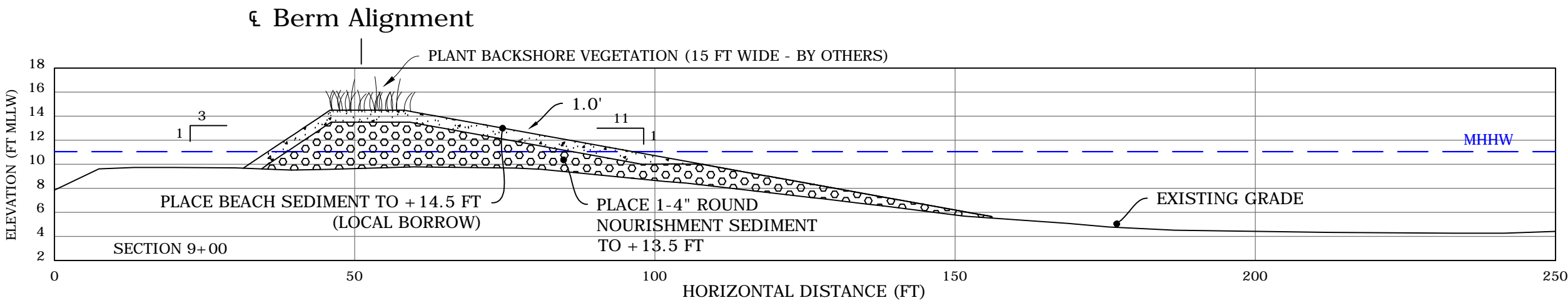
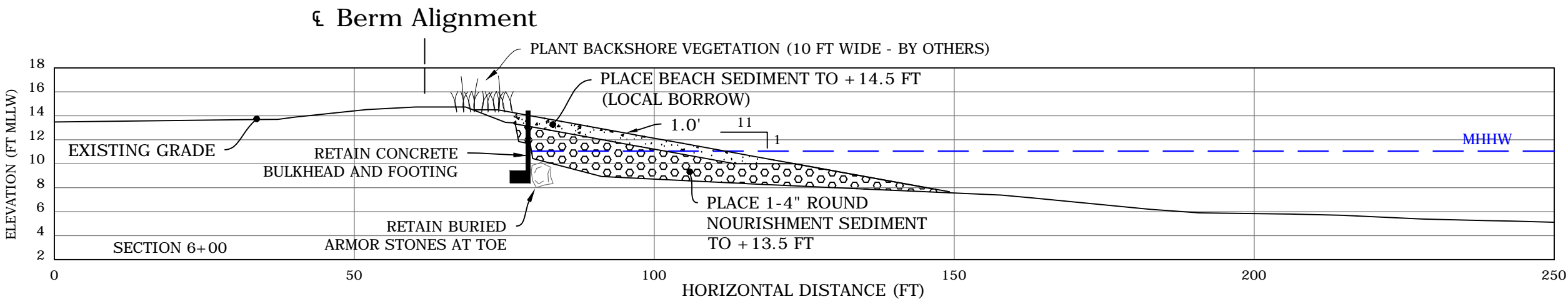
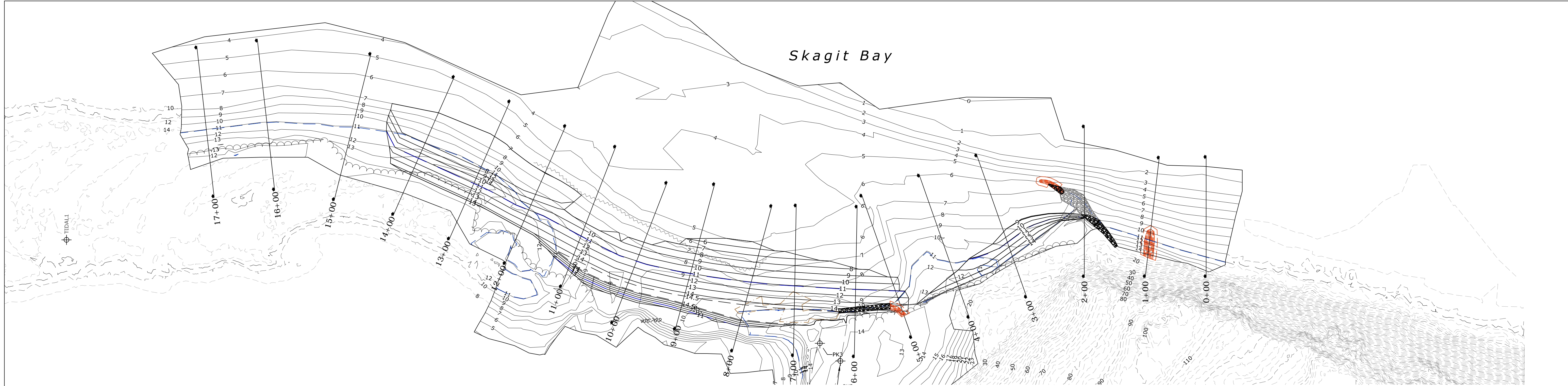
**ALA SPIT RESTORATION PROJECT**

CROSS SECTIONS

PLAN REF.  
No.  
CS1

SHEET  
14 OF 16





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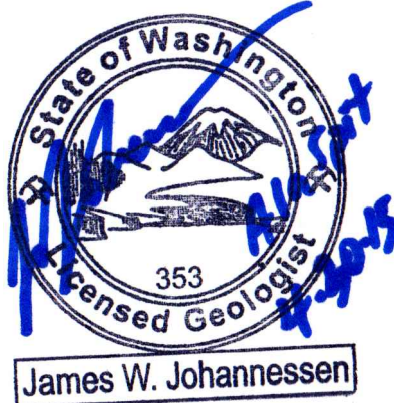


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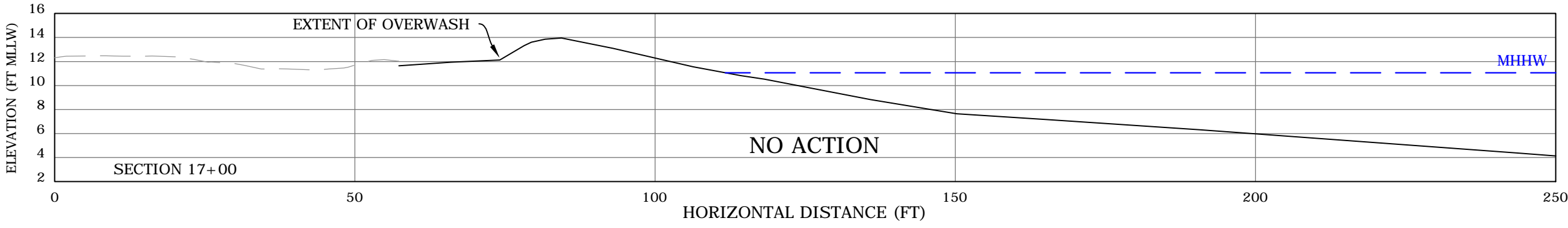
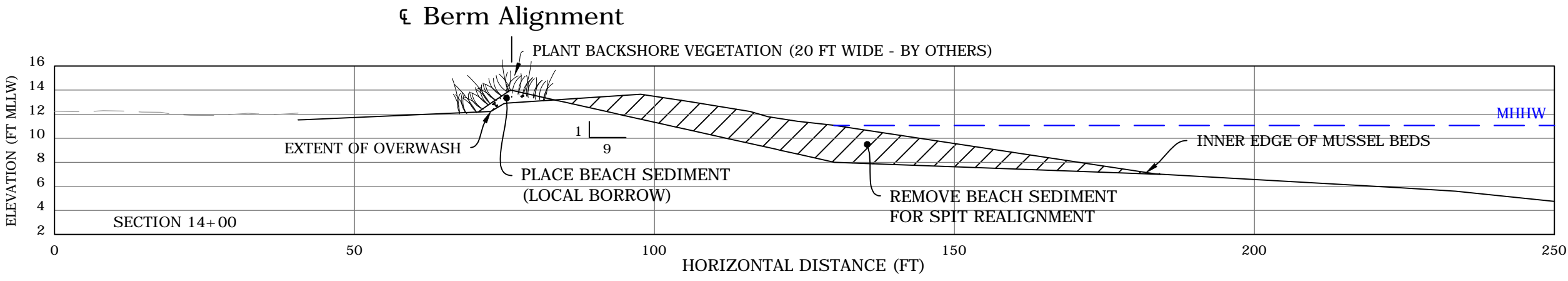
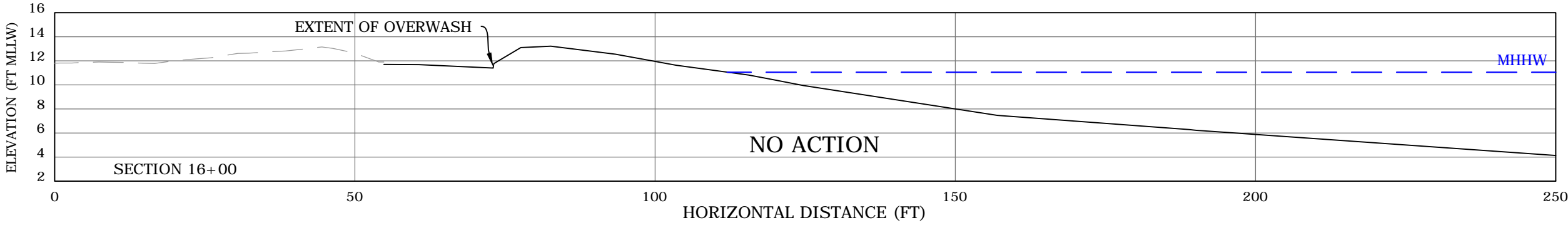
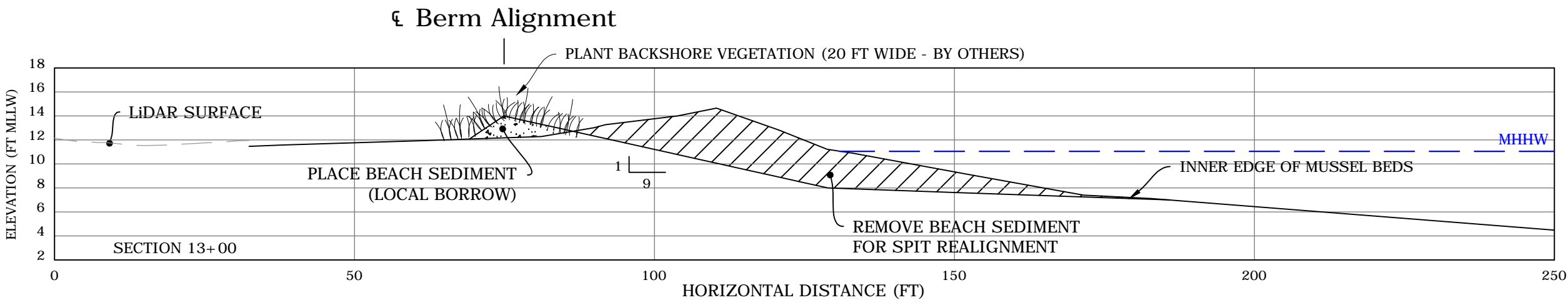
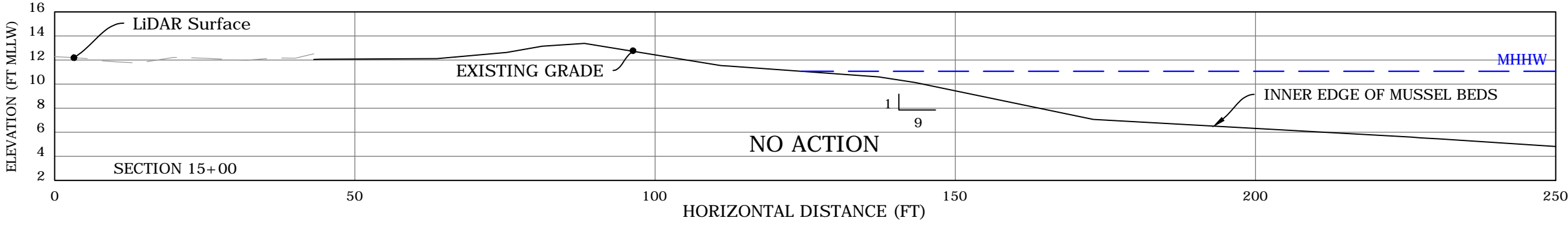
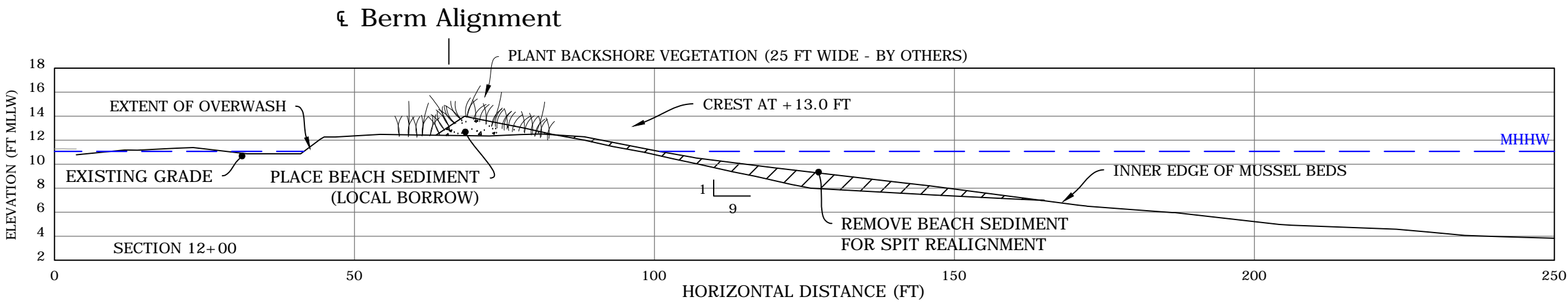
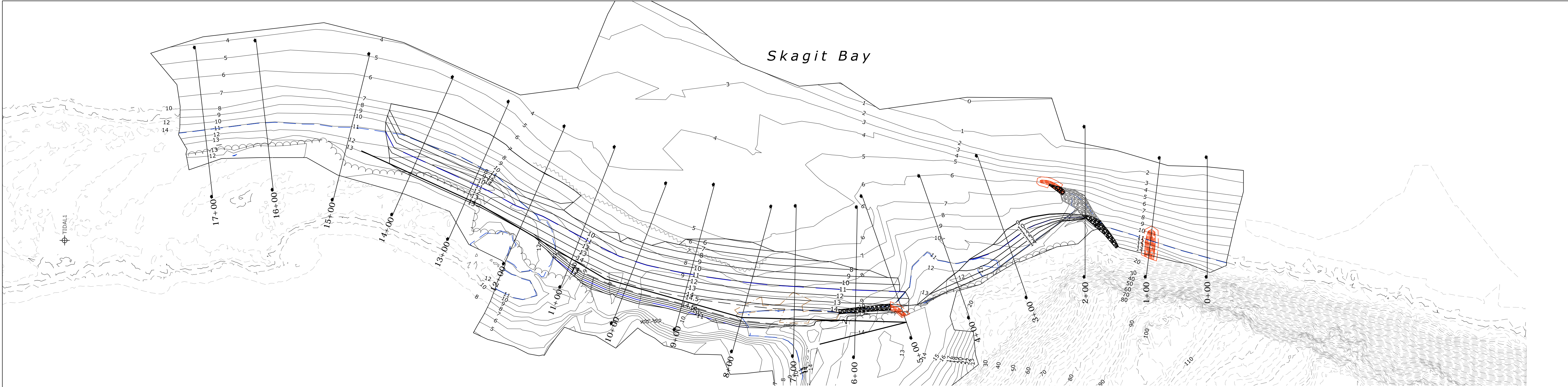
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ALA SPIT RESTORATION PROJECT

CROSS SECTIONS

PLAN REF.  
No.  
CS2  
SHEET  
15 OF 16





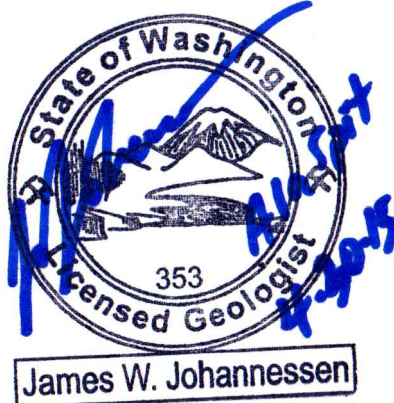
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**ALA SPIT RESTORATION PROJECT**

CROSS SECTIONS

PLAN REF.  
No.  
CS3

SHEET  
16 OF 16