County: Snohomish Grant No: G1000048

PROJECT TITLE: Northwest Straits Project: Snohomish Marine Resources Committee Action and Administration

DELIVERABLES FOR TASK NO 3.1: Kayak Point County Park Restoration Project Design

PROGRESS REPORT: [X] FINAL REPORT [ ]

PERIOD COVERED: 7/1/09 - 6/30/2010

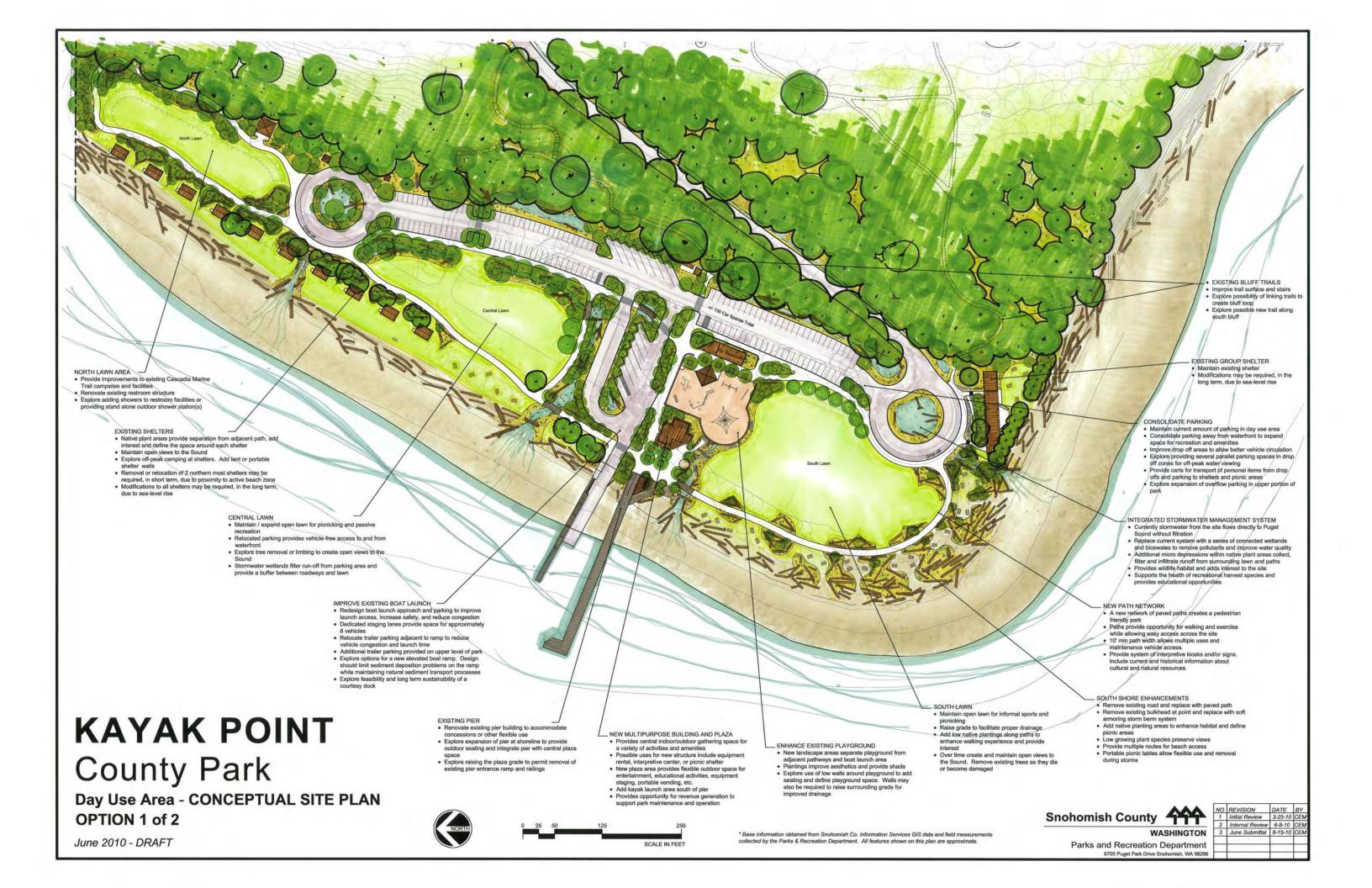
DATE SUBMITTED: 7/27/2010

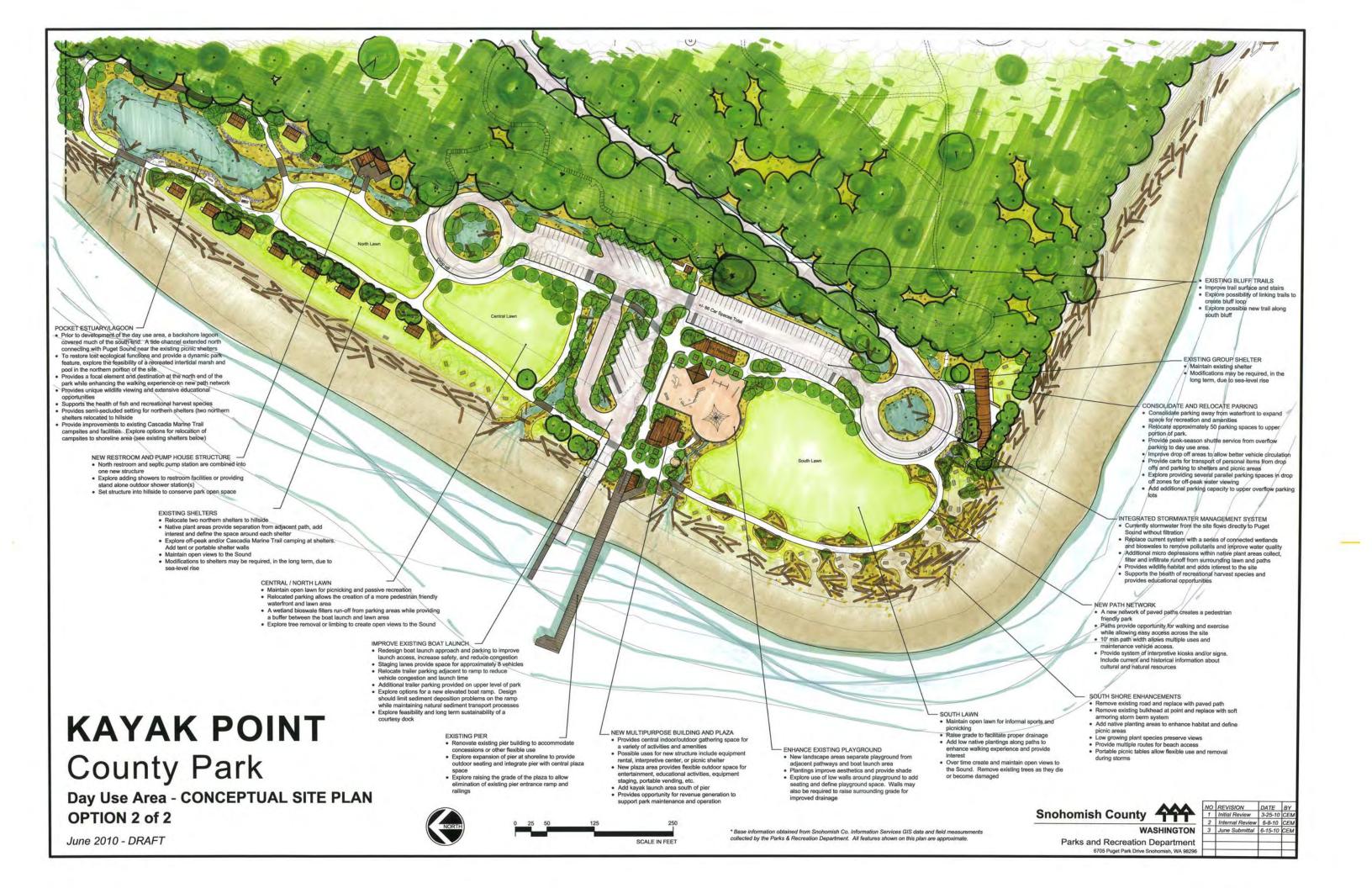


This report was funded in part through a cooperative agreement with the National Oceanic and Atmospheric Administration.

The views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA or any of its sub-agencies.

# ATTACHMENT D: KAYAK POINT REGIONAL PARK PROJECT DESIGN





#### **Kayak Point County Park Beach Enhancement Design**

June 2010

#### **Conceptual Planting Plan**

The following is a conceptual planting scenario for the proposed Kayak Point County Park Beach Enhancement Project. The enhancement project is limited to the construction and planting of a storm berm at the southern end of day use portion of the park. The plan set defines three different habitat zones associated with the constructed gravel storm berm. Each zone has slightly different substrate and landscape position and requires slightly different suites of native plants. The primary role of vegetation is stabilization of the storm berm through root architecture, as well as contribute to nearshore ecosystem and habitat support by establishing a self sustaining native plant community. The three zones delineated in the plan set have the following names and approximate areas:

Zone 1: Storm Berm Zone25,000 sq ftZone 2: Back Shore Planting Area12,000 sq ftZone 3: Recreation Zone15,000 sq ft

Each zone will host multiple discrete patches of similar plant types. No patch will span the entire beach width. Tentative total planting area is approximately 45,000 sq ft

Foot traffic access points over the storm berm will be defined by drift log placements and described plantings.

#### Zone 1: Storm Berm Zone

Zone 1 coincides with the seaward side of the storm berm and is subjected to high winds, salt spray, extremely mobile sand, gravel, and drift logs, and regular beach deposition and erosion. The coarse gravel substrate makes plant establishment difficult, however American dunegrass (*Leymus mollis*) is a good candidate for an initial species introduction. It may take a few years of substrate resorting and collection of fines and organic materials to support a greater array of naturally recruited vegetation.

Besides dunegrass, other species such as silver bursage (Ambrosia chamissonis) may be good candidates for planting in this zone.

#### Zone 2: Back Shore Area

The Back Shore zone is positioned landward of the crest of the storm berm and seaward of the recreational zone. Most of the revegetation work will coincide with this area. The specified back shore substrate is less coarse than the storm berm substrate. Fine substrate should intergrade with coarse material on landward side of storm berm to allow plant establishment up the berm face. A minimum 1 ft substrate depth is preferred depending on underlying soil quality. Drift logs will be arrayed in naturalistic groupings. A portion of the logs should be arranged and

anchored in loose polygons to serve as "planter boxes" as was done in the pilot project immediately adjacent to north. Anchoring will discourage beach visitors from removing logs for shelter building. Log placement will also serve to direct pedestrian flow across and over berm. Suites of appropriate native plants species will be planted in these delineated planting beds. The remainder of plants will be distributed in safe sites between and among the placed drift logs. Target plant numbers and spacing will be based on 15 ft on center for trees, 3-5 ft on center for shrubs, and 1-2 ft on center for herbs and forbs. It is understood that these plantings will not be evenly distributed across the project site but massed in clumps in various habitat zones to allow public access and view corridors.

Typical trees and shrubs for this area include shore pine (*Pinus contorta*), Hooker's willow (*Salix hookeriana*), Nootka rose (*Rosa nutkana*), black twinberry (*Lonicera involucrata*), and tall Oregon grape (*Berberis aquifolium*). Forbs and herbs include dunegrass, Pacifc gumweed (*Grindelia integrifolia*), beach ambrosia (*Ambrosia chamissonis*), silky beach pea (*Lathyrus littoralis*), and Douglas aster (*Symphyotrichum subspicatum*)

#### **Zone 3: Recreation Zone**

The Recreation Zone is the area located between backshore zone and the newly relocated roadway. While currently designated as recreation area, it would be advantageous to extend the backshore zone into this area also. Habitat heterogeneity will be increased by creating depressional areas within well drained substrate to mimic deflation plain conditions. Similar suite of plants as the backshore planting will be used, with depressions outlined with drift logs. This design allows for limited picnic table placement isolated by drift logs. The area will provide road run off catchment and infiltration. Planting this area in natives will reduce or delay invasion from lawn area landward of new road way. This zone may need substantial sub-soiling work and decompaction below old road bed.

Typical trees and shrubs for this area include shore pine, Pacific madrone (*Arbutus menziessi*), salal (*Gaultheria shallon*) as well as plants listed in the Backshore zone.

#### **Vegetation BMPs**

Temporary fencing and signage will be needed to insure plant establishment and substrate stabilization. Wood dune or snow drift fencing is aesthetically pleasing, long lasting, and reusable and is associated with beaches coast to coast.

Planting should occur in late fall, after seasonal rains have returned and substrate is settled (may be appropriate to water- in gravel & sand substrates immediately after construction as well as just prior to planting. Supplemental watering may be appropriate throughout the first growing season).

Shrubs and trees should be mulched with combination composted arborist chips and sea wrack from strandline.

All trees should be stalked during the establishment period.

#### **Plant Material**

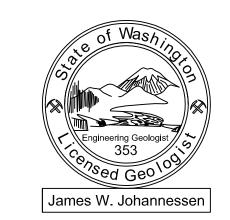
Plant materials should be acquired as early as possible, at least one year prior to site planting. Seed of nearshore forbs and herbaceous plants will be sourced from Puget Sound and hand collected by contractor. Contracted seed will be grown out at the Snohomish County Native Plant Program Nursery (SC NPP Nursery). Other forbs, perennials, shrubs, and trees will be purchased from regional growers as bareroot or container plants. Bare-root plants will be containerized in appropriate pot and media and grown for one full growing season prior to outplanting at the SC NPP Nursery.

#### **Plant Specifications**

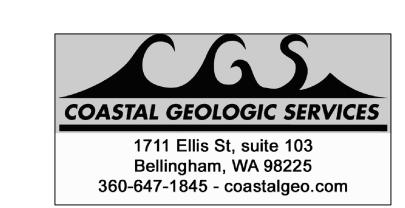
Zone 1:	Storm berm	clumped plantings, ~50% of berm, primarily back side	
Н	dune beachgrass silver bursage	Leymus mollis Ambrosia chamissonis var. bipinnatesecta	2 ft centers 2000 supercell 1000 supercell 3000
Zone 2:	Backshore	solitary trees, clumped shrubs in 1 -3 species assemblages; planting zones defined by anchored drift log beds.	
T	shore pine	Pinus contorta var contorta	15
S	Hooker willow nootka rose tall Oregon grape black twinberry western crabapple	Salix hookeriana Rosa nutkana Berberis aquifolium Lonicera involucrata Malus fusca	25 tall 1/2 g 150 1 gal 100 1 gal 100 1 gal 100 1 gal 475
Н	Douglas aster Pacific gumweed silver bursage beach pea dune beachgrass	Symphyotrichum subspicatum Grindelia integrifolia Ambrosia chamissonis var. bipinnatesecta Lathyrus japonicus Leymus mollis	<ul> <li>500 supercell</li> <li>500 supercell</li> <li>500 supercell</li> <li>300 supercell</li> <li>1000 supercell</li> <li>2800</li> </ul>
Zone 3:	Recreational	drift log planting beds, depressional areas	
S	Nootka rose tall Oregon grape black twinberry	Rosa nutkana Berberis aquifolium Lonicera involucrata	200 1 gal 200 1 gal 200 1 gal 600
Н	Douglas aster Pacific gumweed beach knotweed dune beachgrass seashore bluegrass red fescue	Symphyotrichum subspicatum Grindelia integrifolia Polygonum paronychia Leymus mollis Poa macrantha Festuca rubra var rubra	<ul> <li>250 supercell</li> <li>250 supercell</li> <li>200 supercell</li> <li>500 supercell</li> <li>500 supercell</li> <li>500 supercell</li> <li>200 supercell</li> </ul>

# ATTACHMENT E. KAYAK POINT REGIONAL PARK BID PLANS AND PROJECT BUDGET

# Kayak Point County Park LIMITS

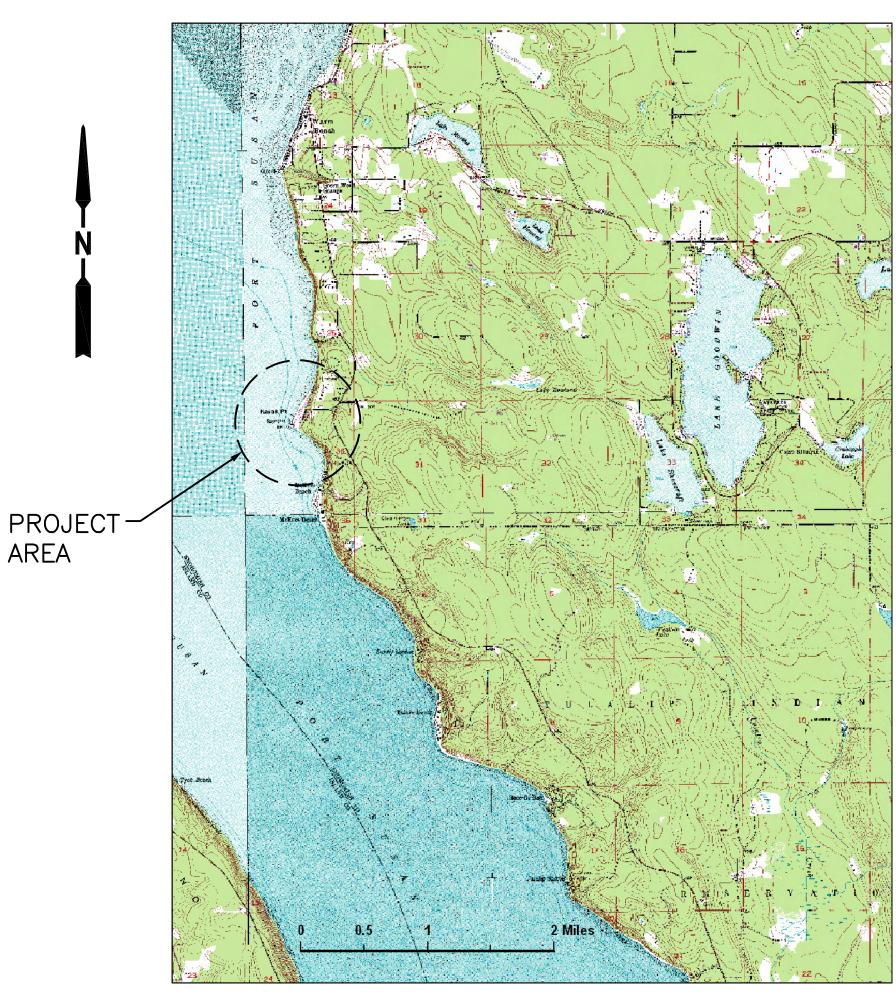


UPI# not assigned PROJECT# not assigned



# SHEET INDEX

SHEET NAME	SHEET #
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DEMOLITION PLAN	7
GRADING PLAN	8
PROFILES	9
VEGETATION/RECREATION ZONES AND LWD PLAN	10



# VICINITY MAP

N.T.S.

OWNER AND ADDRESS
Snohomish County Property Management
3000 Rockefeller Ave., M/S 404
Everett, WA 98201

PERMIT APPLICANT

Snohomish County Parks & Recreation 6705 Puget Park Drive Snohomish, WA 98296

## DESIGN BY:

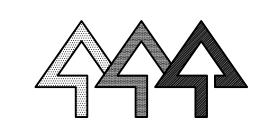
COASTAL GEOLOGIC SERVICES, INC.

JIM W JOHANNESSEN, MS, LEG

JONATHAN F WAGGONER

FOR:

SNOHOMISH COUNTY PARKS & RECREATION



Snohomish County Officials

DIRECTOR OF PUBLIC WORKS

STEVEN E. THOMSEN, P.E.

COUNTY ENGINEER
OWEN B. CARTER, P.E.

**EXECUTIVE** 

AARON G. REARDON

# COUNCIL MEMBERS

JOHN KOSTER - DIST. 1 BRIAN SULLIVAN - DIST. 2

MIKE COOPER - DIST. 3

DAVE GOSSETT - DIST. 4

DAVE SOMERS - DIST. 5

Last Saved By: Jonathan Apr 22, 2010 - 10:53am

# SITE ADDRESS 15610 Marine Dr Stanwood, WA 98292 LEGAL DESCRIPTION

SEC 25 TWP 31 RGE 03 RT-2-2B & 5) S 18 AC GOVT LOT 4 & 2ND CLASS TIDELANDS ADJ THRTO LESS CO RD R/W & ANY PART BIRMINGHAM DIV 2 PLAT & LESS BAAP ON S SEC LN 368.78FT OF FRAC COR TH N 360FT TO PT DESIG AS A TH N 40FT TPB TH E 69.90FT TH SW TO PT 39.40FT E OF PT A TH W 39.40FT TO PT A TH TO PTN N02\*12 00W 360FT FROM PT ON SEC LN 370.2FT E OF FRAC COR TH W PLL TO S SEC LN 120FT M/L TO SHORE PORT SUSAN BAY TH N THON TO PT W OF TPB TH E TO TPB & 2ND CLASS TIDELANDS ADJ THRTO TO SNO CO — NORTH SALTWATER REGIONAL PARK 1972 \$10.00 V651 P399 REGIONAL PARK

# LEGEND

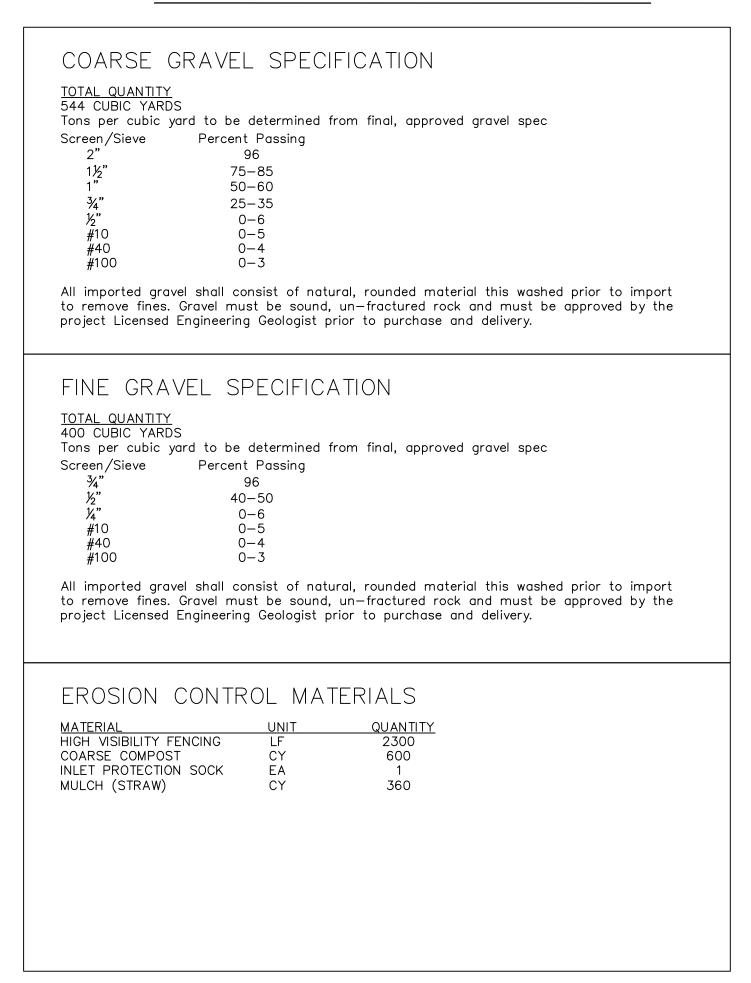
Edge of Pavement (Existing)

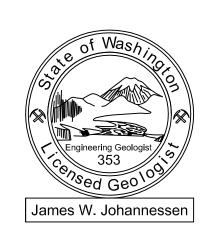
LINETYPES

#### \_\_\_\_\_\_ Building Line (Existing) ---- Concrete/Curb (Existing) Bulkhead (Existing) Post and Chain Fence Contour (Existing, major 5') Contour (Existing, minor 1') Contour (Proposed, major 5') Contour (Proposed, minor 1') MHHW (+11.24 ft MLLW) Road Centerline (Proposed) SURVEY SYMBOLS FIELD/MONUMENTATION SYMBOL DESCRIPTION FOUND (SET) PK & TACK CONCRETE MONUMENT MONUMENT IN CASE UTILITY SYMBOLS DESCRIPTION EXISTING PROPOSED SAN. SEWER MANHOLE STORM DRAIN SURFACE FEATURE/LANDSCAPE EXISTING PROPOSED DESCRIPTION N/A TREE (Deciduous) N/A PICNIC BENCH (existing, drawn to scale) PICNIC BENCH (to be removed) EROSION CONTROL SYMBOLS DESCRIPTION SYMBOL LABEL CLEARING LIMITS (WSDOE BMP C103) TEMPORARY SEEDING OR MULCHING (WSDOE BMP C120) SEE NOTES SHEET EC01) COMPOST FILTER BERM INSTALL FILTER FABRIC INLET PROTECTION TREE PROTECTION (INSTALLED TO DRIP LINE) DEMOLITION SYMBOLS DESCRIPTION SYMBOL REMOVE EXISTING ROADBED REMOVE STEEL SHEETPILE BULKEAD AND CONCRETE CAP REMOVE DRIFTWOOD TO SOCKPILE AREA DRIFTWOOD STOCKPILE AREA

#### SECTION 36, T.31 N., R.3 E., W.M.

## SUMMARY OF QUANTITIES





			DATE	NO.	REVISION	BY					NOT ASSIGNED		
			4/22	1	ADDED LEGEND/SQ SHEET	JFW	FIELD	LD BOOK(S):			UPI#		
							JIM W	JOHANN	IESSEN, LEG	JONA	ATHAN F W	VAGGONER	
							DESIGN	ED BY:		DRAW	N BY:		
							10	WASH.		N/A		N/A	
							NO.						
INITIAL DESIGN	JWJ	2/24					REGION NO.	STATE	FED. AID PROJ		D PROJ. NO. SUF		
PLAN CHECK	BY	DATE					Last Saved By: Jonathan Apr 22, 2010 — 10:53am						



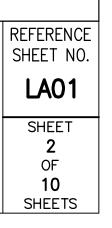
OWEN B. CARTER, P.E.
SNOHOMISH COUNTY ENGINEER

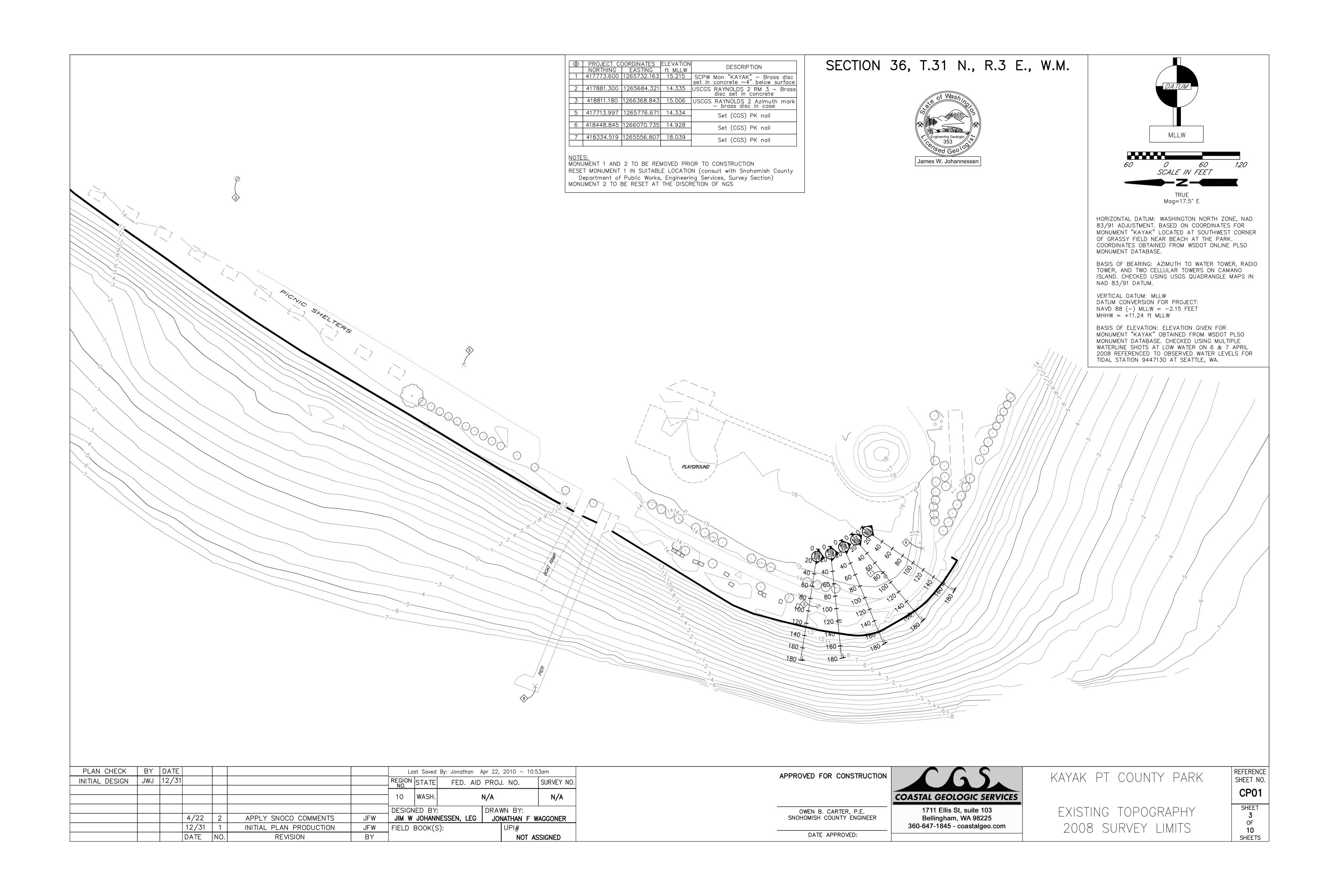
DATE APPROVED:

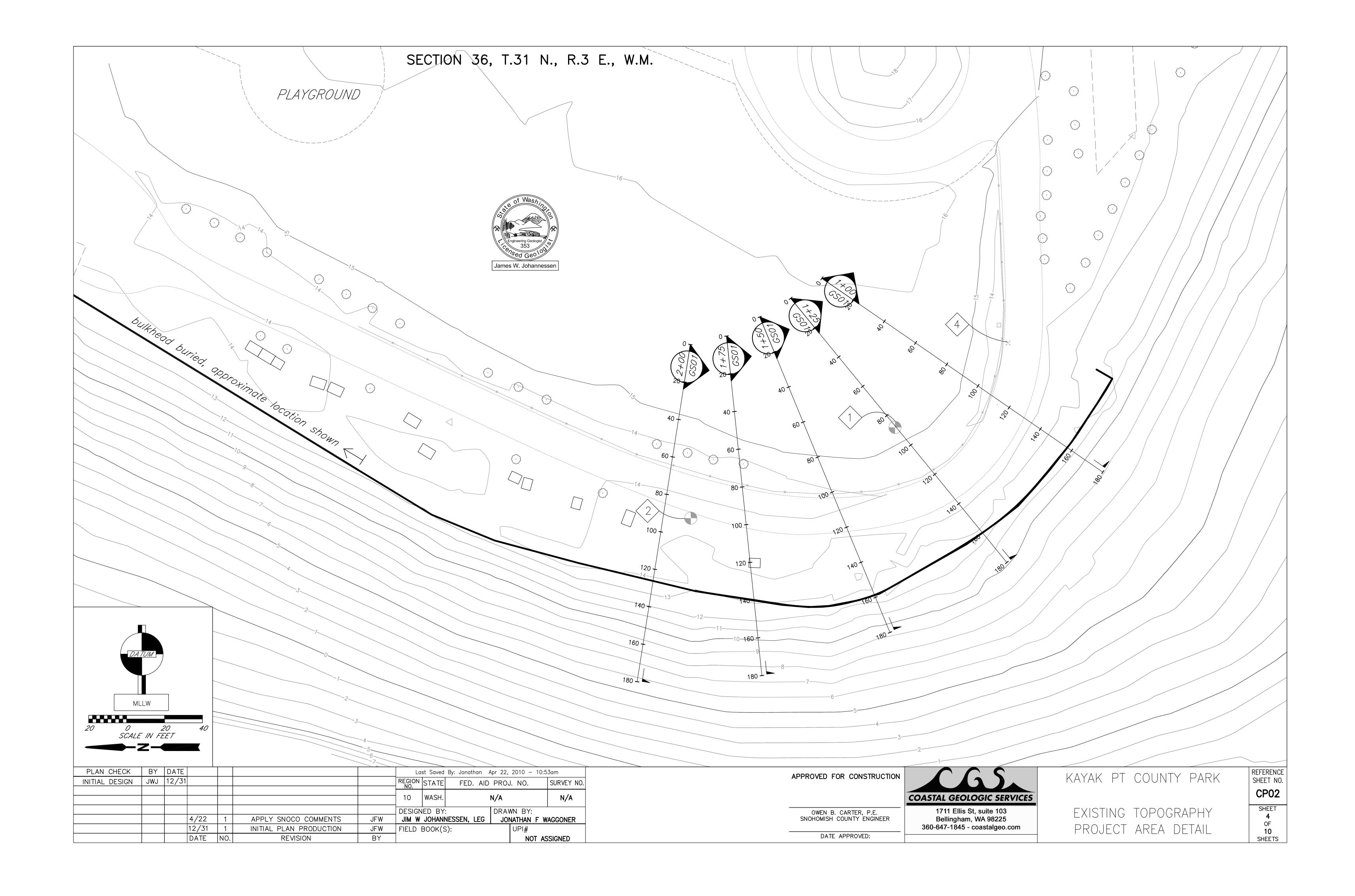


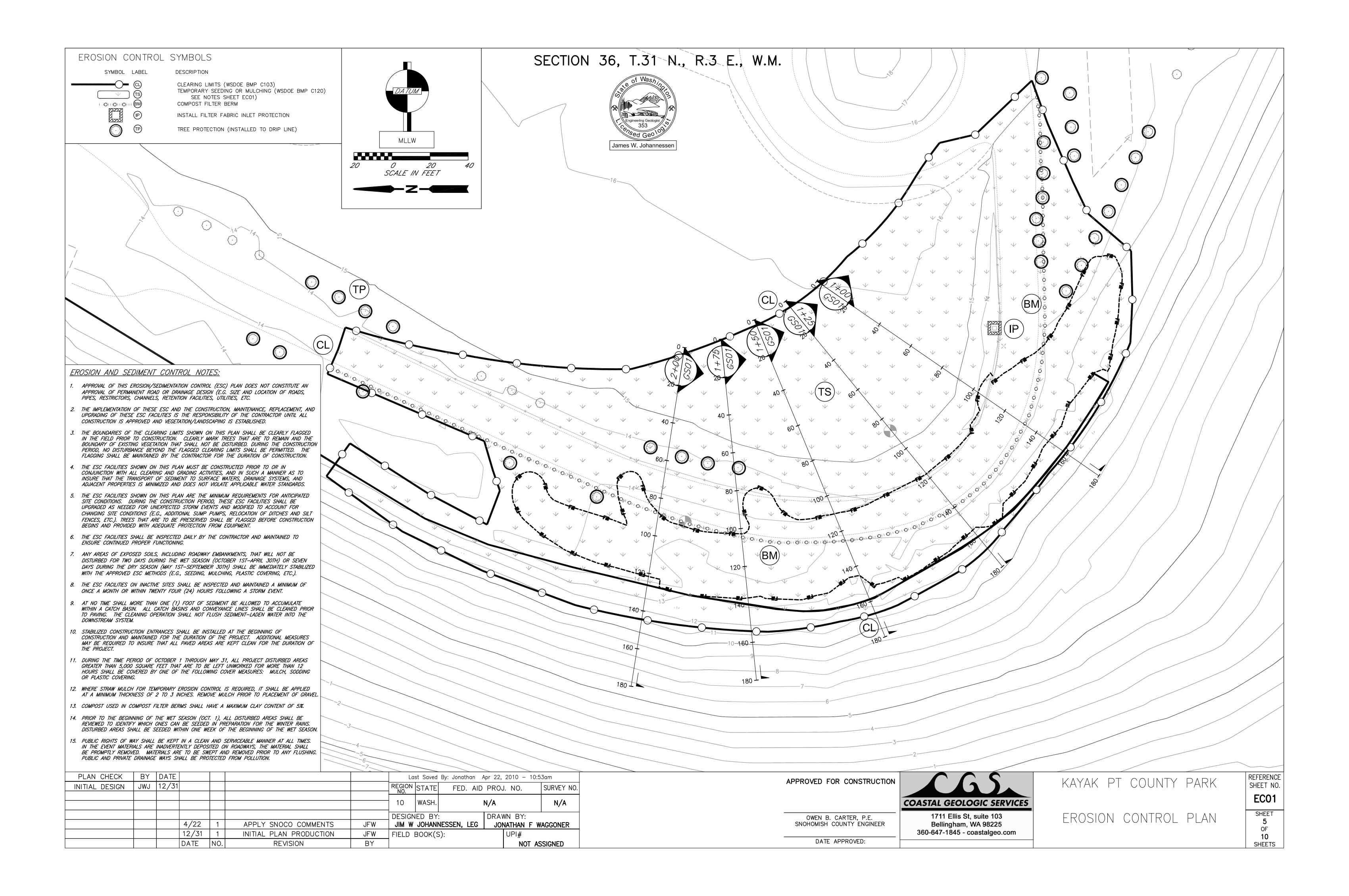
1711 Ellis St, suite 103 Bellingham, WA 98225 360-647-1845 - coastalgeo.com KAYAK PT COUNTY PARK

LEGEND AND SUMMARY OF QUANTITIES

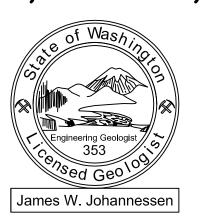


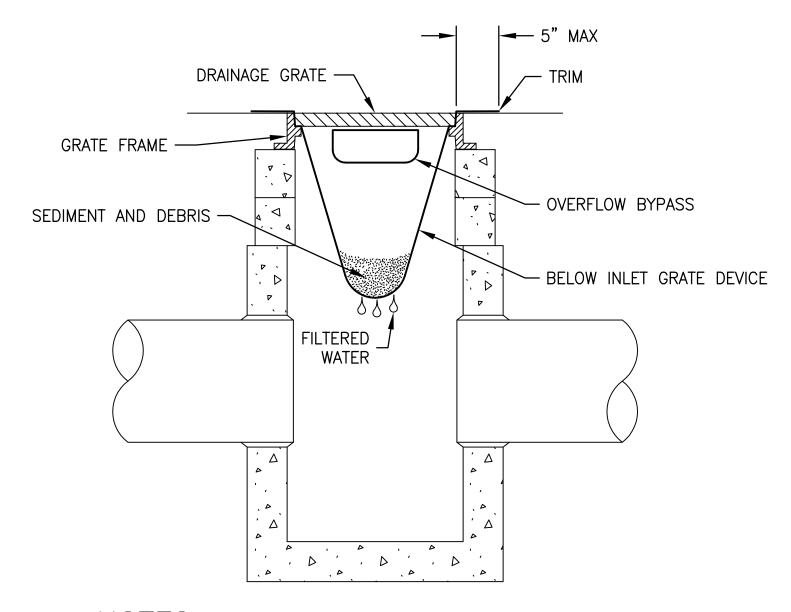






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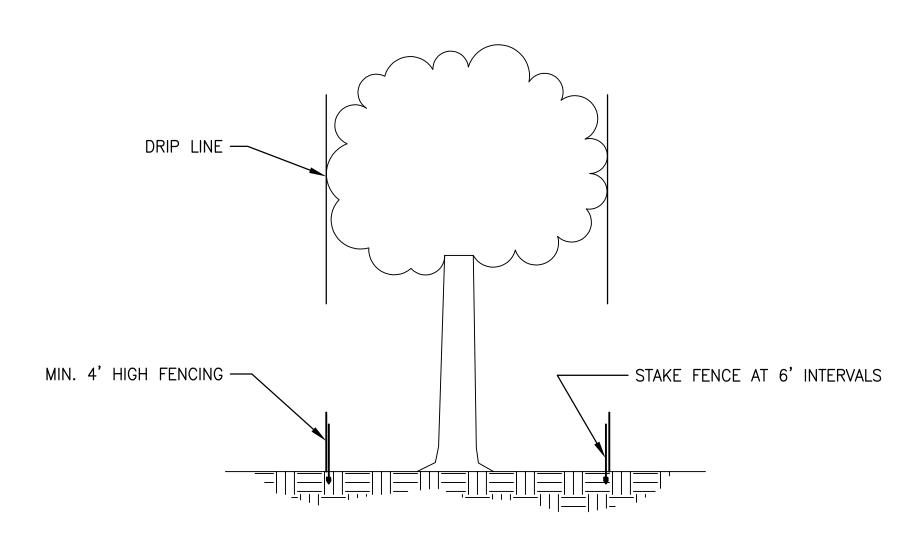




#### NOTES:

- 1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
- 2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
- 3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
- 4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).

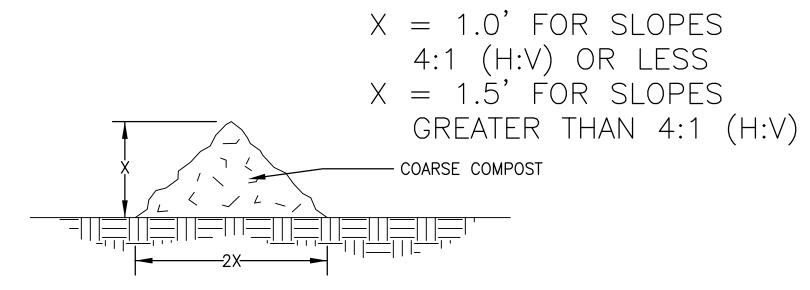
STORM DRAIN INLET PROTECTION N.T.S.



#### NOTES:

- 1. NO SOIL DISTURBANCE OR COMPACTION, CONSTRUCTION MATERIALS, TRAFFIC, TRENCHING, OR OTHER LAND DISTURBING ACTIVITY IS ALLOWED IN THE TREE PROTECTION ZONE.
- 2. TREE PROTECTION FENCE IS TO BE LOCATED AROUND THE PERIMETER OF ALL TREE PROTECTION AREAS.
- 3. TREE PROTECTION FENCE MUST BE PLACED NO CLOASER THAN THE TREE DRIPLINE.
- 4. TREE PROTECTION FENCE MUST BE INSTALLED BEFORE ANY DEMOLITION/CLEARING/GRADING/CONSTRUCTION ACTIVITES ARE TO COMMENCE, AND MUST REMAIN IN PLACE UNTIL AFTER ACTIVITIES ARE COMPLETED.
- 5. FENCE TO BE COMPRISED OF ORANGE CONSTRUCTION FENCING OR SIMILAR HIGH-VISIBILITY MATERIAL NO LESS THAN 4' IN HEIGHT.

TREE PROTECTION N.T.S.



# NOTES:

- 1. USE WSDOT "STANDARD SPECIFICATIONS" 2010 SECTION 9,13,4(8) FOR COARSE COMPOST.
- 2. COMPOST BERM MUST BE PLACED PRIOR TO ANY DEMOLITION/CLEARING ACTIVITIES ARE TO COMMENCE, AND MUST REMAIN IN PLACE UNTIL AFTER ACTIVITIES ARE COMPLETED.
- 3. BERM ENDS MUST BE TURNED UPSLOPE ABOVE THE ELEVATION OF THE REST OF THE BERM TO PREVENT FLOW AROUND ENDS.
- 3. REGULAR INSPECTION SHALL BE MADE TO ENSURE THE BERM RETAINS ITS SHAPE AND PROVIDES ADEQUATE FLOW.
- 4. DAMAGE TO THE BERM MUST BE REPAIRED IMMEDIATELY.
- 4. COMPOST BERM TO BE REMOVED FROM GRAVEL GRADING FOOTPRINT PRIOR TO ADDITION OF GRADING SEDIMENT.
- 5. COMPOST MAY BE REUSED AS A SOIL AMENDMENT OR PLANTING MEDIUM OUTSIDE GRAVEL GRADING FOOTPRINT.

COMPOST BERM N.T.S.

		1									
PLAN CHECK	BY	DATE				Last Saved By: Jonathan Apr 22, 2010 — 10:53am					
INITIAL DESIGN	JWJ	12/31				REGION NO.	STATE	FED. AID	PROJ. NO.	SURVEY NO.	
					,	10	WASH.		N/A		
						DESIGN	VED BY:		DRAWN BY:		
		4/22	1	APPLY SNOCO COMMENTS	JFW	JIM W	JOHANNESSEN, LEG		JONATHAN F	WAGGONER	
		12/31	1	INITIAL PLAN PRODUCTION	JFW	FIELD	BOOK(S	5):	UPI#		
		DATE	NO.	REVISION	BY				NOT	ASSIGNED	



OWEN B. CARTER, P.E. SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

1711 Ellis St, suite 103 Bellingham, WA 98225 360-647-1845 - coastalgeo.com KAYAK PT COUNTY PARK

EC02 SHEET EROSION CONTROL TYPICAL SECTIONS SHEETS

REFERENCE

SHEET NO.

OF

10

