

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B01</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 15 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
ELEVATION AND DATUM bgs		TOTAL DEPTH 15.0 ft. bgs	
DATE STARTED 9/12/11		DATE COMPLETED 9/12/11	
INITIAL WATER DEPTH (FT) 10.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID.	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2.5		0 - 2.5				SM	<b>Silty SAND with gravel</b> Tan / light brown, silty sand with ~20% subangular to rounded gravel, moderately soft, slightly moist, no odor, no sheen.	
SS	1.5		2.5 - 4.0	KJ-B1-4		0	CL/ML	<b>Sandy silty CLAY with gravel</b> Dark brown, silty clay mixed with sand and gravel, moderately soft, moist, no odor, no sheen.	
SS			4.0 - 5.5			0	CL/ML	<b>Silty CLAY</b> Gray, silty clay, moderately stiff but softer below ~9 feet, high plasticity, moist, no odor, no sheen.	
SS	3		5.5 - 8.5			0.1	ML	<b>SILT</b> Gray, silt with ~5-10% clay, sand, and gravel, moderately soft, moderately high plasticity, wet, no odor, no sheen.	
			8.5 - 15.0				CL/ML	<b>Silty CLAY</b> Gray, silty clay, minor gravel, moderately stiff, moderately high plasticity, wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B02</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 15	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
		DATE STARTED 9/12/11	DATE COMPLETED 9/12/11
		INITIAL WATER DEPTH (FT) 9.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2.5							SM	<b>Silty SAND with gravel</b> Brown/tan, silty sand with gravel, moderately dense, slightly moist, no odor, no sheen.
			5			0.1		ML	<b>SILT with sand</b> Tan-gray, silt with 15-20% fine sand and minor gravel, moderately soft, medium plasticity, moist, no odor, no sheen.
SS	3					6.8		ML/CL CL/ML	<b>Clayey SILT with sand</b> Gray, clayey silt with 10-15% fine sand and minor gravel, moderately soft, moderately high plasticity, moist, no odor, no sheen.
			10			13.7		SP	<b>Poorly graded SAND</b> Gray, medium sand with 5-10% silt, moderately dense, wet, medium odor, no sheen.
SS	4			KJ-B2-12		0.1		ML	<b>SILT with sand</b> Gray, silt with 5-10% fine sand, some clay, minor gravel, moderately soft, moderately high plasticity, wet, no odor, no sheen.
			15						

**NOTES**

1. Reconnaissance groundwater sample KJ-B2-RGW collected. Screen set approximately 10-15 feet bgs.

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA			Boring Name KJ-B03		
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	Project Name Ecology Cornet Bay		
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	Project Number 1196012*00		
ISOLATION CASING N/A		FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs	
BLANK CASING N/A		FROM TO FT. N/A N/A	DATE STARTED 9/12/11	DATE COMPLETED 9/12/11	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 8.0		
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	LOGGED BY DKM		
SEAL Granular Bentonite		FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	
GROUT N/A		FROM TO FT. N/A N/A			

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2		0.3				SM	Silty SAND with gravel Tan-gray, silty sand with gravel fill, loose, slightly moist, no odor, no sheen.	
SS	3.5		0.4				SP/SM	Poorly graded SAND with silt and gravel Brown to gray-brown, sand with ~20% silt and 10-20% rounded to subrounded gravel, some woody material in upper foot, moderately dense, moist to wet, medium odor, no sheen.	
			5.5	KJ-B3-9			SP/SM	Poorly graded SAND with silt Gray, fine to medium sand with up to ~15% silt, moderately dense, wet, medium odor, no sheen.	
SS	4		0.5				SM	Silty SAND with gravel Gray, sand with up to 40% silt, 10-15% gravel, moderately dense, wet, no odor, no sheen.	
			0.1				CL/ML	Silty CLAY Gray, silty clay with 5-10% gravel, stiff, high plasticity, wet, no odor, no sheen.	

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# Boring Log

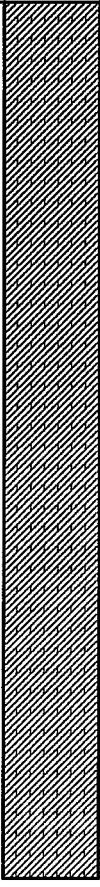

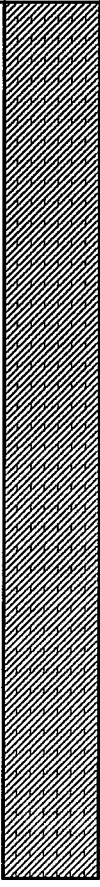
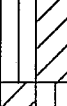
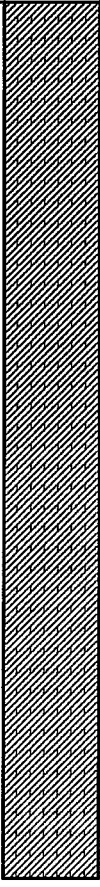

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name <u>KJ-B04</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name <u>Ecology Comet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	TOTAL DEPTH 15.0 ft. bgs
SEAL Granular Bentonite		FROM 0 TO 15 FT.	DATE STARTED 9/12/11
GROUT N/A		FROM N/A TO N/A FT.	DATE COMPLETED 9/12/11
			INITIAL WATER DEPTH (FT) 7.0
			LOGGED BY DKM
			SAMPLING METHODS MacroCore w/liner
			WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	2.5							SM	<b>Silty SAND with gravel</b> Tan/gray, silty sand with gravel fill, no odor, no sheen.
			5	KJ-B4-6		0		ML	<b>SILT</b> Brown, silt with fine woody material, moderately soft, moist, no odor, no sheen.
SS	4.5					0.6		SM	<b>Silty SAND with gravel</b> Greenish-gray to gray, silty medium to fine sand with 5-15% gravel, moderately dense, moist, no odor, no sheen.
			10			0.4		ML/CL	<b>Sandy clayey SILT with gravel</b> Gray, clayey silt with 5-15% gravel and 5-15% sand, some 1-2" thick sandy interbeds locally, stiff to very stiff, moist to wet, wet in sandy interbeds, no odor, no sheen.
SS	4.5					0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with minor gravel, very stiff, high plasticity, moist, no odor, no sheen.
			15						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B05	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name Ecology Cornet Bay	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number 1196012*00	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/12/11	DATE COMPLETED 9/12/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 8.5	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 15 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"							
SS	3		5	KJ-B5-4		0		SM	<b>Silty SAND with gravel</b> Tan/brown, silty sand with gravel fill, no odor, no sheen.
									0
SS	3.5		10			0		ML/CL	<b>Clayey SILT with sand</b> Gray to brown, clayey silt with 10-15% sand and 5-10% gravel, 1-2" interbeds of fine sand below ~8 feet, moderately stiff, moist, no odor, no sheen.
									0
			15			0		SP/SM	<b>Poorly graded SAND with silt</b> Gray, medium sand with 10-15% silt, moderately dense, wet, no odor, no sheen.
SS	5								0

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B06</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SLOTTED CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SEAL Granular Bentonite		FROM <u>0</u> TO <u>15</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
		DATE STARTED 9/12/11	DATE COMPLETED 9/12/11
		INITIAL WATER DEPTH (FT) 6.5	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2.5					0		SM	<b>Silty SAND with gravel</b> Tan/brown, silty sand with gravel fill, no odor, no sheen.
SS	4		5	KJ-B6-7		0		SP/SM	<b>Poorly graded SAND with silt and gravel</b> Greenish-gray, sand with 10-20% silt and 10-20% gravel, texture varies locally, moderately dense to moderately loose, moist to wet, no odor, no sheen.
SS	4.5		10			0		CL/ML	<b>Silty CLAY with gravel</b> Gray, silty clay with 10-15% gravel, 5-10% fine sand, stiff, moderately high plasticity, moist, no odor, no sheen.
			15			0			

**NOTES**

1. Reconnaissance groundwater sample KJ-B6-RGW collected. Screen set approximately 10-15 feet bgs.

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# Boring Log

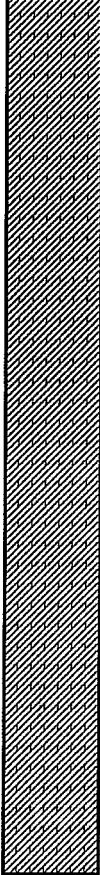
BORING LOCATION Deception Pass Marina, Cornet Bay, WA			Boring Name <u>KJ-B07</u>		
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day		Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch		Project Number <u>1196012*00</u>	
ISOLATION CASING N/A		FROM	TO	FT.	ELEVATION AND DATUM bgs
BLANK CASING N/A		N/A	N/A	N/A	TOTAL DEPTH 20.0 ft. bgs
SLOTTED CASING N/A		FROM	TO	FT.	DATE STARTED 9/12/11
SIZE AND TYPE OF FILTER PACK N/A		N/A	N/A	N/A	DATE COMPLETED 9/12/11
SEAL Granular Bentonite		FROM	TO	FT.	INITIAL WATER DEPTH (FT) 10.0
GROUT N/A		N/A	N/A	N/A	LOGGED BY DKM
		FROM	TO	FT.	SAMPLING METHODS MacroCore w/liner
		0	20	20	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/FT							
SS	1.5							SM	<b>Silty SAND with gravel</b> Tan/brown, silt, sand, and gravel fill, no odor, no sheen.
			5			0		CL/ML	<b>Silty CLAY</b> Brown, silty clay with 5-10% gravel, stiff, moist, no odor, no sheen.
SS	3			KJ-B7-8		0.1			<b>Clayey SILT with sand</b> Gray, clayey silt with 10-15% fine sand and 5-10% gravel, moderately soft, moist to wet, slight odor ~7-9 feet, slight to medium odor ~12-15 feet, no odor otherwise, no sheen.
			10			0			
SS	3			KJ-B7-13		3.7		ML/CL	
			15			3.6			
SS	2.5					0.8			
			20			0			

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B08</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/12/11	DATE COMPLETED 9/12/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 15 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

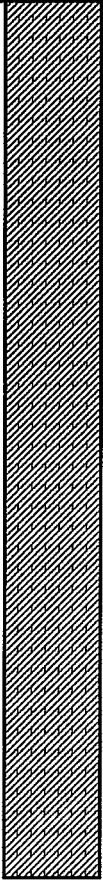



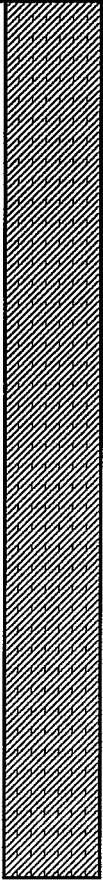


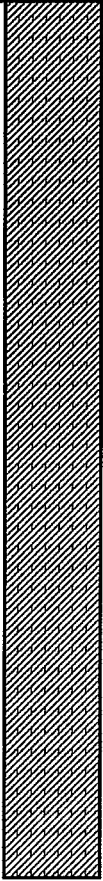

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2		5	KJ-B8-14		0	SM	Silty SAND with gravel Tan/brown, silty sand with gravel fill, no odor, no sheen.	
						0	ML/CL	Clayey SILT Brown/gray, clayey silt, stiff, moderately low plasticity above ~4.5 feet, moderately high below ~4.5 feet, slightly moist to moist, no odor, no sheen.	
SS	2					0	ML/CL	Clayey SILT with sand Gray, clayey silt with 10-20% fine to medium sand and 5-10% gravel, texture varies locally, moderately soft overall, locally moderately stiff, moist to wet, no odor, no sheen.	
SS	2.5		10			0	ML	Sandy SILT Gray, silt with 20-30% sand, minor gravel, some clay, soft, wet, no odor, no sheen.	
			15						

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# Boring Log

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name <u>KJ-B09</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name <u>Ecology Comet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	TOTAL DEPTH 15.0 ft. bgs
SEAL Granular Bentonite		FROM 0 TO 15 FT.	DATE STARTED 9/12/11
GROUT N/A		FROM N/A TO N/A FT.	DATE COMPLETED 9/12/11
			INITIAL WATER DEPTH (FT) 8.0
			LOGGED BY DKM
			SAMPLING METHODS MacroCore w/liner
			WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		5	KJ-B9-13		0		SM	<b>Silty SAND with gravel</b> Tan/brown, silt, sand, gravel fill, no odor, no sheen.
						0		ML	<b>SILT</b> Brown, silt, minor clay, stiff, dry, no odor, no sheen.
						0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with some sand, moderately stiff, moderately high plasticity, moist, no odor, no sheen.
SS	3.5		10	KJ-B9-13		0			<b>Clayey SILT with sand</b> Gray, clayey silt with 10-20% fine to medium sand, 5-10% gravel, increased sand and less clayey below ~10 feet, soft, moist to wet, no odor, no sheen.
						0		ML/CL	
SS	3.5		15	KJ-B9-13		0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with 5-10% sand, minor gravel, stiff, moist, no odor, no sheen.

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B10</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/12/11	DATE COMPLETED 9/12/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>15</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	3.5					0	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
							ML	Sandy SILT Brown, sandy silt, some gravel, moderately stiff, no odor, no sheen.	
						23.9	CL	Lean CLAY Tan/gray, clay, minor silt, stiff, high plasticity, moist, no odor, no sheen.	
							ML/CL	Clayey SILT with sand Gray, clayey silt with 10-20% sand and fine gravel, soft, moist to wet, low to medium odor, no sheen.	
SS	2.5			KJ-B10-8		13.7	CL/ML	Silty CLAY with sand Gray, silty clay with 10-20% sand and fine gravel, locally sandier in 1-2" thick layers or pods, blocky wood material in upper ~1 foot, stiff to very stiff, medium plasticity, moist to wet, medium odor, no sheen.	
						68.7	CL/ML		
						0	CL/ML	Silty CLAY Gray, silty clay with some sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	
SS	4.5					0			
						0			
						0			

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Boring Log

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name <u>KJ-B11</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Comet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2.5					0	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						70.1	SW/SM	Well-graded SAND with silt and gravel Tan/brown, medium to coarse sand with gravel and some silt, fill, no odor, no sheen.	
			5	KJ-B11-5			ML	Sandy SILT Dark gray, sandy silt with some clay and gravel, texture varies locally, moderately soft, medium plasticity, moist, strong odor, heavy sheen.	
SS	3.5					4.3	ML	SILT with sand Brown to dark brown, silt, minor clay, 10-20% fine to medium sand, some gravel locally, woody material in upper ~6 inches, moderately soft, moist to wet, no odor, no sheen.	
						0	CL/ML	Silty CLAY Gray/tan, silty clay, no odor, no sheen.	
			10				ML	Sandy SILT Gray, silt with ~30% fine sand, some clay and fine gravel, increased sand locally, moderately stiff, wet, no odor, no sheen.	
SS	4					0	CL	Lean CLAY with sand Gray, clay, minor silt, 5-10% sand and fine gravel, locally sandier in 1-2" layers or pods, stiff to very stiff, high plasticity, wet, no odor, no sheen.	
			15			0			

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B12	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name Ecology Cornet Bay	
BLANK CASING N/A		Project Number 1196012*00	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 15.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/13/11	
GROUT N/A		DATE COMPLETED 9/13/11	
		INITIAL WATER DEPTH (FT) 6.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3							SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						0		SW/SM	<b>Well-graded SAND with silt and gravel</b> Tan/brown, medium to coarse sand with gravel and some silt, fill, no odor, no sheen.
			5			0.2			
SS	4.5			KJ-B12-6		0		ML	<b>Sandy SILT</b> Dark brown, silt with 25-35% fine sand, minor clay, roots present in upper ~6 inches, texture varies locally (siltier vs. sandier), moderately soft, moist to wet, no odor, no sheen.
						0			
			10			0			
SS	4					0		CL	<b>Lean CLAY</b> Brown/gray, clay, minor silt, 5-10% sand and fine gravel, stiff to very stiff, high plasticity, moist, no odor, no sheen.
						0			
			15						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B13</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	TOTAL DEPTH 15.0 ft. bgs
SEAL Granular Bentonite		FROM TO FT. 0 15	DATE STARTED 9/13/11
GROUT N/A		FROM TO FT. N/A N/A	DATE COMPLETED 9/13/11
			INITIAL WATER DEPTH (FT) 7.0
			LOGGED BY DKM
			SAMPLING METHODS MacroCore w/liner
			WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	2.5		5	KJ-B13-4		0	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						0.1	SW/SM	Well-graded SAND with silt and gravel Tan/brown, medium to coarse sand with gravel and some silt, fill, no odor, no sheen.	
SS	3		10			0	ML	Sandy SILT Dark brown to gray/brown (below ~5 feet), sandy silt, minor gravel, soft, moist to wet, no odor, no sheen.	
						0	SP/SM	Poorly graded SAND with silt Brown/gray, medium sand with 10-20% silt, moderately dense, wet, no odor, no sheen.	
						0	CL/ML	Silty CLAY with sand Brown to gray/brown, silty clay with 10-15% sand and fine gravel, increased sand locally, stiff to very stiff, moist, no odor, no sheen.	
SS	4.5		15			0	CL	Lean CLAY with sand Gray to tan/gray, clay, minor silt, 5-15% sand and fine gravel, stiff to very stiff, high plasticity, moist, no odor, no sheen.	

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# Boring Log

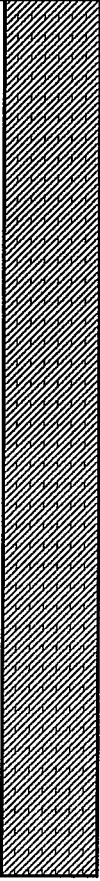

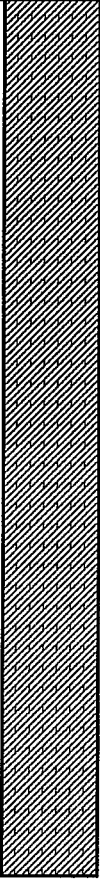

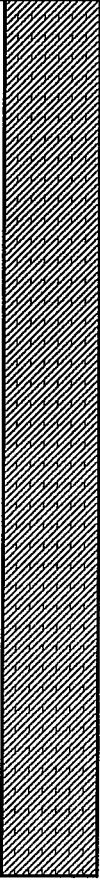

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B14</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>15</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	4		5	KJ-B14-3		1.2	SW/SM	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.
									2.6
			10			0	CL/ML	SP/SM	Poorly graded SAND Dark gray, sand with some silt and gravel, moderately dense, moist, medium odor and medium sheen.
SS	3								1.2
			15			0	ML	CL	Poorly graded SAND with silt Gray, medium to fine sand with 10-15% silt, minor gravel locally, moderately dense, moist to wet, no odor, no sheen.
SS	2								0
								CL	Lean CLAY with sand Green/gray, clay, minor silt, 5-15% sand and fine gravel, moist, no odor, no sheen.
								CL	Lean CLAY Green-blue/gray, clay, stiff, high plasticity, moist, no odor, no sheen.

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B15</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	TOTAL DEPTH 15.0 ft. bgs
SEAL Granular Bentonite		FROM TO FT. 0 15	DATE STARTED 9/13/11
GROUT N/A		FROM TO FT. N/A N/A	DATE COMPLETED 9/13/11
			INITIAL WATER DEPTH (FT) 7.0
			LOGGED BY DKM
			SAMPLING METHODS MacroCore w/liner
			WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		5	KJ-B15-4		0		SM	<b>Silty SAND with gravel</b> Tan/brown, silt, sand, gravel fill, no odor, no sheen.
									0
SS	3		10			0		SP/SM	<b>Poorly graded SAND with silt</b> Gray/brown, medium sand with 10-20% silt, minor gravel locally, moderately dense, moist to wet, no odor, no sheen.
									0
SS	4		15			0		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with <20% sand and fine gravel, stiff, medium to high (below ~13 feet) plasticity, moist, no odor, no sheen.

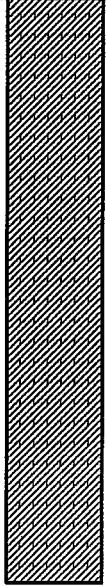
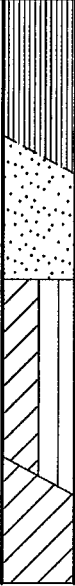
**NOTES**

1. Reconnaissance groundwater sample KJ-B15-RGW collected. Screen set approximately 4-9 feet bgs.

KJ/PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ/PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B16</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 10.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 10 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

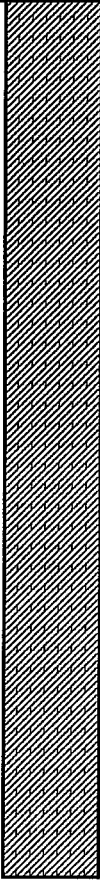

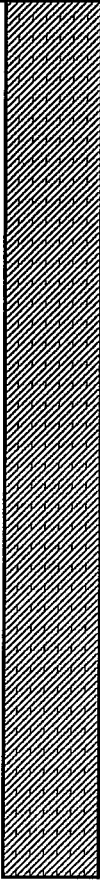

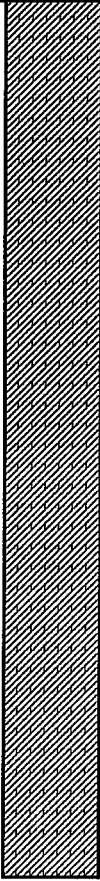

SAMPLES				SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS				
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6	DEPTH (FEET)										
SS	3			KJ-B16-4		0		SM	Silty SAND with gravel Tan/brown, silt, sand, gravel fill, no odor, no sheen.				
			5									SP	Poorly graded SAND with gravel Dark brown, sand with ~30% gravel, some silt locally, fill, moist, no odor, no sheen.
SS	4										0	CL/ML	Silty CLAY with sand Green/gray, silty clay with 10-20% sand and fine gravel, moderately stiff to stiff, moist to wet, no odor, no sheen.
			10								0	CL	Lean CLAY Gray, clay, minor sand and fine gravel, stiff to very stiff, moist to wet, no odor, no sheen.

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# Boring Log

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name <u>KJ-B17</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 15 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 15.0 ft. bgs	
		DATE STARTED 9/13/11	
		DATE COMPLETED 9/13/11	
		INITIAL WATER DEPTH (FT) 8.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS					
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'												
SS	3		5	KJ-B17-4		8.2		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.					
														<b>Poorly graded SAND with silt and gravel</b> Gray, medium sand with 10-15% silt and 25-35% gravel, moderately dense, moist, no odor, light sheen below ~3 feet.
			10			0		ML	<b>SILT</b> Dark brown, silt with some sand and clay, roots present, soft, moist, no odor, no sheen.					
SS	3.5								0				ML	<b>Sandy SILT</b> Gray, silt with 20-30% sand, ~10% gravel, some clay, locally >30% sand, moderately stiff, moist to wet, no odor, no sheen.
									0					
SS	4		15			0		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-20% sand and fine gravel (amount varies locally), moderately stiff to stiff, moderately high plasticity, moist, no odor, no sheen.					
									0				CL	<b>Lean CLAY</b> Gray, clay with some silt and minor sand/gravel, stiff to very stiff, high plasticity, moist, no odor, no sheen.

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# Boring Log

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name <u>KJ-B18</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name <u>Ecology Comet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 15.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/13/11	
GROUT N/A		DATE COMPLETED 9/13/11	
		INITIAL WATER DEPTH (FT) 8.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		5	KJ-B18-4		0.1	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						0.9	SW	Well-graded SAND with gravel Brown to greenish-brown (below ~4 feet), sand with ~40% gravel, some silt, moderately dense, moist, medium odor and light sheen below ~4 feet, no odor and no sheen otherwise.	
SS	3					0	ML	Sandy SILT Brown, topsoil-like sandy silt, soft, moist, no odor, no sheen.	
						0	ML	Sandy SILT Greenish-gray, sandy silt with some clay, moderately soft, moist to wet, no odor, no sheen.	
			10			0	ML/CL	Clayey SILT with sand Gray to greenish-gray, silt with clay and 10-15% sand and fine gravel, stiff to very stiff, medium plasticity, moist to wet, no odor, no sheen.	
SS	4		15			0	CL	Lean CLAY Gray, clay, minor silt, ~10% sand and fine gravel, stiff, high plasticity, moist, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B19</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 15 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	4		5	KJ-B19-5		29.1	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						20.7	CL	Lean CLAY Gray, clay, stiff, moderately high plasticity, moist, no odor, no sheen.	
						979	CL/ML	Silty CLAY Gray, silty clay, moderately soft, moderately high plasticity, moist, slight odor below ~3 feet, no sheen.	
SS	4			KJ-B19-7		189	SM	Silty SAND Gray, medium sand with 25-30% silt (varies locally), some shell fragments, moderately dense, moist to wet, medium odor and medium to heavy sheen.	
						115			
						21.2			
			10			0.6	CL	Lean CLAY Gray, clay, some silt, ~10% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	
SS	4					12.7			
						1.3			
			15						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B20</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>15</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	3.5		5			82.3	SM	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						1166	CL/ML	CL/ML	Silty CLAY Gray, silty clay, stiff, slightly moist, slight odor, no sheen.
						1156	CL/ML	CL/ML	Silty CLAY with sand Gray, silty clay, 10-15% sand overall but locally sandier in 1-2" layers, moderately soft, moist, strong odor, heavy sheen.
SS	3.5			KJ-B20-7		2019	SP/SM	SP/SM	Poorly graded SAND with silt Gray, medium sand with 10-20% silt, moderately dense, wet, strong odor, heavy sheen.
						704	CL/ML	CL/ML	Silty CLAY with sand Greenish-gray to gray (below ~11 feet), clay with some silt and 10-20% sand and fine gravel, stiff, moderately high plasticity, moist, slight odor above ~12 feet, no sheen.
SS	3.5			KJ-B20-10		79.7	CL/ML	CL/ML	
						5.9			

KJ.PNW.ECOLOGY.CORNET.BAY.BORING.LOGS.SEPT.2011.GPJ.KJ.PNW.GDT.12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B21	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name Ecology Cornet Bay	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number 1196012*00	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 6.5	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
SS	4		5	KJ-B21-3		1659	SM	SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						1740	CL/ML	CL/ML	<b>Silty CLAY</b> Gray, silty clay, up to 10% sand, minor gravel, stiff, moist, medium odor, no sheen.
						2461	CL/ML	CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay, 10-15% sand overall but locally up to ~30% sand, some gravel, moderately soft, moist to wet, strong odor, no sheen.
SS	4		10			152	SP/SM	SP/SM	<b>Poorly graded SAND with silt</b> Gray, medium sand with 10-20% silt (varies locally), moderately dense, wet, strong odor, heavy sheen.
						36.2	ML	ML	<b>SILT</b> Dark brown, silt, some sand and gravel, woody debris, topsoil-like, soft, wet, medium odor, no sheen.
						4.1	CL/ML	CL/ML	<b>Silty CLAY with sand</b> Greenish-gray, silty clay with 10-20% sand and fine gravel, moderately soft to moderately stiff (varies locally), moist to wet, slight odor above ~9.5 feet, no odor otherwise, no sheen.
SS	3.5		15			0.2			

**NOTES**

1. Reconnaissance groundwater sample KJ-B21-RGW collected. Screen set approximately 3.5-8.5 feet bgs.

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B22</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/13/11	DATE COMPLETED 9/13/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 9.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/8							
SS	3.5		5	KJ-B22-5		887	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						1764	GM	Silty GRAVEL with sand Medium brown/gray, gravel with sand and silt, moderately dense, slight odor, no sheen.	
						2304	CL/ML	Silty CLAY Gray to brown/gray, silty clay, up to 10% sand, minor gravel, stiff, slightly moist, medium to strong odor, heavy sheen.	
SS	4.5		10	KJ-B22-9		398	CL/ML	Silty CLAY with sand Gray, silty clay, 10-15% sand overall but locally >30% sand typically in <1" thick layers or pods, some gravel locally, moderately soft, moist, strong odor, heavy sheen.	
						309	ML	SILT Brown, silt, some clay, woody material, soft, moist, slight odor, medium sheen.	
						24.2	SP/SM	Poorly graded SAND with silt Gray, medium sand with 5-15% silt, moderately dense, moist to wet, slight odor, light sheen.	
SS	3.5		15			25.6	CL	Lean CLAY Gray, clay, stiff, moist to wet, slight odor, no sheen.	
						1.8	SM	Silty SAND Gray, silty sand, moderately dense, wet, no odor, no sheen.	
						2.5	CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand (varies locally), stiff, high plasticity, moist to wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B23	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name Ecology Cornet Bay	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number 1196012*00	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2.5		0.6				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
			0.4				CL/ML	<b>Silty CLAY</b> Gray, silty clay, up to 10% sand, minor gravel, stiff, high plasticity, moist, no odor, no sheen.	
			12.7				CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay, 10-15% sand, some gravel, moderately soft, high plasticity, moist to wet, no odor, no sheen.	
SS	3.5		9.2	KJ-B23-8			ML/CL	<b>Clayey SILT with sand</b> Gray, clayey silt, some sand, soft, wet, slight odor, no sheen.	
			3.0				ML	<b>Sandy SILT</b> Gray, silt with 20-30% fine to medium sand, minor gravel, some clay, soft, high plasticity, wet, no odor, no sheen.	
			0.8				CL/ML	<b>Silty CLAY with sand</b> Greenish-gray, silty clay with 10-15% sand and fine gravel, stiff, moderately high plasticity, moist to wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B24</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SLOTTED CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SEAL Granular Bentonite		FROM <u>0</u> TO <u>15</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
		DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
		INITIAL WATER DEPTH (FT) 7.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2							SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.
			5			0.3		CL/ML	Silty CLAY Brown/gray, silty clay, stiff, slightly moist, no odor, no sheen.
								CL/ML	Silty CLAY Gray, silty clay, moderately soft, high plasticity, moist, no odor, no sheen.
SS	3			KJ-B24-7		1.1		ML	Sandy SILT Gray, sandy silt, some clay, moderately soft, medium plasticity, wet, slight odor, no sheen.
			10			0.6		CL/ML	Silty CLAY Gray, silty clay, locally 10-15% sand in 1-2" layers or pods, ~5% sand overall, moderately stiff, high plasticity, moist to wet, no odor, no sheen.
SS	3					0.2		ML	Sandy SILT Gray, silt with ~30% sand and some clay, some woody material and shell fragments locally, some 1-2" sandy layers locally, soft, medium plasticity, wet, no odor, no sheen.
			15						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B25</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 9.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 15	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B25-4		0.4	SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
SS	1		10			1.6	CL/ML	<b>Silty CLAY with sand</b> Tan/gray to gray (below ~4.5 feet), silty clay with 10-15% sand (varies locally), some ~1" thick sandier layers or pods below ~4.5 feet, moderately soft, moderately high plasticity, moist, no odor, no sheen.	
SS	3.5		15			1.8	ML	<b>Sandy SILT</b> Gray, silt with 25-35% sand (varies locally), some clay, locally silt/clay without sand in thin (typically <1") layers, soft, moist to wet, no odor, no sheen.	
SS	3.5					0.2	CL/ML	<b>Silty CLAY</b> Gray, silty clay, minor sand, soft, high plasticity, wet, no odor, no sheen.	
						0.2	ML/CL	<b>Clayey SILT with sand</b> Gray, clayey silt with ~30% sand with some fine gravel, soft, medium plasticity, wet, no odor, no sheen.	
						0.3	ML	<b>Sandy SILT with gravel</b> Gray, sandy silt with ~30% gravel and 20-25% sand, moderately soft, wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B26</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 15.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/14/11	
GROUT N/A		DATE COMPLETED 9/14/11	
		INITIAL WATER DEPTH (FT) 7.0	
		LOGGED BY DKM	
		SAMPLING METHODS	
		MacroCore w/liner	
		WELL COMPLETION	
		<input type="checkbox"/> SURFACE HOUSING	
		<input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		0					SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
			5					CL/ML	<b>Silty CLAY</b> Tan/gray to gray (below ~4 feet), silty clay with 5-10% sand occurring in thin (typically <1" thick) interbeds of silty/clayey sand, moderately stiff to stiff overall, locally moderately soft, high plasticity, moist, no odor, no sheen.
SS	3		10	KJ-B26-8		07		ML	<b>Sandy SILT with gravel</b> Gray, silt, some clay, 20-30% sand and 10-15% gravel overall, sand/gravel content varies locally, increased gravel in bottom ~6 inches, soft, wet, no odor, no sheen.
SS	3		15			1.1		ML	
						1.2		CL/ML	<b>Silty CLAY with sand</b> Greenish-gray, silty clay with 5-15% sand and fine gravel, stiff to very stiff, moderately high plasticity, moist to wet, no odor, no sheen.
						0.8		CL/ML	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B27</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 20.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/14/11	
GROUT N/A		DATE COMPLETED 9/14/11	
		INITIAL WATER DEPTH (FT) 8.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	1.5		0.6				SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
SS	2.5		1.0				CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand and fine gravel, soft to moderately stiff (below ~5 feet), moderately high plasticity, moist, no odor, no sheen.	
SS	4		10	KJ-B27-12			ML	Sandy SILT Gray, silt with 25-30% sand, some clay, some gravel locally, soft, medium plasticity, wet, slight odor below ~11 feet, no sheen.	
SS	3		15				CL/ML	Silty CLAY with sand Greenish-tan to greenish-gray (below ~16 feet), silty clay with 10-15% sand, minor gravel, stiff to very stiff, high plasticity, moist to wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B28</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 20.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>20</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2.5		0.5				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, mixture of several different fill materials, no odor, no sheen.	
			1.0						
SS	2.5		1.3				CL/ML	<b>Silty CLAY</b> Gray, silty clay, moderately soft, moderately high plasticity, moist, no odor, no sheen.	
			1.3				CL/ML	<b>Silty CLAY</b> Gray, silty clay, moderately stiff to stiff, moist to wet, no odor, no sheen.	
			8.2	KJ-B28-12			ML	<b>Sandy SILT</b> Greenish-gray to gray, silt with ~30% sand, some clay and gravel, moderately soft, medium plasticity, wet, slight odor below ~11 feet, no sheen.	
SS	4		15						
			15	KJ-B28-16					
SS	4.5		3.1				CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	
			20						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B29	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name Ecology Cornet Bay	
BLANK CASING N/A		Project Number 1196012*00	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 20.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/14/11	
GROUT N/A		DATE COMPLETED 9/14/11	
		INITIAL WATER DEPTH (FT) 8.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5					0.8		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
			5			1.2		ML	<b>Sandy SILT</b> Brown/gray, silt with 30-40% sand and ~10% gravel overall, texture varies locally with layered sand/gravel with silt and stiff silt with some clay, moderately stiff, moist, no odor, no sheen.
SS	1			KJ-B29-7		17.4		ML	<b>Sandy SILT</b> Gray to greenish-gray, silt with ~30% sand, 5-10% gravel, some clay, moderately soft to soft, wet, slight to medium odor, no sheen.
			10			10.9		ML	
SS	3.5					1.3		CL	<b>Lean CLAY</b> Tan, clay, some silt, minor gravel locally, stiff to very stiff, high plasticity, moist to wet, no odor, no sheen.
			15			1.8		CL	
SS	4.5			KJ-B29-18		11.7		SP	<b>Poorly graded SAND</b> Gray, medium sand with 5-10% silt, moderately dense, wet, no odor, no sheen.
			20			1.2		CL/ML	<b>Silty CLAY</b> Gray, silty clay, stiff, high plasticity, moist to wet, no odor, no sheen.

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B30</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 20.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 8.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>20</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3.5		2.1				SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
			2.0				ML	Sandy SILT with gravel Brown, silt with 30% fine to medium sand, 10-15% gravel, moderately stiff, moist, no odor, no sheen.	
SS	3		10.97	KJ-B30-8		1097	ML	Sandy SILT with gravel Dark gray, silt with 30% sand, 10-20% gravel, some clay, moderately soft, moist to wet, medium to strong odor, heavy sheen.	
SS	3		15.26				CL/ML	Silty CLAY Greenish-gray, silty clay with 5-10% sand and fine gravel, stiff to very stiff, high plasticity, moist to wet, slight odor above ~14 feet, no sheen.	
SS	4		19.9	KJ-B30-17			CL	Lean CLAY Gray, clay, some silt, moderately stiff, high plasticity, moist to wet, no odor, no sheen.	
			20.1						

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B31</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SLOTTED CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SEAL Granular Bentonite		FROM <u>0</u> TO <u>15</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 15.0 ft. bgs	
		DATE STARTED 9/14/11	
		DATE COMPLETED 9/14/11	
		INITIAL WATER DEPTH (FT) 9.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/lner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3.5		5	KJ-B31-4		0.3	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
							ML	Sandy SILT with gravel Brown, silt with sand and gravel, stiff, slightly moist, no odor, no sheen.	
						0.9	SW	Well-graded SAND with gravel Brown/orange, medium to coarse sand with 10-20% gravel, moderately dense, moist, no odor, no sheen.	
						0.4	SW	Well-graded SAND with gravel Gray, medium sand, some coarse sand, ~40% gravel, some silt, some shell fragments, moderately dense, moist, no odor, no sheen.	
SS	4		10			0.1	ML	SILT Brown, silt with woody material, some sand, soft, moist, no odor, no sheen.	
						0.4	SM	Silty SAND Brown/gray, silty fine sand, some clay, moderately soft, moist, no odor, no sheen.	
						0.5	SP/SM	Poorly graded SAND with silt and gravel Gray to greenish-gray, fine sand with 10-20% silt, 10-15% gravel, moderately dense, wet, no odor, no sheen.	
SS	4		15			0.6	CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand and fine gravel, stiff to very stiff, moist to wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B32</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SLOTTED CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SEAL Granular Bentonite		FROM <u>0</u> TO <u>15</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
		DATE STARTED 9/14/11	DATE COMPLETED 9/14/11
		INITIAL WATER DEPTH (FT) 9.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/lner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

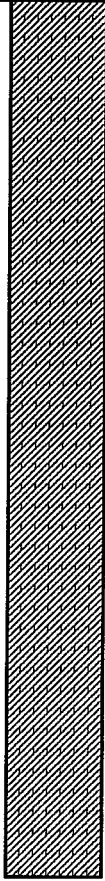







SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"								
SS	3.5			KJ-B32-4				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						52.0	CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% sand and fine gravel, moderately stiff to stiff, slightly moist, no odor, no sheen.		
						88.9	SW	<b>Well-graded SAND with gravel</b> Gray, medium to coarse sand with 10-20% gravel, some shell fragments below ~4.5 feet, moderately dense, moist, slight to medium odor, no sheen.		
SS	4.5		5			6.4				
						44.6	ML/CL	<b>Clayey SILT</b> Brown, clayey silt with woody material, moderately soft, moist, no odor, no sheen.		
						4.5				
			10					ML	<b>Sandy SILT with gravel</b> Greenish-gray, sandy silt with 10-15% gravel, some clay locally, moderately soft, wet, no odor, no sheen.	
SS	4							ML		
								CL/ML	<b>Silty CLAY</b> Tan/gray, silty clay, some sand and gravel locally, stiff, high plasticity, moist to wet, no odor, no sheen.	
			15							

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B33</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 15 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 15.0 ft. bgs	
		DATE STARTED 9/15/11	
		DATE COMPLETED 9/15/11	
		INITIAL WATER DEPTH (FT) 8.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3.5		5	KJ-B33-4		21.7		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
								GW	<b>Well-graded GRAVEL with sand</b> Orange/brown, gravel and sand fill, no odor, no sheen.
								SW	<b>Well-graded SAND with gravel</b> Gray, medium to coarse sand with 30-35% gravel, moderately dense, moist, medium odor, light sheen.
						18.6		GW	<b>Well-graded GRAVEL with sand</b> Brown, gravel with ~40% medium to fine sand, some silt, moderately dense, moist, medium odor, light sheen.
SS	1		10					ML	<b>Sandy SILT</b> Gray to brown, sandy silt, some gravel locally, some woody material locally, soft, moist to wet, slight to medium odor, no sheen.
SS	4.5		15			0.9		ML	<b>Sandy SILT</b> Greenish gray, silt with 30-35% medium to fine sand, some clay, minor gravel, some thin (<1" thick) sandy interbeds locally, moderately stiff to stiff, wet, no odor, no sheen.

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Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B34</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/15/11	DATE COMPLETED 9/15/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 15 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3.5		5	KJ-B34-5		7.1	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						33.7	CL/ML	Silty CLAY Tan/gray, silty clay with some sand, stiff, moderately high plasticity, slightly moist, no odor, no sheen	
						1220	CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand, sandy interbeds (<1" thick) present below ~3.5 feet, moderately soft, moderately high plasticity, moist, medium odor, medium sheen.	
SS	3.5					158	SW/SM	Well-graded SAND with silt and gravel Gray, medium to coarse sand with ~30% gravel and 10-15% silt, increased silt below ~6.5 feet, moderately dense, moist to wet, medium odor, medium to heavy sheen.	
						4	ML/CL	Clayey SILT Brown to dark brown, clayey silt with woody material in upper ~6 inches, soft, moist, slight odor, no sheen.	
						5	ML	Sandy SILT with gravel Greenish-gray, silt with ~30% sand, 10-15% gravel, some clay, moderately stiff, medium plasticity, wet, slight odor, light sheen.	
SS	3					0.2	CL/ML	Silty CLAY Gray/brown, silty clay, ~10% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	
						0.1			

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# Boring Log

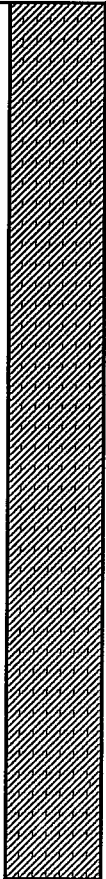
BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B35</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 15	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 15.0 ft. bgs	
		DATE STARTED 9/15/11	
		DATE COMPLETED 9/15/11	
		INITIAL WATER DEPTH (FT) 9.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

TYPE	SAMPLES		DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
	RECOV (FEET)	PENETR. RESIST. BLOWS/6							
SS	4		5	KJ-B35-4		131	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
SS	3		10	KJ-B35-8		1513	CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% medium to fine sand with some gravel overall (variable), local thin (typically <1") interbeds of silty sand and poorly graded sand, some shell fragments in lower portion, moderately stiff to moderately soft (varies locally), moist, medium to strong odor, heavy sheen.	
						11.9	ML/CL	Clayey SILT Brown to dark brown, clayey silt with woody material, soft, moist, slight odor, no sheen.	
						6.8	CL/ML	Silty CLAY with sand Greenish-gray, silty clay with 10-15% sand, some gravel, stiff, moist to wet, slight odor, light sheen.	
SS	4.5		15			0.9	ML	Sandy SILT Gray/tan, sandy silt, some clay and gravel, moderately stiff, wet, slight odor, no sheen.	
						1.5	CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	

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# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B36</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/15/11	DATE COMPLETED 9/15/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>15</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6							
SS	4		0	KJ-B36-8		0	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
			14.1			SM	Silty SAND with gravel Gray, silty sand with 20-30% gravel, moderately loose, slightly moist, slight odor, no sheen.		
			10.1			CL/ML	Silty CLAY Gray, silty clay, ~10% sand, some gravel, stiff, moist, slight odor, no sheen.		
						CL/ML	Silty CLAY with sand Gray, silty clay, 10-15% sand, some gravel, locally sandier in thin (<1") layers or pods, moderately soft, moist, slight odor, no sheen.		
SS	3		295			SM	Silty SAND with gravel Gray, silty sand, ~30% gravel, moderately loose, wet, medium odor, medium to heavy sheen.		
			30.1			ML	Sandy SILT Gray, silt with ~30% sand, 5-10% gravel, some clay, moderately soft, wet, medium odor, medium to heavy sheen.		
SS	4		0.7			0.7	ML	Sandy SILT Greenish-gray, silt with 30% sand, some clay, 5-10% gravel, moderately stiff to stiff, moist to wet, slight odor, no sheen.	
			0.8			0.8	CL/ML	Silty CLAY Tan/gray, silty clay, some sand and fine gravel, very stiff, high plasticity, moist to wet, no odor, no sheen.	

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# Boring Log

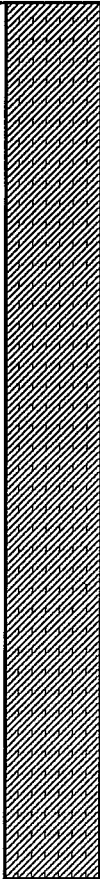
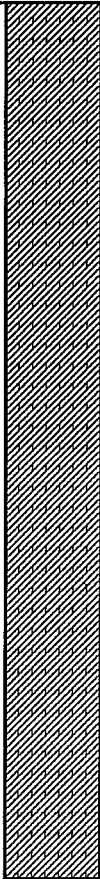
BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B37</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 20	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 20.0 ft. bgs	
		DATE STARTED 9/16/11	
		DATE COMPLETED 9/16/11	
		INITIAL WATER DEPTH (FT) 8.5	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

TYPE	SAMPLES		DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
	RECOV (FEET)	PENETR. RESIST. BLOWS/6							
SS	2.5					0.4	SM	SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						1.3	SP	SP	<b>Poorly graded SAND with gravel</b> Brown/orange to gray/brown (below ~4.5 feet), sand with 5-10% silt and 10-20% gravel, moderately dense, moist to wet, no odor, no sheen.
SS	3					0.8	ML	ML	<b>Sandy SILT</b> Gray, silt with ~30% sand, some clay and gravel, moderately soft, medium plasticity, moist, no odor, no sheen.
						2.1	ML	ML	<b>SILT</b> Dark brown to orange-brown, silt with woody material, moderately soft, medium plasticity, moist, no odor, no sheen.
						1.1	ML/CL	ML/CL	<b>Clayey SILT with sand</b> Brown/gray, clayey silt with 20-30% sand, some gravel locally, moderately soft, medium to high plasticity, wet, no odor, no sheen.
SS	4.5					1.7	CL/ML	CL/ML	<b>Silty CLAY</b> Tan/gray, silty clay, 5-10% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.
						1.8	CL/ML	CL/ML	
						1.2	SP	SP	<b>Poorly graded SAND</b> Gray, medium sand, some coarse sand locally, 5-10% silt, moderately dense, wet, no odor, no sheen.
SS	0.5						CL/ML	CL/ML	<b>Silty CLAY</b> Gray, silty clay, 5-10% fine sand, stiff, high plasticity, wet, no odor, no sheen.

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Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B38</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 15.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/16/11	
GROUT N/A		DATE COMPLETED 9/16/11	
		INITIAL WATER DEPTH (FT) 6.0	
		LOGGED BY DKM	
		SAMPLING METHODS	
		MacroCore w/liner	
		WELL COMPLETION	
		<input type="checkbox"/> SURFACE HOUSING	
		<input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B38-7		3.9	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						301	ML/CL	Clayey SILT Brown, clayey silt with 5-10% sand, some gravel, stiff, slightly moist, slight odor, light sheen.	
SS	3.5		10	KJ-B38-13		315	CL/ML	Silty CLAY with sand Brown/gray, silty clay with 5-15% sand, some gravel, locally sandier in thin (<1") layers of sandy silt, moderately soft, moist, medium odor, light sheen.	
						21.2	SM	Silty SAND with gravel Gray, medium sand with ~30% silt, 10-15% gravel, moderately dense, wet, medium to strong odor, heavy sheen.	
			15			10.1	ML/CL	Clayey SILT with sand Gray, clayey silt with 10-20% medium to fine sand, some gravel, local sand and silt layers typically 1-2" thick, moderately soft, medium to high plasticity, wet, slight odor, no sheen.	
SS	3.5					2.7	ML	Sandy SILT Brown to dark brown, sandy silt, topsoil-like, moderately soft, medium plasticity, wet, no odor, no sheen.	
						15.1	SP/SM	Poorly graded SAND with silt Greenish-gray, sand with 10-20% silt, some gravel, moderately dense, wet, slight odor, light sheen.	
						0.8	CL/ML	Silty CLAY with sand Gray, silty clay, 10-15% sand, stiff to very stiff, moderately high plasticity, moist to wet, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

# Boring Log

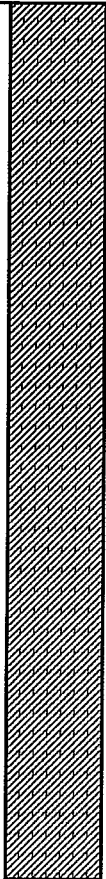

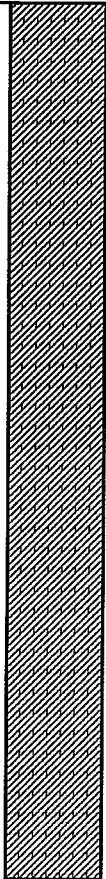

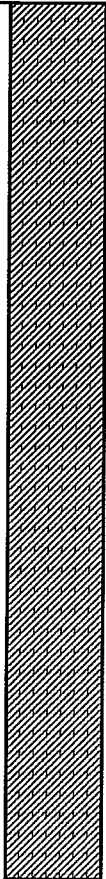

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B39</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 9/16/11	DATE COMPLETED 9/16/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 6.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 15 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B39-8		1.1		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
									3.2
SS	4		10			6.5		ML	<b>Sandy SILT with gravel</b> Gray, sandy silt, some clay, 10-15% gravel, soft, wet, no odor, no sheen.
									11.6
			15			9.6		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% sand and fine gravel, moderately soft, moderately high plasticity, wet, no odor, no sheen.
SS	3.5								1.2
						3.1		SM	<b>Silty SAND</b> Gray, silty sand, moderately dense, wet, no odor, no sheen.
						0.8		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay, 10-20% sand and fine gravel, moderately stiff, wet, no odor, no sheen.

KJ.PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B40</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 9/16/11	DATE COMPLETED 9/16/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>15</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS		
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'									
SS	3		5	KJ-B40-4		2.6		SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.		
									3.1	ML/ CL	Clayey SILT with sand Gray, clayey silt, 10-20% sand, some gravel, stiff, slightly moist, no odor, no sheen.
			10			0.8		SW	Well-graded SAND with gravel Brown, medium to coarse sand, 20-30% gravel, some silt, moderately dense, moist, no odor, no sheen.		
SS	3.5								1.7	CL/ ML	Silty CLAY with sand Brown, silty clay with ~30% sand, soft, moist, no odor, no sheen.
									1.1	CL/ ML	Silty CLAY with sand Greenish-gray, silty clay, 20-30% sand, moderately soft to moderately stiff (varies locally), medium to moderately high plasticity, wet, no odor, no sheen.
SS	4.5		15			1.2		CL/ ML	Silty CLAY Gray, silty clay, ~10% sand and fine gravel, stiff to very stiff, high plasticity, moist to wet, no odor, no sheen.		
									0.8		

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11



# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B41</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 15.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 9/16/11	
GROUT N/A		DATE COMPLETED 9/16/11	
		INITIAL WATER DEPTH (FT) 7.0	
		LOGGED BY DKM	
		SAMPLING METHODS	
		MacroCore w/liner	
		WELL COMPLETION	
		<input type="checkbox"/> SURFACE HOUSING	
		<input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6								
SS	3.5			KJ-B41-6				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
									SM	<b>Silty SAND with gravel</b> Orange/brown, silty medium to fine sand with 5-15% gravel, moderately loose, moist, no odor, no sheen.
			5						CL/ML	<b>Silty CLAY with sand</b> Gray/brown, locally greenish-gray, silty clay, 10-15% sand, moderately soft, medium plasticity, moist, slight odor, light to medium sheen.
SS	4								SM	<b>Silty SAND with gravel</b> Gray, medium to fine sand with ~30% silt, 10-15% gravel, moderately dense, wet, slight odor in upper ~1 foot, no odor below ~8 feet, no sheen.
			10						CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay, 10-15% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.
SS	4.5							CL/ML		
			15							

KJ.PNW.ECOLOGY.CORNET.BAY.BORING.LOGS.SEP.T.2011.GPJ.KJ.PNW.GDT.12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B42</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 15 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 15.0 ft. bgs
		DATE STARTED 9/16/11	DATE COMPLETED 9/16/11
		INITIAL WATER DEPTH (FT) 6.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/8							
SS	2.5							SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						1.9		ML	SILT Brown, silt, stiff, slightly moist, no odor, no sheen.
						5.9		CL/ML	Silty CLAY Brown/gray to gray, silty clay, stiff to moderately soft (below ~4 feet), moist, no odor, no sheen.
			5			12.0			
SS	3			KJ-B42-8				SP/SM	Poorly graded SAND with silt Gray, sand with 10-15% silt, some gravel, shell fragments, moderately dense, moist to wet, slight to medium odor, no sheen.
						18.1			
			10			1.5		CL/ML	Silty CLAY with sand Gray, silty clay, 10-20% sand, moderately stiff to moderately soft (varies locally), wet, no odor, no sheen.
SS	2.5							CL/ML	Silty CLAY Gray, silty clay, 5-10% sand and fine gravel, stiff, medium to high plasticity, moist to wet, no odor, no sheen.
						0.9			
			15						

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

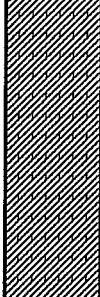

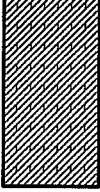



BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B43	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 10	
GROUT N/A		FROM TO FT. N/A N/A	
ELEVATION AND DATUM bgs		TOTAL DEPTH 10.0 ft. bgs	
DATE STARTED 9/16/11		DATE COMPLETED 9/16/11	
INITIAL WATER DEPTH (FT) 7.5		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6							
SS	3		5	KJ-B43-4		1.4		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						375		CL/ML	<b>Silty CLAY</b> Tan/brown to gray (below ~3.5 feet), silty clay, some sand and fine gravel, stiff to moderately soft (below ~4 feet), slightly moist to moist, moderately strong odor and medium sheen below ~3 feet.
			10			163		SP/SM	<b>Poorly graded SAND with silt and gravel</b> Gray, sand with 10-15% silt and 10-20% gravel, moderately dense, moist, moderately strong to strong odor, medium sheen
SS	3.5					2.1		ML	<b>SILT</b> Brown, silt with woody material, moderately soft, moist, no odor, no sheen.
						1.4		ML	<b>Sandy SILT</b> Brown to greenish-gray (below ~8 feet), silt with ~30% fine sand, some gravel locally, moderately stiff, wet, no odor, no sheen.
						0.8		CL/ML	<b>Silty CLAY</b> Greenish-gray, silty clay, some sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B44</u>	
DRILLING COMPANY Cascade Drilling	DRILLER Tyler Day	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 10.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 9/16/11	DATE COMPLETED 9/16/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 10	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS					
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'												
SS	2.5		5	KJ-B44-4		5.3		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.					
			10			272		CL/ML	<b>Silty CLAY</b> Brown to gray (below ~4 feet), silty clay, some sand and fine gravel, stiff to moderately soft (below ~4.5 feet), medium to moderately high plasticity, slightly moist to moist, moderately strong odor and medium sheen below ~3 feet.					
SS	3.5													
						2.9		ML	<b>Sandy SILT with gravel</b> Greenish-gray, silt with ~30% and, some clay, 10-15% gravel, moderately soft to moderately stiff (varies locally), moist to wet, slight odor, no sheen.					
						1.7		CL/ML	<b>Silty CLAY with sand</b> Greenish-gray, silty clay, 10-20% sand, some gravel, stiff to very stiff, moderately high plasticity, moist to wet, no odor, no sheen.					

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# Boring Log

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Boring Name KJ-B45	
DRILLING COMPANY ESN Northwest	DRILLER Carlos	Project Name Ecology Comet Bay	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number 1196012*00	
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM bgs	TOTAL DEPTH 20.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 11/10/11	DATE COMPLETED 11/10/11
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	LOGGED BY DKM	
SEAL Granular Bentonite	FROM TO FT. 0 20	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6							
SS	3							SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	3		5	KJ-B45-7		0		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% sand and fine gravel overall, sand/gravel content varies locally, some shell fragments at 11-12 feet, moderately soft overall but varies locally, moist to wet below ~7 feet, no odor, no sheen.
SS	4		10			0		ML/CL	<b>Clayey SILT with sand</b> Gray, clayey silt with up to 20% sand and fine gravel, moderately soft, wet, no odor, no sheen.
SS	2		15	KJ-B45-15		3.3		SP	<b>Poorly graded SAND</b> Gray, medium sand, moderately dense, wet, no odor, no sheen.
SS	1.5		20			0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with up to 10% sand and fine gravel, stiff, moderately high plasticity, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B46</u>	
DRILLING COMPANY ESN Northwest	DRILLER Carlos	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 16.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 11/10/11	DATE COMPLETED 11/10/11
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 7.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM 0 TO 16 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	4					0	SM	SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	0		5			0	ML/CL	ML/CL	<b>Clayey SILT</b> Gray to tan, clayey silt with up to 10% sand and fine gravel, moderately stiff above ~9 feet, moderately soft below ~9 feet, moderate plasticity, moist to wet below ~7 feet, no odor, no sheen.
SS	3		10	KJ-B46-11		0.1	ML	ML	<b>Sandy SILT</b> Tan above ~10.5 feet changing abruptly to gray below ~10.5 feet, sandy silt, some clay, moderately soft to soft, wet, no odor, no sheen.
SS	3.5		15	KJ-B46-15		0.3	CL/ML	CL/ML	<b>Silty CLAY</b> Gray, silty clay, some thin (<2 inches) sandy interbeds locally, stiff, moist, no odor, no sheen.

**NOTES**

1. Reconnaissance groundwater sample KJ-B46-RGW collected. Screen set approximately 5-10 feet bgs.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

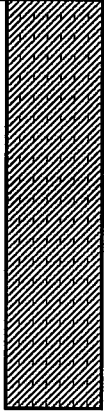

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B47</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 30 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 30.0 ft. bgs	
		DATE STARTED 11/10/11	
		DATE COMPLETED 11/10/11	
		INITIAL WATER DEPTH (FT) 7.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	3.5							SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	2		5			0		CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% sand and fine gravel overall but silt, sand, and gravel content varies locally, moderately stiff overall by varies locally (moderately soft to stiff), moist to wet below ~7 feet, no odor, no sheen.
SS	3.5		10			0		CL/ML	
SS	3.5		15	KJ-B47-13		65.2		ML	<b>Sandy SILT</b> Gray, sandy silt with orange-brown woody material, moderately soft, wet, no odor, no sheen.
SS	1.5		20			0		SP	<b>Silty CLAY with sand</b> Gray-green, silty clay with 10-15% sand and fine gravel, stiff to very stiff, medium plasticity, moist, no odor, no sheen.
SS	3.5		25			0		CL/ML	<b>Poorly graded SAND</b> Gray, medium sand with minor silt, moderately dense to dense, wet, no odor, no sheen.
SS	3.5		30			0		SP	<b>Silty CLAY with sand</b> Gray-green, silty clay with 10-15% sand and fine gravel, stiff to very stiff, medium plasticity, moist, no odor, no sheen.
								CL/ML	<b>Poorly graded SAND</b> Gray, medium sand, minor silt overall but 10-15% silt in upper ~1 foot, moderately dense to dense, wet, no odor, no sheen.
								CL/ML	(See next page for lithology description)

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

Project Name Ecology Cornet Bay Project Number 1196012\*00 Boring Name KJ-B47

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	4		25			0		CL/ ML	<b>Silty CLAY</b> Gray, silty clay with up to 10% sand (varies locally), stiff overall, locally moderately stiff to moderately soft, moderately high plasticity, moist to wet, no odor, no sheen. <i>(Continued)</i>
						0			
SS	4					0			
			30			0			

**NOTES**

1. Reconnaissance groundwater sample KJ-B47-RGW collected. Screen set approximately 5-10 feet bgs.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11



BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B48</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		Project Name <u>Ecology Cornet Bay</u>	
BLANK CASING N/A		Project Number <u>1196012*00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM bgs	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 12.0 ft. bgs	
SEAL Granular Bentonite		DATE STARTED 11/10/11	
GROUT N/A		DATE COMPLETED 11/10/11	
		INITIAL WATER DEPTH (FT) 3.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B48-3		1.2		SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.
						282.7		CL/ML	Silty CLAY with sand Gray, silty clay with up to 15% sand and fine gravel, moderately stiff to stiff, moist, no odor, no sheen.
SS	3		10			88.0		SW	Well-graded SAND with gravel Gray, sand with up to 15% gravel mainly in upper ~1 foot, some silt, moderately dense, wet, moderate odor decreasing below ~5 feet, medium sheen above ~5 feet, no sheen below ~5 feet.
						1.2		ML	SILT with sand Brown, silt with fine sand and woody material, moderately soft, wet, no odor, no sheen.
						0.0		SP	Poorly graded SAND with gravel Gray, sand with up to 15% gravel and some silt, moderately dense, wet, no odor, no sheen.
SS	3					0.3			
						0		CL/ML	Silty CLAY with sand Gray, silty clay with 10-15% sand and fine gravel, stiff to very stiff, medium plasticity, moist, no odor, no sheen.

**NOTES**

1. Reconnaissance groundwater sample KJ-B48-RGW collected. Screen set approximately 5-10 feet bgs.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA				Boring Name <u>KJ-B49</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos		Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch		Project Number <u>1196012*00</u>	
ISOLATION CASING N/A		FROM	TO	FT.	ELEVATION AND DATUM bgs
BLANK CASING N/A		FROM	TO	FT.	TOTAL DEPTH 16.0 ft. bgs
SLOTTED CASING N/A		FROM	TO	FT.	DATE STARTED 11/10/11
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.	DATE COMPLETED 11/10/11
SEAL Granular Bentonite		FROM	TO	FT.	INITIAL WATER DEPTH (FT) 7.0
GROUT N/A		FROM	TO	FT.	LOGGED BY DKM
		FROM	TO	FT.	SAMPLING METHODS MacroCore w/liner
		FROM	TO	FT.	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	2.5					0		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	2		5			0		ML	<b>Sandy SILT</b> Tan, silt with fine sand, stiff, crumbly, dry to slightly moist, no odor, no sheen.
SS	2.5		10			0		ML/CL	<b>Clayey SILT with sand</b> Tan/gray in upper 2-3 feet grading to gray, clayey silt with up to 15% sand and fine gravel, increased sand in bottom ~1 foot, moderately soft, moist to wet below ~7 feet, no odor, no sheen.
SS	3		15	KJ-B49-13		0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

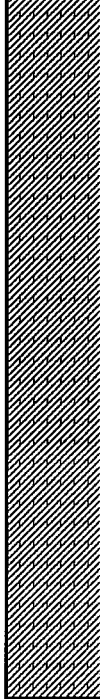

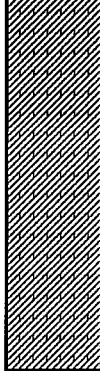

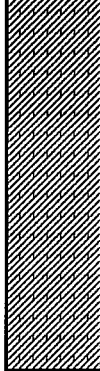

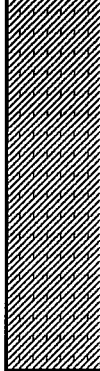

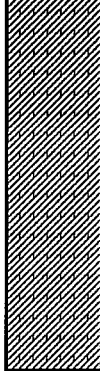

BORING LOCATION Deception Pass Marina, Cornet Bay, WA				Boring Name <u>KJ-B50</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos		Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch		Project Number <u>1196012*00</u>	
ISOLATION CASING N/A		FROM	TO	FT.	ELEVATION AND DATUM bgs
BLANK CASING N/A		FROM	TO	FT.	TOTAL DEPTH 12.0 ft. bgs
SLOTTED CASING N/A		FROM	TO	FT.	DATE STARTED 11/10/11
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.	DATE COMPLETED 11/10/11
SEAL Granular Bentonite		FROM	TO	FT.	INITIAL WATER DEPTH (FT) 7.0
GROUT N/A		FROM	TO	FT.	LOGGED BY DKM
		FROM	TO	FT.	SAMPLING METHODS
		FROM	TO	FT.	MacroCore w/liner
		FROM	TO	FT.	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USGS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3					0	SM		<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	2		5			0	ML		<b>SILT with sand</b> Tan/brown, silt with up to 15% sand and fine gravel, stiff, slightly moist, no odor, no sheen.
SS	3.5		10	KJ-B50-10		0	ML/CL		<b>Clayey SILT with sand</b> Tan/gray, clayey silt with 15-20% sand (varies locally), moderately soft, moist to wet, no odor, no sheen.
						0	CL/ML		<b>Silty CLAY</b> Gray, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

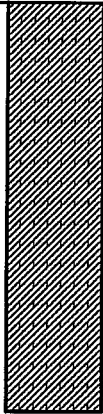
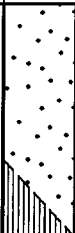
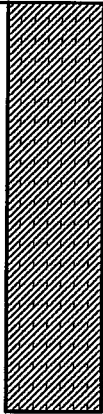

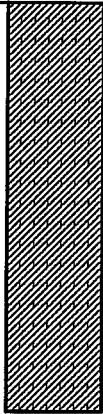

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B51	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 12 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 12.0 ft. bgs
		DATE STARTED 11/10/11	DATE COMPLETED 11/10/11
		INITIAL WATER DEPTH (FT) 6.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/lner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2					0		ML	<b>Sandy SILT</b> Silty sandy topsoil with grass.
SS	3		5	KJ-B51-7		0		SW	<b>Well-graded SAND with gravel</b> Tan, sand with 25-30% gravel, some silt, moderately dense, moist, no odor, no sheen.
SS	3.5		10			0		SM	<b>Silty SAND</b> Gray, silty fine sand, moderately loose, wet, no odor, no sheen.
SS						0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with up to 10% sand and fine gravel, moderately soft, wet, no odor, no sheen.
SS						0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with 5-15% sand and fine gravel (varies locally), stiff, moderately high plasticity, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B52</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push (advanced by hand)		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 7 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
ELEVATION AND DATUM bgs		TOTAL DEPTH 7.0 ft. bgs	
DATE STARTED 11/10/11		DATE COMPLETED 11/10/11	
INITIAL WATER DEPTH (FT) 3.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2					0		SW	<b>Well-graded SAND with gravel</b> Tan/brown, sand with 25-30% gravel, some silt, moderately dense, moist to wet, no odor, no sheen.
SS	2		5	KJ-B52-5		6.6		SM	<b>Silty SAND</b> Gray, silty fine sand, moderately loose, wet, slight odor, no sheen.
						0		CL/ML	<b>Silty CLAY</b> Gray, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.

**NOTES**

- Top of boring approximately 3-4 feet below site grade adjacent to pond area.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B53	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 12 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	TOTAL DEPTH 12.0 ft. bgs
		DATE STARTED 11/10/11	DATE COMPLETED 11/10/11
		INITIAL WATER DEPTH (FT) 5.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B53-3		0		GW	<b>Well-graded GRAVEL</b> Brown/orange, gravel/sand fill.
						0.9		ML	<b>SILT</b> Brown, silt with up to 10% sand and fine gravel, stiff, slightly moist, no odor, no sheen.
								SW	<b>Well-graded SAND with gravel</b> Brown/gray/orange-brown (layered) above ~3 feet, dark gray below ~3 feet, sand with 25-30% gravel, some silt, moderately dense, moist, slight odor and light sheen below ~3 feet.
SS	3.5					0		SM	<b>Silty SAND</b> Gray, silty fine to medium sand, abundant shell fragments, moderately dense, moist to wet, no odor, no sheen.
						0		ML	<b>SILT</b> Brown, silt with abundant woody material, moderately soft, wet, no odor, no sheen.
SS	2		10			0		ML/CL	<b>Clayey SILT with sand</b> Gray/green, clayey silt with 15-20% sand, minor gravel, stiff, moist, no odor, no sheen.

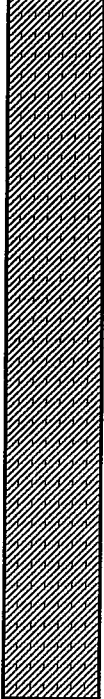


**NOTES**

1. Reconnaissance groundwater sample KJ-B53-RGW collected. Screen set approximately 5-10 feet bgs.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

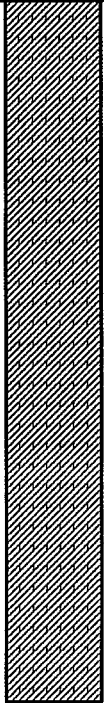
BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B54</u>	
DRILLING COMPANY ESN Northwest	DRILLER Carlos	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 12.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 11/10/11	DATE COMPLETED 11/10/11
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 3.0	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>0</u> TO <u>12</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	1.5		5	KJ-B54-6		0			ML Sandy SILT Silty sandy topsoil with grass.
									GW Well-graded GRAVEL with sand Brown, gravel and sand fill, moderately dense, moist, no odor, no sheen.
									CL/ML Silty CLAY Brown, silty clay, stiff, moist, no odor, no sheen.
									SM Silty SAND with gravel Dark brown, silty sand with gravel, loose, wet, no odor, no sheen.
									SM Silty SAND Gray/green, silty fine sand, some gravel, moderately loose, wet, no odor, no sheen.
									ML/CL Sandy clayey SILT Gray, silt with sand and clay, moderately soft, wet, no odor, no sheen.
SS	3		10			0		CL/ML Silty CLAY Gray, silty clay with up to 10% sand and fine gravel, stiff to very stiff, moist, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B55</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL Granular Bentonite		FROM 0 TO 12 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 12.0 ft. bgs	
		DATE STARTED 11/10/11	
		DATE COMPLETED 11/10/11	
		INITIAL WATER DEPTH (FT) 3.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'								
SS	3		5	KJ-B55-3		367.2	ML SW CL/ML	ML Sandy silt SW Well-graded SAND with gravel CL/ML Silty CLAY	Sandy silt topsoil with grass. Brown, sand with up to 40% gravel fill, moderately dense, moist, no odor, no sheen.	
SS	3					81.7	SW	SW	Well-graded SAND with gravel	Gray, sand with 25-30% gravel, some silt, shell fragments present locally, moderately dense, wet, moderate odor decreasing below ~5 feet, light sheen above ~5 feet.
SS	1		10			0.2	SM	SM	Silty SAND	Brown/gray, silty fine sand, ~3 inches woody material at top, moderately loose, wet, no odor, no sheen.
						0	CL/ML	CL/ML	Silty CLAY	Gray, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.

**NOTES**

1. Reconnaissance groundwater sample KJ-B55-RGW collected. Screen set approximately 5-10 feet bgs.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11



# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name <u>KJ-B56</u>	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 8	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 8.0 ft. bgs	
		DATE STARTED 11/11/11	
		DATE COMPLETED 11/11/11	
		INITIAL WATER DEPTH (FT) 3.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/lner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
SS	2		5	KJ-B56-3		0		ML	Sandy SILT Sandy silt topsoil with grass.
									0
								ML/CL	Clayey SILT Brown, clayey silt with up to 10% sand and fine gravel, moderately stiff, moist to wet, no odor, no sheen.
SS	3					0		ML/CL	Clayey SILT with sand Gray/green, clayey silt with 15-20% sand and fine gravel, moderately stiff, wet, no odor, no sheen.
								CL/ML	Silty CLAY with sand Gray/green, silty clay with up to 15% sand and fine gravel, stiff, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B57
DRILLING COMPANY ESN Northwest	DRILLER Carlos	Project Name Ecology Cornet Bay
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number 1196012*00
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	TOTAL DEPTH 8.0 ft. bgs
SLOTTED CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 11/11/11
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	DATE COMPLETED 11/11/11
SEAL Granular Bentonite	FROM 0 TO 8 FT.	INITIAL WATER DEPTH (FT) 3.0
GROUT N/A	FROM N/A TO N/A FT.	LOGGED BY DKM
		SAMPLING METHODS MacroCore w/lner
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	1					0		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	3.5		5	KJ-B57-5		0		ML	<b>Sandy SILT with gravel</b> Gray, sand/silt mixture, some gravel, very soft, wet, no odor, no sheen
						0		SM	<b>Silty SAND with gravel</b> Dark brown, sand with 30-40% silt and some gravel, moderately dense, wet, no odor, no sheen.
						0		CL/ML	<b>Silty CLAY with sand</b> Gray/green, silty clay with up to 15% sand and fine gravel, stiff to very stiff, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ\_KJ PNW.GDT 12/13/11

# Boring Log

BORING LOCATION Deception Pass Marina, Cornet Bay, WA			Boring Name <u>KJ-B58</u>		
DRILLING COMPANY ESN Northwest		DRILLER Carlos		Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch		Project Number <u>1196012*00</u>	
ISOLATION CASING N/A		FROM	TO	FT.	ELEVATION AND DATUM bgs
BLANK CASING N/A		FROM	TO	FT.	TOTAL DEPTH 12.0 ft. bgs
SLOTTED CASING N/A		FROM	TO	FT.	DATE STARTED 11/11/11
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.	DATE COMPLETED 11/11/11
SEAL Granular Bentonite		FROM	TO	FT.	INITIAL WATER DEPTH (FT) 4.0
GROUT N/A		FROM	TO	FT.	LOGGED BY DKM
		FROM	TO	FT.	SAMPLING METHODS MacroCore w/liner
		FROM	TO	FT.	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

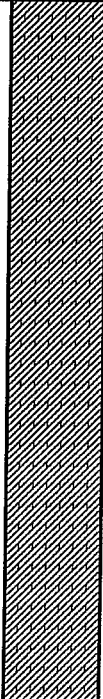
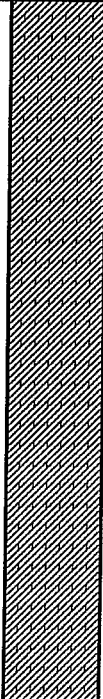
SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5			KJ-B58-3		0		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
			0.5				CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-20% sand and gravel, moderately stiff to stiff, moist, no odor no sheen.	
			5				SM	<b>Silty SAND with gravel</b> Brown/gray, silty sand with gravel, moderately dense, moist to wet, no odor, no sheen.	
SS	3						CL/ML	<b>Silty CLAY</b> Gray/green, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.	
							SP	<b>Poorly graded SAND</b> Gray, medium sand, minor silt, moderately dense, wet, no odor, no sheen.	
SS	2		10			0		CL/ML	<b>Silty CLAY</b> Gray/green, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Deception Pass Marina, Cornet Bay, WA			Boring Name <u>KJ-B59</u>		
DRILLING COMPANY ESN Northwest		DRILLER Carlos		Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch		Project Number <u>1196012*00</u>	
ISOLATION CASING N/A		FROM	TO	FT.	ELEVATION AND DATUM
BLANK CASING N/A		FROM	TO	FT.	bgs
SLOTTED CASING N/A		FROM	TO	FT.	DATE STARTED
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.	11/11/11
SEAL Granular Bentonite		FROM	TO	FT.	DATE COMPLETED
GROUT N/A		FROM	TO	FT.	11/11/11
		FROM	TO	FT.	INITIAL WATER DEPTH (FT)
		FROM	TO	FT.	4.0
		FROM	TO	FT.	LOGGED BY
		FROM	TO	FT.	DKM
		FROM	TO	FT.	SAMPLING METHODS
		FROM	TO	FT.	MacroCore w/liner
		FROM	TO	FT.	WELL COMPLETION
		FROM	TO	FT.	<input type="checkbox"/> SURFACE HOUSING
		FROM	TO	FT.	<input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3.5		5	KJ-B59-2		14.1	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						1489	CL/ML	Silty CLAY Gray, silty clay, moderately stiff to stiff, moist, slight odor below ~2 feet, no sheen.	
SS	2		10	KJ-B59-9		318.9	SW	Well-graded SAND with gravel Gray, gravely sand fill, some silt, moderately dense, moist to wet, slight to medium odor, no sheen.	
						31.8	ML	SILT Brown, silt with woody material, moderately soft, wet, no odor, no sheen.	
SS	2.5					1.7	SM	Silty SAND Gray, silty fine to medium sand, some gravel, moderately dense, wet, no odor, no sheen.	
						0.7	CL/ML	Silty CLAY Gray, silty clay with up to 10% sand and fine gravel, stiff, moist, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

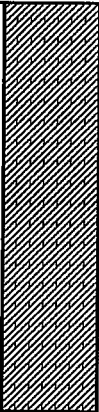

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Boring Name KJ-B60	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Granular Bentonite		FROM TO FT. 0 30	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM bgs	
		TOTAL DEPTH 30.0 ft. bgs	
		DATE STARTED 11/11/11	
		DATE COMPLETED 11/11/11	
		INITIAL WATER DEPTH (FT) 6.5	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3					0	ML	ML	Sandy SILT Grass and topsoil.
SS	3		5			0	ML/CL	ML/CL	Clayey SILT with sand Brown, clayey silt with 10-15% sand and fine gravel overall, some sandier intervals, stiff at top, moderately stiff below ~5.5 feet, moist to wet below ~7 feet, no odor, no sheen.
SS	3		10			0	ML	ML	Sandy SILT with gravel Gray, sandy silt with 10-20% gravel, loose, wet, no odor, no sheen.
SS	2		15	KJ-B60-14		3.1	SM	SM	Silty SAND Brown to dark brown, silty fine to medium sand with minor gravel, brown silty material with roots in upper 1-2 inches, moderately dense, wet, slight odor, no sheen.
SS	1.5						CL/ML	CL/ML	Silty CLAY Gray, silty clay, stiff, moist, no odor, no sheen.
SS	3		20	KJ-B60-20		0	CL/ML	CL/ML	Silty CLAY Gray, silty clay, minor sand and gravel, stiff at top, moderately stiff by ~25 feet, moderately high plasticity, moist, slight odor above ~16 feet, no odor otherwise, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

Boring Log

Project Name Ecology Cornet Bay Project Number 1196012\*00 Boring Name KJ-B60

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
SS	3.5		25			0		CL/ML	<b>Silty CLAY</b> Gray, silty clay, minor sand and gravel, stiff at top, moderately stiff by ~25 feet, moderately high plasticity, moist, slight odor above ~16 feet, no odor otherwise, no sheen. <i>(Continued)</i>
SS	3.5		30			0			

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name <u>MW-04</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		PROJECT NAME Ecology Cornet Bay	
ISOLATION CASING N/A		PROJECT NUMBER 1196012*00	
BLANK CASING 2" Schedule 40 PVC Pipe		ELEVATION AND DATUM bgs	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		TOTAL DEPTH 15.0 ft. bgs	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		DATE STARTED 9/15/11	
SEAL Granular Bentonite		DATE COMPLETED 9/15/11	
GROUT Concrete		INITIAL WATER DEPTH (FT) 7.0	
		LOGGED BY DKM	
		SAMPLING METHODS MacroCore w/liner	
		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		0			0	SM	Silty SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
SS	3.5		5			0	CL/ML	Silty CLAY with sand Gray, silty clay, 10-15% sand, moderately stiff to stiff, high plasticity, moist, no odor, no sheen.	
SS	4		10			0	ML	Sandy SILT Brown/gray, silt with ~30% medium to fine sand, some gravel and clay, silty interbeds (typically 1-2" thick) and sandy interbeds (typically <1" thick) present locally, moderately stiff, moist to wet, slight odor and light sheen below ~13 feet, no odor and no sheen otherwise.	
			15	KJ-MW4-13		1.8			
						0.1	CL/ML	Silty CLAY Gray, silty clay, stiff, moderately high plasticity, wet, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name MW-05	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2" Schedule 40 PVC Pipe		FROM TO FT. 0 5	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		FROM TO FT. 5 15	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		FROM TO FT. 4 15	
SEAL Granular Bentonite		FROM TO FT. 1 4	
GROUT Concrete		FROM TO FT. 0 1	
ELEVATION AND DATUM bgs		TOTAL DEPTH 20.0 ft. bgs	
DATE STARTED 9/15/11		DATE COMPLETED 9/15/11	
INITIAL WATER DEPTH (FT) 8.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2		0				SW	Well-graded SAND with gravel Brown, medium to coarse sand, 20-30% gravel, fill, no odor, no sheen.	
SS	3		5			0	CL/ML	Silty CLAY with sand Brown-gray to gray (bottom ~6 inches), silty clay, 10-15% fine to medium sand, some gravel, moderately stiff, moderately high plasticity, moist, no odor, no sheen.	
SS	3		10			0.3	ML	Sandy SILT Gray, silt with ~30% fine to medium sand, 5-10% gravel, some clay, texture varies locally with sandy and silty interbeds (typically ~1" thick), moderately soft to moderately stiff (varies locally), medium plasticity, wet, slight odor locally, no sheen.	
SS	3		15	KJ-MW5-12		0.1	ML		
SS	4.5		20			2.7	CL	Lean CLAY Gray, clay, moderately stiff to stiff, high plasticity, moist to wet, no odor, no sheen.	
						1.6			
						0.7			
						0.4			
						0.5			

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11



BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name <u>MW-06</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2" Schedule 40 PVC Pipe		FROM TO FT. 0 4.5	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		FROM TO FT. 4.5 14.5	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		FROM TO FT. 4 14.5	
SEAL Granular Bentonite		FROM TO FT. 1 4	
GROUT Concrete		FROM TO FT. 0 1	
ELEVATION AND DATUM bgs		TOTAL DEPTH 20.0 ft. bgs	
DATE STARTED 9/15/11		DATE COMPLETED 9/15/11	
INITIAL WATER DEPTH (FT) 8.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		5	KJ-MW6-4		3.8	SW	Well-graded SAND with gravel Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
						2.3	CL/ML	Silty CLAY with sand Tan/gray, silty clay, 5-15% sand, some gravel, moderately stiff, high plasticity, moist, slight odor below ~3.5 feet, no sheen.	
SS	1		10			20.1	SP/SM	Poorly graded SAND with silt and gravel Gray, fine to medium sand with 10-15% silt and 5-15% gravel, moderately dense, moist to wet, medium to strong odor, medium to heavy sheen.	
SS	3		15	KJ-MW6-14		3.0	ML	Sandy SILT with gravel Gray, sandy silt, 10-15% gravel, woody material present below ~13 feet, soft, wet, medium odor, medium sheen.	
SS	3		20			0	ML	Sandy SILT Greenish-gray, silt with ~30% sand, some clay and gravel, moderately stiff, wet, slight to medium odor, light sheen.	
						0	CL/ML	Silty CLAY Gray, silty clay, 5-10% sand and fine gravel, stiff, high plasticity, moist to wet, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name <u>MW-07</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING 2" Schedule 40 PVC Pipe		FROM 0 TO 3.5 FT.	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		FROM 3.5 TO 13.5 FT.	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		FROM 3 TO 13.5 FT.	
SEAL Granular Bentonite		FROM 1 TO 3 FT.	
GROUT Concrete		FROM 0 TO 1 FT.	
ELEVATION AND DATUM bgs		TOTAL DEPTH 15.0 ft. bgs	
DATE STARTED 9/15/11		DATE COMPLETED 9/15/11	
INITIAL WATER DEPTH (FT) 5.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2.5		5	KJ-MW7-5		0	ML	Sandy SILT with gravel Brown/gray/tan, sandy silt with gravel overall, texture varies locally with sandy, silty, and gravelly intervals, fill, no odor, no sheen.	
SS	4.5		10			0	SM	Silty SAND Gray, silty sand, some gravel, loose, moist to wet, no odor, no sheen.	
			15			0	CL/ML	Silty CLAY with sand Greenish-gray to tan gray (below ~7.5 feet), silty clay, 10-15% sand, some gravel, increased sand below ~9.5 feet, moderately stiff to stiff, medium plasticity, moist to wet, no odor, no sheen.	
SS	4.5					0.1	SM	Silty SAND with gravel Gray, silty sand with 10-15% gravel, moderately dense, wet, no odor, no sheen.	
						0	CL	Lean CLAY Gray, clay, some silt, stiff, high plasticity, moist to wet, no odor, no sheen.	

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ\_KJ PNW.GDT 12/13/11

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name MW-08	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2" Schedule 40 PVC Pipe		FROM TO FT. 0 3.5	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		FROM TO FT. 3.5 13.5	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		FROM TO FT. 3 13.5	
SEAL Granular Bentonite		FROM TO FT. 1 3	
GROUT Concrete		FROM TO FT. 0 1	
ELEVATION AND DATUM bgs		TOTAL DEPTH 16.0 ft. bgs	
DATE STARTED 11/9/11		DATE COMPLETED 11/9/11	
INITIAL WATER DEPTH (FT) 6.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2							ML	<b>Sandy SILT</b> Grass and sandy silt topsoil.
SS	2.5		5	KJ-MW8-7		0		SP/SM	<b>Poorly graded SAND with silt</b> Tan/brown grading to medium/dark gray below ~6 feet, medium sand with up to 10% rounded gravel, coarser sand below ~5 feet, 5-10% silt overall but up to 15% silt below ~5 feet, moderately loose, moist to wet below ~6 feet, slight odor below ~6 feet, no odor otherwise, no sheen.
SS	3		10	KJ-MW8-10		2.5			<b>Silty SAND</b> Gray, fine sand with ~30% silt overall, locally >50% silt in 1-2 inch layers or pods, moderately dense, wet, medium odor dissipates below ~9 feet, no odor below ~11 feet, no sheen.
SS	1		15			6.1		SM	
						5.9			
						0		ML	<b>SILT</b> Gray/tan, silt, possibly some clay, moderately soft, wet, no odor, no sheen.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

BORING LOCATION Deception Pass Marina, Comet Bay, WA		Well Name MW-09	
DRILLING COMPANY ESN Northwest		DRILLER Carlos	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2" Schedule 40 PVC Pipe		FROM TO FT. 0 3	
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots		FROM TO FT. 3 13	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above		FROM TO FT. 2.5 13	
SEAL Granular Bentonite		FROM TO FT. 1 2.5	
GROUT Concrete		FROM TO FT. 0 1	
ELEVATION AND DATUM bgs		TOTAL DEPTH 13.0 ft. bgs	
DATE STARTED 11/9/11		DATE COMPLETED 11/9/11	
INITIAL WATER DEPTH (FT) 4.0		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'								
SS	3		5	KJ-MW9-5		0		SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.	
									SM	<b>Silty SAND</b> Gray, medium to fine sand with ~30% silt, minor clay and gravel, moderately dense, moist, no odor, no sheen.
									ML	<b>SILT</b> Brown, silt with woody material, soft, moist to wet, no odor, no sheen.
SS	3								SM	<b>Silty SAND</b> Brown to gray, silty fine sand, some gravel, soft, wet, no odor, no sheen.
SS	3.5								ML/CL	<b>Clayey SILT with sand</b> Gray/green, clayey silt with up to 15% sand and fine gravel, some thin (1-2 inch) sandy interbeds locally, stiff to very stiff, moist, no odor, no sheen.
U						0				

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

# Boring & Well Construction Log

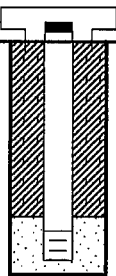
Kennedy/Jenks Consultants

BORING LOCATION Deception Pass Marina, Cornet Bay, WA		Well Name <u>MW-10</u>	
DRILLING COMPANY ESN Northwest	DRILLER Carlos	Project Name <u>Ecology Cornet Bay</u>	
DRILLING METHOD(S) Direct-Push	DRILL BIT(S) SIZE 2-Inch	Project Number <u>1196012*00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM bgs	TOTAL DEPTH 13.0 ft. bgs
BLANK CASING 2" Schedule 40 PVC Pipe	FROM <u>0</u> TO <u>3</u> FT.	DATE STARTED 11/9/11	DATE COMPLETED 11/9/11
SLOTTED CASING 2" Schedule 40 PVC Pre-Pack 0.010" Slots	FROM <u>3</u> TO <u>13</u> FT.	INITIAL WATER DEPTH (FT) 5.0	
SIZE AND TYPE OF FILTER PACK 10/20 Sand (Pre-Pack); 2/12 Sand Above	FROM <u>2.5</u> TO <u>13</u> FT.	LOGGED BY DKM	
SEAL Granular Bentonite	FROM <u>1</u> TO <u>2.5</u> FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT Concrete	FROM <u>0</u> TO <u>1</u> FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	2							SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
SS	3		5	KJ-MW10-8		0		GW	<b>Well-graded GRAVEL with sand</b> Gray, gravel and sand fill, minor silt, moderately dense, moist to wet below ~5 feet, no odor, no sheen.
SS	0		10			0		ML	<b>Sandy SILT</b> Reddish-brown (upper ~6 inches) to gray-brown, silt with up to 30% fine sand, minor gravel, woody material in upper ~6 inches, some shell fragments, moderately soft, wet, no odor, no sheen.
U								SW	<b>Well-graded SAND with gravel</b> Gray, sand and gravel, dense, wet, no odor, no sheen.

KJPNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJPNW.GDT 12/13/11

BORING LOCATION Vapor Point Next to KJ-B36		Well Name <u>VP-1</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING 1/4" Teflon Tubing		FROM <u>0</u> TO <u>3.25</u> FT.	
SLOTTED CASING 6" Stainless Steel Vapor Implant Screen		FROM <u>3.25</u> TO <u>3.75</u> FT.	
SIZE AND TYPE OF FILTER PACK 10/20 Sand		FROM <u>3</u> TO <u>4</u> FT.	
SEAL Hydrated Granular Bentonite		FROM <u>0</u> TO <u>3</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
ELEVATION AND DATUM bgs		TOTAL DEPTH 4.0 ft. bgs	
DATE STARTED 9/16/11		DATE COMPLETED 9/16/11	
INITIAL WATER DEPTH (FT) N/A		LOGGED BY DKM	
SAMPLING METHODS MacroCore w/liner		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input checked="" type="checkbox"/> STAND PIPE <u>N/A</u> FT.	

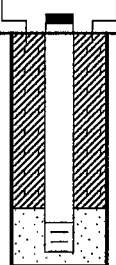
SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"							
	n/a			VP-1 Cornet				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
								SM	<b>Silty SAND with gravel</b> Gray, silty sand with 20-30% gravel, moderately loose, slightly moist, slight odor, no sheen.
								CL/ML	<b>Silty CLAY</b> Gray, silty clay, ~10 sand, some gravel, stiff, moist, slight odor, no sheen.

**NOTES**

- Lithology based on boring KJ-B36. Refer to the boring log for KJ-B36 for additional information.
- Vapor sampling point was installed in the boring after advancing the boring to 4 feet bgs. Bentonite granules were installed in 1-foot lifts and hydrated after each lift. Installation was completed at 0800; sample collection was performed at 0925.
- Sample VP-1 Cornet was collected as a grab sample using a 1/2 liter SUMMA canister prepared by the analytical laboratory.

KJ PNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ PNW.GDT 12/13/11

BORING LOCATION Vapor Point Next to KJ-B35		Well Name <u>VP-2</u>	
DRILLING COMPANY Cascade Drilling		DRILLER Tyler Day	
DRILLING METHOD(S) Direct-Push		DRILL BIT(S) SIZE 2-Inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING 1/4" Teflon Tubing		FROM <u>0</u> TO <u>3.25</u> FT.	
SLOTTED CASING 6" Stainless Steel Vapor Implant Screen		FROM <u>3.25</u> TO <u>3.75</u> FT.	
SIZE AND TYPE OF FILTER PACK 10/20 Sand		FROM <u>3</u> TO <u>4</u> FT.	
SEAL Hydrated Granular Bentonite		FROM <u>0</u> TO <u>3</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
ELEVATION AND DATUM bgs		TOTAL DEPTH 4.0 ft. bgs	
DATE STARTED 9/16/11		DATE COMPLETED 9/16/11	
INITIAL WATER DEPTH (FT) N/A			
LOGGED BY DKM			
SAMPLING METHODS MacroCore w/lner		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input checked="" type="checkbox"/> STAND PIPE <u>N/A</u> FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	PID	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6							
	n/a			VP-2 Comet				SM	<b>Silty SAND with gravel</b> Tan/brown, sand, silt, gravel fill, no odor, no sheen.
								CL/ML	<b>Silty CLAY with sand</b> Gray, silty clay with 10-15% medium to fine sand with some gravel overall (variable), local thin (typically <1") interbeds of silty sand and poorly graded sand, some shell fragments in lower portion, moderately stiff to moderately soft (varies locally), moist, medium to strong odor, heavy sheen.

**NOTES**

- Lithology based on boring KJ-B35. Refer to the boring log for KJ-B35 for additional information.
- Vapor sampling point was installed in the boring after advancing the boring to 4 feet bgs. Bentonite granules were installed in 1-foot lifts and hydrated after each lift. Installation was completed at 0820; sample collection was performed at 0935.
- Sample VP-2 Comet was collected as a grab sample using a 1/2 liter SUMMA canister prepared by the analytical laboratory.

KJPNW ECOLOGY CORNET BAY BORING LOGS SEPT 2011.GPJ KJ.PNW.GDT 12/13/11