

**GLADSTONE CITY COUNCIL
REGULAR MEETING
CITY HALL COUNCIL CHAMBERS
November 10, 2015 – 6:30 PM**

**6:30PM
CALL TO ORDER
ROLL CALL
FLAG SALUTE**

AGENDA ADDITIONS OR CORRECTIONS

BUSINESS FROM THE AUDIENCE

Visitors: Presentations not scheduled on the Agenda are limited to three (3) minutes. Longer presentations should be submitted to the Assistant City Administrator two weeks prior to the Tuesday City Council meeting. Cards are available in the back of the room for anyone who wishes to comment on an item on the Regular Agenda.

CONSENT AGENDA

- 1. Approval of Minutes – October 27, 2015 Meeting**
- 2. Approval of Monthly Projects**
- 3. Approval of Payment of October Claims**

PRESENTATIONS

- 4. Presentation from Carlotta Collette at Metro (no attachments)**
- 5. Rick Glick – Gladstone Attorney for Tri City Representation (no attachments)**

CORRESPONDENCE – None

REGULAR AGENDA

- 6. Resolution 1067 – Intergovernmental Agreement with Port of Portland - Dahl Beach Mitigation**
- 7. Charter Committee Approval (documents to follow)**
- 8. Approval of Tri-City Service District Resolution Sheets**
- 9. Recommendation from Park & Recreation Board, re: Request for Qualifications (RFQ) for Parks Master Plan (staff report to follow)**

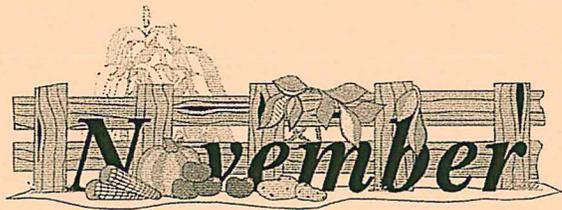
BUSINESS CARRIED FORWARD - Update

- a. Update of Council Goals**
- b. Urban Renewal Map**
- c. Park Rules**
- d. No Second Meeting in November**
- e. Boards Status**

BUSINESS FROM THE AUDIENCE – This is the second opportunity for the Audience to address Council on any item not on the Agenda.

BUSINESS FROM THE COUNCIL

ADJOURN



CONSENT AGENDA

GLADSTONE CITY COUNCIL MEETING MINUTES of October 27, 2015

Meeting was called to order at 6:31 PM.

ROLL CALL:

Councilor Sieckmann, Councilor Mersereau, Councilor Johnson, Councilor McMahon, Councilor Reisner, and Mayor Jacobellis.

ABSENT:

Councilor Turner.

STAFF:

Ross Schultz, Interim City Administrator; Jolene Morishita, Assistant City Administrator; Rhonda Bremmeyer, Senior Center Director, Jeff Jolley, Acting Police Chief/Lieutenant.

AGENDA ADDITIONS OR CORRECTIONS:

Interim City Administrator Schultz asked that the presentation by Carlotta Collette be taken off the agenda – she will be attending the November 10th meeting instead.

Mr. Schultz would also like to talk about the recruitment of the City Administrator at the end of the meeting.

BUSINESS FROM THE AUDIENCE:

None.

CONSENT AGENDA:

1. Approval of Minutes – September 30th and October 13th, 2015 meetings.
2. Approval of Monthly Financials

Councilor McMahon made a motion to approve the consent agenda. Motion was seconded by Councilor Sieckmann. Motion passed unanimously.

CORRESPONDENCE:

None.

REGULAR AGENDA:

3. Approval of Staff Changes:

Interim City Administrator Schultz said they interviewed the four finalists for the Public Works Director position, backgrounds were done on two, and he would like to make a recommendation to hire Jim Whynot. Senior Center Assistant – the position is being changed to full time and will spend ¼ time working on social media aspects. Police Chief – Interim Police Chief Jolley has agreed to stay in the position until the first of the fiscal year.

Councilor Sieckmann asked if any of these positions will fall under the five tier program. They would be started on one of the tiers and moved up each tier. Councilor Sieckmann asked if it was feasible to find someone who could manage the senior center and also manage social media. Mr. Schultz did not feel it was unreasonable. Councilor Johnson said that in the past staffing changes

have gone before the Budget Committee and perhaps this could be brought up at the mid-year meeting. Ms. Bremmeyer said she cannot wait until January to fill this position. Councilor Mersereau feels that we should not delay any further in hiring someone. Councilor McMahon and Councilor Reisner agreed.

Councilor Sieckmann made a motion to approve Agenda Item #3 – Staff Changes. Motion was seconded by Councilor Mersereau. Motion approved unanimously.

Mr. Schultz said they have hired an Accounting Manager – Carolyn Gray – she will be starting next Monday.

4. Judge Contract – Directions to Staff:

Assistant City Administrator Morishita explained that the contract expires December 31st. In the recent past the staff put together a selection committee and chose the most appropriate candidate. Ms. Morishita is asking for direction. Councilor McMahon suggested having four-year terms. Councilor Johnson feels there should be better communication between the Council and the Judge. Councilor Sieckmann feels there should be a discussion regarding contract employees. There was a discussion and clarification regarding an Executive Session. There was a discussion regarding options. Ms. Morishita summarized that the Council would like to reappoint the current judge this time. The Judge will come to a discussion/work session in the near future to give an update/review and have a discussion regarding expectations, etc. In the future the Council will go with the Executive Session format and if they choose to open up the position both staff and some City Councilors will be involved in the selection process. It was agreed to have a two-year extended contract with the current Judge.

DISCUSSION ITEMS:

5. Draft Resolution for Dahl Beach Mitigation:

Mr. Schultz explained that the Port of Portland would like to attend the next meeting so that the Council can vote on this. He would like to relay any concerns or questions to them beforehand. Councilor Sieckmann would like to hear from staff on why/if this is important. Councilor Reisner said we will be losing the lower parking lot and perhaps we can negotiate for something more. Councilor Johnson would like to know who is requiring this and why, and he would like all the information included in the packet so the public has access to it.

BUSINESS CARRIED FORWARD – Update

a) Update of Council Goals:

Interim City Administrator Schultz asked if it was time he started planning a retreat. Councilor McMahon feels it should wait until the new City Manager is on board. Councilor Sieckmann feels it should be a regular January event. It was decided to have it on January 23rd and Councilor Johnson will ask L.B. Day to facilitate.

b) Urban Renewal Map:

No updates at this time.

c) Jensen Road:

Now open to walkers, etc. It is paved.

d) Lawyers for Tri-City:

Mr. Schultz has been in contact with an attorney – he will forward the information to Council. Councilor Johnson asked if he could come and talk with the Council. Mr. Schultz will ask him to attend the November 10th meeting.

- e) Park Rules:
Councilor Reisner said the Parks Board is planning on looking at them in December. This is not part of the Parks Master Plan.
- f) Personnel:
Mr. Schultz gave an update on some personnel location changes.
- g) November Council Meetings:
Mr. Schultz asked that there not be a second meeting in November since it would fall during Thanksgiving.
- h) Thanksgiving Holiday:
Mr. Schultz asked Council how they felt about the City closing services on the day after Thanksgiving. It is not a regular holiday, but employees could use vacation or come to work if they chose to. Public Works will maintain a skeleton crew. The Library will be open. The Police Department will be staffed. Council agreed to close.
- i) Recruitment for City Manager:
Mr. Schultz said there are some good candidates. The Council will be given the information before the November 10th meeting when Mr. Prothman gives his review. Interviews will be conducted the first week in December. There will be a meet and greet with the finalists. Then several committees will conduct interviews and give the info to Council.

BUSINESS FROM THE AUDIENCE:

None.

BUSINESS FROM THE COUNCIL:

Councilor Sieckmann:

He wanted to say that he felt the Town Hall meeting went really well. Staff and everyone involved did a great job putting it together. He felt the attendance was good. He wants to commend the Council on handling some tough questions.

Council has received some emails recently that are addressed to everyone – how do they respond?

Councilor Mersereau:

He also thought the Town Hall went well. He thought the Mayor did a great job as facilitator.

Councilor Johnson:

He wanted to thank all of the staff for putting the Town Hall together. He also thought it went well. Charter Committee – he would like to start advertising for that in the City newsletter in November and December and making selections in January.

He had the opportunity to see Interim Police Chief Jolley in action at the Baskin Robbins event. It was a very fun event.

Councilor Reisner:

He also felt the Town Hall was a great success and would also like to thank the staff. He would like to include openings in several other advisory committees in the upcoming City newsletters. He would like to make the appointments in December so they are ready to go in January. There has been a conflict between the Parks Board and Traffic Safety meetings for the last year or so. The Parks Board agreed to change their meeting times to the first Mondays of the month, starting in December. The information will be noted on the City's website.

Councilor McMahon:

He apologized for missing the last Coffee with a Councilor event.

Mayor Jacobellis:

Asked if the Parks Board had RFQ's. Councilor Reisner advised that the Parks Board made a recommendation to Council to adopt the RFQ that they had before them last night. The dates need to be changed.

ADJOURN:

Meeting adjourned.

Approved by the Mayor this _____ day of _____, 2015.

ATTEST:

Dominick Jacobellis, Mayor

Jolene Morishita, Assistant City Administrator

Current City Project Status

Responsibility (R1-R3) & Authority A1-A3

PROJECT STATUS REPORT FOR OCTOBER 15										Start Date	Current Est. for Comp. Date	Initial Due Date	Status
R1 - CA / ACA	R2 - City Staff	A1 - Voters	A2 - City Council	A3 - Advisory Com.	R3 - Proj. Lead	Department	Project Type						
In Going Projects													
			CC		CA	Admin	Misc. Projects	Inter-Government Agencies:- Negotiating IGA with Oak Lodge Sanitary District		4th Q 2015	July 2015	Met with Oak Lodge working the Project	
			CC		CA	Admin	Capital Projects	Managing Rinearson Pond Project		2013	Q1 2017	Sept. 2015	Presentation Oct. 13th at Council by Falling Springs. Will have some insight into duration.
			CC		CA	Admin	Misc. Projects	Developing Update for the Transportation System/Pavement Master Plan			4th Q 2016	Nov 2015	The TSP will not initiate until Q1 2016
					CA	Admin		Electronic Timesheet/Adjustment of Pay Period		June 2014	Nov. 15	June 2016	CA and ACA have reviewed the Pilot but have not started. Possible Kick off in Nov. Staff is currently reviewing a Cell phone enabled time sheet.
			CC		MF	Fire Dept.	Council Requirement	Fire Department Operations and Public Policy Plan.		11/12/13	December 2015	December 2015	Recruiting underway for new Fire Chief
			CC		CA	Library	Facility Upgrade	2011 IGA - Library		November 2014	Dec. 15	June 2015	Close to agreement with County Staff. County attorney providing final language draft. When complete will forward to council. May wait for Results for Civic Building Project to finalize.
			CC		CA	Library	Facility Upgrade	2009 IGA - Library		November 2014	Oct. 15	August 2015	CA Checking with County
					JM	Police	Staffing	Hire New Police Chief		March 2015	Jul-16	August 2015	Currently CA objective to hold position as is with Interim PC until July 1, 2016
			CC		ST	Public Works-Misc.	Council Requirement	Public Works Operations and Public Policy Plan that includes All Public Works Operations		11/12/13	1st Q 2016	June 2015	Not yet started
			CC		CA	PW	Admin	Public Works Organizational Review/Public Works Director		January 2015	Oct. 16	Oct. 15	We have a finalist, currently working on Council Approval.
			CC		ST	PW Sanitary	Master Plan	Sanitary Sewer Master Plan			Sept. 16	November 2015	Work has begun with Flow monitoring to commence as next step.
			CC	AC	ST	PW-Park & Recre.	Support	BMX Bike Track Proposal for Meldrum Bar Park – Reviewing with Park And Recreation Committee		2013	Jun-16	Sept 2015	On hold until Park Master Plan is conducted. Parks Board is reviewing this process.
CS			CC		ST	PW-Park & Recre.	Support	Dog Park		04/12/11	Jun-16	Sept 2015	On hold until Park Master Plan is conducted.
			CC		RB	Senior Center	Council Requirement	Senior Center Operations and Public Policy Plan.		11/12/13	Nov. 15	June 2015	On CA Desk for review and approval.
			CC		CC		Retreat	Approve Plans for Dept Goals		Feb 2015	Jan. 16	July 2015	No progress
W PROJECTS - This Report													
CA	N	N	N	CA	Admin	IT		Create File Cabinet and Drawer Approach to On-line File stored on the Cities Servers		Aug. 15	Nov. 15	Oct. 15	CA and ACA discussing format before staff review
CA	N	Y	Y		Admin	Master Plan		Create a Parks Master Plan		Aug. 15	Jul. 16	Jul. 16	Received a proposal from JDL Consulting to guide the Parks Board through an RFP process get firm in to produce the Master Plan. Awaiting Council input.
	N	Y	N	ACA	Admin	Admin		Administrative Policy Process - Personnel Manual Updates, Policy for FMLA, Policy Process Job Solicitations, Drug testing		Aug. 15	Sept. 15	Sept. 15	Complete. Will move to complete in Nov.
	N	Y	N	ACA	Admin	Voters		Build a new library		2014	2017		Project Awaits council decision on location.
					Admin			Annual Audit		4th Q 2015	4th Q 2015		Audit Prep underway. Auditors on site in December
					Admin			Built fiber to connect City Campus		4th Q 2015	4th Q 2015		Currently preparing a proposal for Council at the Nov. 11th Meeting.
					Admin			Reorganize Office Staff to accommodate new Accounting Manager		Oct. 2015	Oct. 2015		ACA has the Ball on this project.
					Admin			Help Recruit New City Administrator		4th Q 2015	4th Q 2015		Job is open, scheduled for first round review Nov. 9th.
					Admin			Hire a new Library Director		Oct. 2015	Jan. 2016	Jan. 2016	Interim Library Director in place, will wait for the new CA before we open the recruitment.
					Admin			Oberson Property prep		4th Q 2015	4th Q 2015		Industrial Realtor Contacted and reviewing. Sisul Engineering is beginning the property evaluation.
					Admin			Fire Chief Hiring		4th Q 2015	4th Q 2015		Recruitment is underway. Job is posted on several job sites.
					Admin			Tri City Sanitary Collection Governance		4th Q 2015	4th Q 2015		This project is ongoing and changes daily.
					Public Works			Paving Addie Street NW Infrastructure CDCBG		4th Q 2015	2 Qtr		Block grant received engineer on board.
					Public Works			Driver Information Speed Signs For Traffic Safety Commission		Sept. 2015	2nd Q 2016		Currently have all the pieces.

Current City Project Status

Responsibility (R1-R3)& Authority A1-A3												
R1 - CA / ACA	R2 - City Staff	A1 - Voters	A2 - City Council	A3 - Advstr Com.	R3 - Prof. Lead	Department	Project Type	PROJECT STATUS REPORT FOR OCTOBER 15			Status	
								Start Date	Current Est. for Comp. Date	Initial Due Date		
CA						Public Works	Bicycle Signage for Trolley trial Pilot Signage	Nov. 2015	Nov. 2015		Public works has signs will schedule install of 2 by nov. 1	
CA						Public Works	Oatfield Road / 205 Bad intersection	Nov. 15	Nov. 15		Public works has contacted Bob Walker at ODOT. They do not seem concerned. Staff will review options to complete as a city.	
CA						Admin	Upgrade City Planning Services	4th Q 2015	4th Q 2015		Discussions with West Linn on helping us out.	
CA						Admin	Get Customers that are served bu Oaklodge to be billed by Oaklodge.	4th Q 2015	4th Q 2015		On CA Desk	
CA						Admin	Boardman Wetlands Storm water runoff	3rd Q 2016	3rd Q 2016		Will be part of Sanitary Master Plan	
CA						Admin	Oak Lodge Sanitary dumping Storm water on Gladstone	3rd Q 2016	3rd Q 2016		Discuss in contract negotiation. May need to wait for Sanitary MP	
Completed Projects												
CA					JM	Admin	Admin	Implementing New Spring brook Software	Jan. 14	April 2015	April 2015	Implementing software upgrade. Effects finance, payroll, utility billing, hr and business licenses
CA						Admin		Raney Collector Site Disposition	4th Q 2015	4th Q 2015		A settlement has been reached that will see the site vacated by Nov. 15th, maybe the 1st. Up to Council to now review what is next for the site.
CA						Admin		Abandon Water Line Opportunity with Regional Water Providers	4th Q 2015	4th Q 2015		Council has approved NOT decommissioning the line. Clackamas River Water Providers will be following up with a request for formal action.
CA						Admin		Hire New Accounting Manager	Sept. 15	Nov. 2015		We have a finalist, currently working on background checks.
CA						Admin		Town Hall Meeting	Oct. 2015	Oct. 2015		Work Underway
CA		N	Y	N	CA	Admin	Audit	Delegated Spending Authority	Aug. 15	Sept. 15	Sept. 15	CA will appear at Council 9/8 for approval of delegated authority. This Project Complete, will move to complete in Nov.

CITY OF GLADSTONE

October 20015

Payroll

10/30/2015	Payroll checks	#79632 - 79662	\$20,402.72	
10/30/2015	Direct Deposit		\$154,544.10	
			\$174,946.82	Total

Manual/ Month End Checks

10/19/2015	A/P Checks	#79631	\$1,262.66	
10/29/2015	A/P Checks	#79663 - 79707	\$123,506.15	
			\$124,768.81	Total

Urban Renewal Checks

10/29/15	A/P Check	#5479	\$63.38	A/P
			\$63.38	Total

Outstanding Invoices

Pending			\$306,177.40	
---------	--	--	--------------	--

OCTOBER 2015

\$605,956.41

Total

Council Approval

Payroll

G/L Distribution Report

User: sledoux

Batch: 00001.10.2015 COMPUTER

City of Gladstone



Account Number	Debit Amount	Credit Amount	Description
Section 1 001	GENERAL FUND		
001-000-140000	71,947.88	0.00	CASH IN BANK
001-000-290000	0.00	154,544.10	DIRECT DEPOSIT LIABILITIES
001-000-290001	0.00	29,949.87	FEDERAL WITHHOLDING W/H
001-000-290002	0.00	38,249.12	SOCIAL SECURITY W/H
001-000-290003	0.00	16,006.02	STATE TAX W/H
001-000-290004	0.00	283.26	WBF WORKDAY ASSESS
001-000-290005	0.00	1,250.00	UNEMPLOYMENT
001-000-290007	0.00	1,809.24	TRI-MET TAX
001-000-290008	0.00	1,404.10	MISCELLANEOUS
001-000-290103	0.00	52,044.42	HEALTH INS W/H
001-000-290104	0.00	1,865.18	UNION DUES W/H
001-000-290105	0.00	5,705.00	DEFERRED COMP W/H
001-000-290108	0.00	113.80	LIFE INSURANCE/PU
001-000-290111	0.00	39,335.68	RETIREMENT/PERS
001-000-290112	0.00	3,055.23	RETIREMENT
001-000-290114	0.00	800.00	FIREFIGHTER HOUSE DUES
001-000-290115	0.00	851.05	DISABILITY INSURANCE
001-000-290124	0.00	1,500.07	VEBA HEALTH CONTRIBUTIONS
001-000-290125	0.00	467.00	SECTION 125 FLEX HEALTH
001-021-100000	6,666.66	0.00	CITY ADMINISTRATOR
001-021-100500	12,764.39	0.00	ASSISTANT-CITY ADMINSTRATOR
001-021-101500	4,886.09	0.00	ADMIN SECRETARY/REC COORDINATO
001-021-102000	4,544.64	0.00	ACCOUNT CLERK (FINANCE)
001-021-102300	220.03	0.00	OVERTIME
001-021-102500	11,335.42	0.00	PAYROLL COSTS
001-022-102500	2,614.04	0.00	PAYROLL COSTS
001-022-120500	3,716.20	0.00	MUNICIPAL COURT CLERK
001-022-121000	2,074.33	0.00	ASSISTANT COURT CLERK
001-024-102500	42,947.16	0.00	PAYROLL COSTS
001-024-140300	7,591.55	0.00	POLICE LIEUTENANT
001-024-140500	7,298.01	0.00	POLICE SERGEANT
001-024-141000	7,455.57	0.00	POLICE SERGEANT
001-024-141500	6,400.21	0.00	POLICE ACTING SERGEANT
001-024-142000	6,306.18	0.00	POLICE DETECTIVE

Account Number	Debit Amount	Credit Amount	Description
001-024-142500	5,925.56	0.00	POLICE OFFICER
001-024-143000	4,831.51	0.00	POLICE OFFICER
001-024-143500	4,803.97	0.00	POLICE OFFICER
001-024-144000	4,776.41	0.00	POLICE OFFICER
001-024-146000	5,839.69	0.00	POLICE OFFICER
001-024-146200	4,550.16	0.00	POLICE OFFICER
001-024-146400	5,570.21	0.00	POLICE OFFICER
001-024-146500	2,062.18	0.00	MUNICIPAL ORDINANCE SPECIALIST
001-024-150000	3,529.03	0.00	POLICE RECORDS CLERK
001-024-150500	290.88	0.00	POLICE RESERVES
001-024-152500	13,482.87	0.00	OVERTIME
001-025-102500	7,351.70	0.00	PAYROLL COSTS
001-025-170000	1,154.54	0.00	FIRE CHIEF
001-025-170300	6,690.41	0.00	FIRE MARSHAL
001-025-171000	18,290.09	0.00	ON-CALL FIREFIGHTERS
001-026-102500	3,271.49	0.00	PAYROLL COSTS
001-026-190000	669.04	0.00	PUBLIC WORKS SUPERVISOR
001-026-190500	4,765.22	0.00	UTILITY WORKER, JOURNEY
001-028-102500	5,722.76	0.00	PAYROLL COSTS
001-028-208500	5,921.78	0.00	SENIOR CENTER MANAGER
001-028-209500	2,301.22	0.00	TRAM DRIVER
001-028-210000	549.34	0.00	CENTER ASSISTANT
001-028-210500	2,432.43	0.00	NUTRITION CATERER
001-028-216500	250.20	0.00	BUILDING MONITOR FOR RENTALS
001-029-102500	9,182.81	0.00	PAYROLL COSTS
001-029-221500	3,296.74	0.00	LIBRARY ASSISTANT II
001-029-222500	4,453.45	0.00	LIBRARY ASSISTANT II
001-029-222800	4,091.59	0.00	LIBRARY ASSISTANT II
001-029-223100	3,692.34	0.00	LIBRARY ASSISTANT II
001-029-223200	628.44	0.00	LIBRARY AIDE
001-029-223500	8,225.31	0.00	ON CALL LIB ASSISTANT
001-029-223600	1,861.41	0.00	REFERENCE LIBRARIAN SUNDAY
Section 1 Total:	349,233.14	349,233.14	
Section 1 003	SEWER FUND		
003-000-140000	0.00	16,638.03	CASH IN BANK
003-003-102500	5,004.02	0.00	PAYROLL COSTS
003-003-300300	2,341.64	0.00	PUBLIC WORKS SUPERVISOR
003-003-300700	2,359.03	0.00	UTILITY WKR,JOURNEY/MAINT TECH
003-003-301000	5,115.09	0.00	UTILITY WORKER
003-003-301200	1,818.25	0.00	ACCOUNT CLERK
Section 1 Total:	16,638.03	16,638.03	

Account Number	Debit Amount	Credit Amount	Description
Section 1 004			
WATER FUND			
004-000-140000	0.00	25,932.01	CASH IN BANK
004-004-102500	8,575.20	0.00	PAYROLL COSTS
004-004-400300	2,007.12	0.00	PUBLIC WORKS SUPERVISOR
004-004-400700	2,359.01	0.00	UTILITY WKR,JOURNEY/MAINTENANC
004-004-401000	4,835.99	0.00	UTILITY WORKER, JOURNEY
004-004-401200	1,818.22	0.00	ACCOUNT CLERK
004-004-401500	4,866.61	0.00	UTILITY WORKER, JOURNEY
004-004-402500	1,469.86	0.00	OVERTIME
Section 1 Total:	25,932.01	25,932.01	
Section 1 005			
ROAD & STREET FUND			
005-000-140000	0.00	11,399.12	CASH IN BANK
005-005-102500	4,046.88	0.00	PAYROLL COSTS
005-005-501500	1,672.61	0.00	PUBLIC WKS SUPERVISOR
005-005-502000	4,883.46	0.00	UTILITY WORKER, JOURNEY
005-005-502500	796.17	0.00	OVERTIME
Section 1 Total:	11,399.12	11,399.12	
Section 1 008			
POLICE/COMMUNC LEVY FUND			
008-000-140000	0.00	29,634.69	CASH IN BANK
008-008-102500	9,427.48	0.00	PAYROLL COSTS
008-008-800500	5,994.81	0.00	SCHOOL RESOURCE OFFICER
008-008-801500	5,599.37	0.00	POLICE OFFICER
008-008-802500	2,062.19	0.00	MUNICIPAL ORDINANCE SPECIALIST
008-008-802700	4,421.89	0.00	EXECUTIVE ASSISTANT
008-008-802800	613.05	0.00	ON CALL POLICE RECORDS CLERK
008-008-803000	1,515.90	0.00	OVERTIME
Section 1 Total:	29,634.69	29,634.69	
Section 1 009			
FIRE/EMERG SERVICES LEVY FUND			
009-000-140000	0.00	8,746.75	CASH IN BANK
009-009-102500	2,892.85	0.00	PAYROLL COSTS
009-009-900500	5,503.63	0.00	FIRE COORDINATOR
009-009-901500	350.27	0.00	SEASONAL HELP
Section 1 Total:	8,746.75	8,746.75	
Report Total:	441,583.74	441,583.74	

Accounts Payable

Check Detail

User: sledoux
Printed: 11/03/2015 - 11:12AM

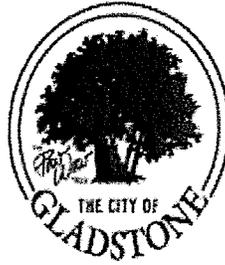


Check Number	Check Date		Amount
08830 - United States Postal Service Line Item Account			
79631	10/19/2015		
Inv	Oct 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/19/2015	Oct 2015 Newsletter mailing	001-021-113500	1,262.66
Inv Oct 2015 Total			1,262.66
79631 Total:			1,262.66
08830 - United States Postal Service Total:			1,262.66
Total:			1,262.66

Accounts Payable

Check Detail

User: sledoux
Printed: 11/03/2015 - 11:15AM



Check Number	Check Date		Amount
00282 - Adventist Health Line Item Account			
79663	10/29/2015		
Inv	63159		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/05/2015	Adventist Health - Physicals	001-025-178500	3,108.00
Inv 63159 Total			3,108.00
79663 Total:			3,108.00
00282 - Adventist Health Total:			
			3,108.00
00285J - Air Filter Exchange Line Item Account			
79664	10/29/2015		
Inv	06-36		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/09/2015	Air Filter Exchange - Filters/maint	001-021-110500	456.00
Inv 06-36 Total			456.00
79664 Total:			456.00
00285J - Air Filter Exchange Total:			
			456.00
00434 - American Security Alarms Line Item Account			
79665	10/29/2015		
Inv	74125		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/01/2015	Am Sec Alarms - Qtrly alarm service	001-021-110500	59.85
Inv 74125 Total			59.85
79665 Total:			59.85
00434 - American Security Alarms Total:			
			59.85
00628 - Bannick, Tami Line Item Account			
79669	10/29/2015		

Check Number	Check Date		Amount
Inv	Reimb		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/15/2015	Bannick Reimb - Staff Mtg expenses	001-021-111500	34.98
10/22/2015	Bannick Reimb - Town Hall expenses	001-021-111500	21.95
Inv Reimb Total			56.93
79669 Total:			56.93
00628 - Bannick, Tami Total:			56.93
00734 - Beloof & Haines Line Item Account			
79671	10/29/2015		
Inv	734-103115		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	Belooof	001-022-122500	3,000.00
Inv 734-103115 Total			3,000.00
79671 Total:			3,000.00
00734 - Beloof & Haines Total:			3,000.00
00739 - Beery, Elsner & Hammond LLP Line Item Account			
79670	10/29/2015		
Inv	12528		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/01/2015	Beery Elsner Hammond - City Council	001-021-105500	2,190.60
10/01/2015	Beery Elsner Hammond - Intergov.	001-021-105500	40.00
10/01/2015	Beery Elsner Hammond - Elections	001-021-105500	20.00
10/01/2015	Beery Elsner Hammond - Finance	001-021-105500	20.00
10/01/2015	Beery Elsner Hammond - General	001-021-105500	1,133.99
10/01/2015	Beery Elsner Hammond - Comm Dev.	001-021-105500	1,676.18
10/01/2015	Beery Elsner Hammond - Parks/Rec	001-021-105500	40.00
10/01/2015	Beery Elsner Hammond - Personnel	001-021-105500	547.12
10/01/2015	Beery Elsner Hammond - Public Works	001-021-105500	20.00
10/01/2015	Beery Elsner Hammond - Real Property	001-021-105500	120.00
10/01/2015	Beery Elsner Hammond - Risk Mgmt/Litig.	001-021-105500	8,170.73
10/01/2015	Beery Elsner Hammond - Telecom	001-021-105500	280.00
Inv 12528 Total			14,258.62
79670 Total:			14,258.62
00739 - Beery, Elsner & Hammond LLP Total:			14,258.62
01339 - CIS/EBS Trust Line Item Account			
79672	10/29/2015		

Check Number Check Date Amount

Inv November 2015

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	Health - City	001-000-290103	45,240.47
10/29/2015	Health - Employee	001-000-290103	6,803.95
10/29/2015	FD Stat Life - City	001-025-177000	26.18
10/29/2015	Disability - City	001-000-290115	851.05
10/29/2015	PD Stat Life - City	001-000-290108	13.86
10/29/2015	Life	001-000-290108	110.46
10/29/2015	Life - Employee	001-000-290008	184.02
10/29/2015	Health - Adjustment	001-000-290103	2,596.48
10/29/2015	Disability - Adjustment	001-000-290115	49.95
10/29/2015	Life Adjust	001-000-290108	-2.55

Inv November 2015 Total 55,873.87

79672 Total: 55,873.87

01339 - CIS/EBS Trust Total: 55,873.87

01663 - Clackamas Cty Benevolent Foundation Line Item Account

79673 10/29/2015

Inv October 2015

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	CCPO Benevolent	001-000-290008	50.00

Inv October 2015 Total 50.00

79673 Total: 50.00

01663 - Clackamas Cty Benevolent Foundation Total: 50.00

01726 - Clackamas Fed. Cred.Union Line Item Account

79674 10/29/2015

Inv October 2015

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	GPA 543124003	001-000-290104	1,044.55

Inv October 2015 Total 1,044.55

79674 Total: 1,044.55

01726 - Clackamas Fed. Cred.Union Total: 1,044.55

01893D - Comcast Cable Line Item Account

79675 10/29/2015

Inv 0725743 1031

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/31/2015	Comcast - Internet/Voice	001-024-161000	118.09

Check Number	Check Date		Amount
Inv 0725743	1031	Total	118.09
Inv	0732582	1031	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/31/2015	Comcast - Internet/Voice	005-005-507000	135.28
Inv 0732582	1031	Total	135.28
Inv	0738555	1018	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/18/2015	Comcast - Internet	001-028-213500	52.90
Inv 0738555	1018	Total	52.90
79675 Total:			306.27
01893D - Comcast Cable Total:			306.27
02245 - Day Wireless Systems Inc		Line Item Account	
79676	10/29/2015		
Inv	175263-00		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/02/2015	Day Wireless - Printer mounts	001-024-158000	567.00
Inv 175263-00		Total	567.00
79676 Total:			567.00
02245 - Day Wireless Systems Inc Total:			567.00
02256 - Demco		Line Item Account	
79677	10/29/2015		
Inv	5703277		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Demco - supplies	001-029-225500	109.43
Inv 5703277		Total	109.43
79677 Total:			109.43
02256 - Demco Total:			109.43
02510G - Eastside Paving Inc		Line Item Account	
79678	10/29/2015		
Inv	10161507		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	

Check Number	Check Date		Amount
10/16/2015		Eastside Paving - Patching - various locations	6,500.00
		005-005-515000	
Inv 10161507 Total			6,500.00
79678 Total:			6,500.00
02510G - Eastside Paving Inc Total:			6,500.00
02657 - Axa Equi-Vest Line Item Account			
79666	10/29/2015		
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	AXA Def Comp WH	001-000-290105	5,705.00
Inv October 2015 Total			5,705.00
79666 Total:			5,705.00
02657 - Axa Equi-Vest Total:			5,705.00
02659 - Axa RIA Line Item Account			
79668	10/29/2015		
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	AXA Retirement	001-000-290112	2,861.17
Inv October 2015 Total			2,861.17
79668 Total:			2,861.17
02659 - Axa RIA Total:			2,861.17
02661 - Axa EVLICO Line Item Account			
79667	10/29/2015		
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	AXA UL Prem	001-000-290112	194.06
Inv October 2015 Total			194.06
79667 Total:			194.06
02661 - Axa EVLICO Total:			194.06
02915 - Union Security Insurance Line Item Account			
79704	10/29/2015		

Check Number	Check Date		Amount
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	Sept 2015 life insurance	001-024-160000	2.01
10/29/2015	Sept 2015 life insurance	001-025-177000	142.82
Inv October 2015 Total			144.83
79704 Total:			144.83
02915 - Union Security Insurance Total:			144.83
03115 - GC Systems Line Item Account			
79679	10/29/2015		
Inv	32233		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/02/2015	GC Systems - Pressure guages	004-004-406500	109.62
Inv 32233 Total			109.62
79679 Total:			109.62
03115 - GC Systems Total:			109.62
03271 - Gladstone Fire Department Line Item Account			
79680	10/29/2015		
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	GVF House dues	001-000-290114	800.00
Inv October 2015 Total			800.00
79680 Total:			800.00
03271 - Gladstone Fire Department Total:			800.00
03958 - Integra Telecom Line Item Account			
79681	10/29/2015		
Inv	13364005		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	Integra Telecom	001-021-110000	714.18
10/29/2015	Integra Telecom	001-024-161000	114.04
10/29/2015	Integra Telecom	001-028-213000	167.65
10/29/2015	Integra Telecom	004-004-406000	114.04
Inv 13364005 Total			1,109.91
79681 Total:			1,109.91

Check Number	Check Date		Amount
03958 - Integra Telecom Total:			1,109.91
04152 - Jolley, Jeff Line Item Account			
79682	10/29/2015		
Inv	Reimb		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/05/2015	Jolley Reimb - Charger	001-024-156000	39.99
Inv Reimb Total			39.99
79682 Total:			39.99
04152 - Jolley, Jeff Total:			39.99
04441 - League of Oregon Cities Line Item Account			
79683	10/29/2015		
Inv	200249		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/09/2015	League of OR Cities - Reisner conference	001-021-111500	340.00
Inv 200249 Total			340.00
79683 Total:			340.00
04441 - League of Oregon Cities Total:			340.00
04465 - Legacy Laboratory Service Line Item Account			
79684	10/29/2015		
Inv	21846-1		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/29/2015	Legacy Labs - Testing	001-025-178500	25.00
Inv 21846-1 Total			25.00
79684 Total:			25.00
04465 - Legacy Laboratory Service Total:			25.00
05046 - Municipal Emergency Svcs Line Item Account			
79685	10/29/2015		
Inv	00672080 SNV		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/24/2015	Mun Emerg Svcs - Supplies/testing	001-025-181400	3,556.00
Inv 00672080 SNV Total			3,556.00

Check Number	Check Date		Amount
79685	Total:		3,556.00
05046 - Municipal Emergency Svcs Total:			3,556.00
05521 - Northwest Natural Gas Line Item Account			
79686	10/29/2015		
Inv	148922-8	1021	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/21/2015	NW Natural Gas	001-028-213500	143.42
Inv 148922-8	1021 Total		143.42
Inv	148988-9	1021	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/21/2015	NW Natural Gas	001-025-177500	15.38
Inv 148988-9	1021 Total		15.38
Inv	149733-8	1021	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/21/2015	NW Natural Gas	001-021-109500	15.38
Inv 149733-8	1021 Total		15.38
Inv	2136577-0	1021	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/21/2015	NW Natural Gas	001-024-161000	15.38
Inv 2136577-0	1021 Total		15.38
Inv	363279-1	1021	
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/21/2015	NW Natural Gas	005-005-507000	15.38
Inv 363279-1	1021 Total		15.38
79686	Total:		204.94
05521 - Northwest Natural Gas Total:			204.94
05656 - Oak Lodge Water District Line Item Account			
79687	10/29/2015		
Inv	56-00072-001		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	32.88
Inv 56-00072-001	Total		32.88

Check Number	Check Date		Amount
Inv 56-00073-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	32.88
Inv 56-00073-001 Total			32.88
Inv 56-00074-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	49.14
Inv 56-00074-001 Total			49.14
Inv 56-00075-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	38.28
Inv 56-00075-001 Total			38.28
Inv 56-00076-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	59.29
Inv 56-00076-001 Total			59.29
Inv 56-00077-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	35.04
Inv 56-00077-001 Total			35.04
Inv 56-00840-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	41.89
Inv 56-00840-001 Total			41.89
Inv 56-00850-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	130.93
Inv 56-00850-001 Total			130.93
Inv 56-00860-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	67.99
Inv 56-00860-001 Total			67.99
Inv 56-00870-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	69.44

Check Number	Check Date		Amount
Inv 56-00870-001	Total		69.44
Inv 99-01148-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	286.79
Inv 99-01148-001	Total		286.79
Inv 99-01157-001			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/30/2015	Oak Lodge Water	004-004-405000	913.96
Inv 99-01157-001	Total		913.96
79687	Total:		1,758.51
05656 - Oak Lodge Water District Total:			1,758.51
05681m - Office Of The Trustee Line Item Account			
79688	10/29/2015		
Inv 11-39851-tmb13			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	11-39851-tmb	001-000-290008	640.00
Inv 11-39851-tmb13	Total		640.00
79688	Total:		640.00
05681m - Office Of The Trustee Total:			640.00
05746 - Oregon AFSCME Council #75 Line Item Account			
79689	10/29/2015		
Inv October 2015			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	AFSME dues	001-000-290104	882.63
Inv October 2015	Total		882.63
79689	Total:		882.63
05746 - Oregon AFSCME Council #75 Total:			882.63
05810 - Oregon City Awards Line Item Account			
79690	10/29/2015		
Inv 29514			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	

Check Number	Check Date		Amount
10/01/2015	OR Cty Awards - Council Plaque	001-021-111500	117.20
Inv 29514 Total			117.20
79690 Total:			117.20
05810 - Oregon City Awards Total:			117.20
06148 - Oregon Patrol Service Line Item Account			
79691	10/29/2015		
Inv 2613			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/01/2015	Oregon Patrol - Courtroom Security	001-022-127000	699.88
Inv 2613 Total			699.88
79691 Total:			699.88
06148 - Oregon Patrol Service Total:			699.88
06257 - Oregon, State of Line Item Account			
79692	10/29/2015		
Inv 201509737123370			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/23/2015	OR State Lands - Unclaimed property transferal	001-021-114500	272.08
Inv 201509737123370 Total			272.08
79692 Total:			272.08
06257 - Oregon, State of Total:			272.08
06361 - Oregonian Media Group Line Item Account			
79693	10/29/2015		
Inv 3724450			
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
08/21/2015	Oregonian - Election notice	001-021-111500	467.18
Inv 3724450 Total			467.18
79693 Total:			467.18
06361 - Oregonian Media Group Total:			467.18
06636M - Pape Material Handling Exchange Line Item Account			
79694	10/29/2015		

Check Number	Check Date		Amount
Inv	401644400		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/20/2015	Pape - Excavator rental	003-003-303000	3,150.00
Inv 401644400 Total			3,150.00
79694 Total:			3,150.00
06636M - Pape Material Handling Exchange Total:			3,150.00
07021 - Portland General Electric Line Item Account			
79695	10/29/2015		
Inv	483900 3 1008		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/08/2015	PGE - Street lifights	005-005-506000	5,361.72
Inv 483900 3 1008 Total			5,361.72
79695 Total:			5,361.72
07021 - Portland General Electric Total:			5,361.72
07204 - Providence Occupational Health Line Item Account			
79696	10/29/2015		
Inv	1292482		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/03/2015	Providence - Physicals	001-021-116500	400.00
Inv 1292482 Total			400.00
Inv	700001970		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/03/2015	Providence - Drug screens	001-021-116500	64.00
Inv 700001970 Total			64.00
79696 Total:			464.00
07204 - Providence Occupational Health Total:			464.00
07710 - Sandy, City of Line Item Account			
79697	10/29/2015		
Inv	McIntyre		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/25/2015	City of Sandy - Interim Lib Director	001-029-220000	2,349.00
Inv McIntyre Total			2,349.00

Check Number	Check Date	Amount
--------------	------------	--------

79697 Total:		2,349.00
--------------	--	----------

07710 - Sandy, City of Total:		2,349.00
-------------------------------	--	----------

07750 - Schultz, Ross Line Item Account

79698 10/29/2015

Inv Reimb

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/22/2015	Schultz reimb - Town Hall supplies	001-021-111500	23.54

Inv Reimb Total		23.54
-----------------	--	-------

79698 Total:		23.54
--------------	--	-------

07750 - Schultz, Ross Total:		23.54
------------------------------	--	-------

07905 - Sierra Springs Line Item Account

79699 10/29/2015

Inv 13891887 100815

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/08/2015	Sierra Springs - Water	001-021-113000	51.58

Inv 13891887 100815 Total		51.58
---------------------------	--	-------

79699 Total:		51.58
--------------	--	-------

07905 - Sierra Springs Total:		51.58
-------------------------------	--	-------

07960 - Sisul Engineering Line Item Account

79700 10/29/2015

Inv SGL 13-006-17

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/01/2015	Sisul Engineering - Webster Rd	003-003-308000	1,235.00

Inv SGL 13-006-17 Total		1,235.00
-------------------------	--	----------

Inv SGL12-037-22

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/01/2015	Sisul Engineering - Utility Maps/MB Park	003-003-308000	1,459.50

Inv SGL12-037-22 Total		1,459.50
------------------------	--	----------

Inv SGL12-037-23

<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/01/2015	Sisul Engineering - MB Park	003-003-308000	810.00

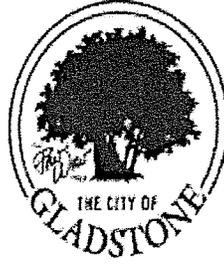
Check Number	Check Date		Amount
		Inv SGL12-037-23 Total	810.00
		Inv SGL15-071-01	
		<u>Line Item Date</u> <u>Line Item Description</u> <u>Line Item Account</u>	
		09/01/2015 Sisul Engineering - Addic Street 004-004-415500	480.00
		Inv SGL15-071-01 Total	480.00
		79700 Total:	3,984.50
		07960 - Sisul Engineering Total:	3,984.50
		08036B - Solutions Yes Line Item Account	
		79701 10/29/2015	
		Inv INV52480	
		<u>Line Item Date</u> <u>Line Item Description</u> <u>Line Item Account</u>	
		10/02/2015 Solutions Yes - Copier usage 001-021-113000	47.55
		Inv INV52480 Total	47.55
		79701 Total:	47.55
		08036B - Solutions Yes Total:	47.55
		08205 - Stein Oil Co. Inc. Line Item Account	
		79702 10/29/2015	
		Inv CL11998	
		<u>Line Item Date</u> <u>Line Item Description</u> <u>Line Item Account</u>	
		10/15/2015 Stein Oil - Gasoline 005-005-518500	554.40
		Inv CL11998 Total	554.40
		79702 Total:	554.40
		08205 - Stein Oil Co. Inc. Total:	554.40
		08260E - Stuckey, Maggie Line Item Account	
		79703 10/29/2015	
		Inv Author	
		<u>Line Item Date</u> <u>Line Item Description</u> <u>Line Item Account</u>	
		10/02/2015 Maggie Stuckey - Author talk 001-029-228500	50.00
		Inv Author Total	50.00
		79703 Total:	50.00

Check Number	Check Date		Amount
08260E - Stuckey, Maggie Total:			50.00
08801 - US Bank Line Item Account			
79706	10/29/2015		
Inv	289363434		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	Copier lease	001-021-113000	467.92
Inv 289363434 Total			467.92
79706 Total:			467.92
08801 - US Bank Total:			467.92
08830 - United States Postal Service Line Item Account			
79705	10/29/2015		
Inv	October 2015		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/29/2015	USPS - Water bill postage	004-004-403000	1,001.14
Inv October 2015 Total			1,001.14
79705 Total:			1,001.14
08830 - United States Postal Service Total:			1,001.14
08943C - Verizon Line Item Account			
79707	10/29/2015		
Inv	9941-00001 101		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
09/23/2015	Verizon - Phone Svc.	005-005-507000	682.28
Inv 9941-00001 101 Total			682.28
79707 Total:			682.28
08943C - Verizon Total:			682.28
Total:			123,506.15

Accounts Payable

Check Detail

User: sledoux
Printed: 11/03/2015 - 12:04PM



Check Number	Check Date		Amount
03303S - Government Ethics Commission Line Item Account			
5479	10/29/2015		
Inv	AIE03377		
<u>Line Item Date</u>	<u>Line Item Description</u>	<u>Line Item Account</u>	
10/02/2015	Gov Ethics Comm - UR Annual Assessment FY16	002-002-201500	63.38
Inv AIE03377 Total			63.38
5479 Total:			63.38
03303S - Government Ethics Commission Total:			63.38
Total:			63.38

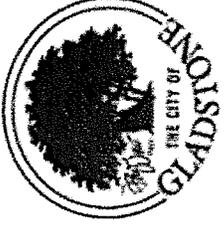
Accounts Payable

Computer Check Proof List by Vendor

User: sledoux

Printed: 11/03/2015 - 11:04AM

Batch: 00001.11.2015



Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 00438	Alexin Analytical Laboratories				
23885	Alexin Labs - Testing	360.00	11/12/2015	004-004-408000	ACH Enabled: False
	Check Total:	360.00			
Vendor: 00367A	Amazon				
042624288508	Amazon - New books/supplies	19.92	11/12/2015	001-029-229500	ACH Enabled: False
061451446462	Amazon - New books/supplies	7.80	11/12/2015	001-029-229500	
061453199419	Amazon - New books/supplies	108.54	11/12/2015	001-029-229500	
085048344882	Amazon - New books/supplies	22.98	11/12/2015	001-029-230500	
091554186024	Amazon - New books/supplies	44.64	11/12/2015	001-029-229500	
109811243152	Amazon - New books/supplies	59.96	11/12/2015	001-029-230500	
109817506630	Amazon - New books/supplies	-5.97	11/12/2015	001-029-230500	
115178355104	Amazon - New books/supplies	178.19	11/12/2015	001-029-229500	
135021127557	Amazon - New books/supplies	42.23	11/12/2015	001-029-229500	
156021269137	Amazon - New books/supplies	12.85	11/12/2015	001-029-229500	
216886567076	Amazon - New books/supplies	-26.91	11/12/2015	001-029-229500	
216887880223	Amazon - New books/supplies	68.81	11/12/2015	001-029-229500	
246906372337	Amazon - New books/supplies	29.98	11/12/2015	001-029-230500	
246906794494	Amazon - New books/supplies	29.68	11/12/2015	001-029-229500	
283260494006	Amazon - New books/supplies	123.80	11/12/2015	001-029-230500	
	Check Total:	716.50			
Vendor: 00415	American Messaging				
W4103518PK	American Msg - Paging	137.86	11/12/2015	001-025-177800	ACH Enabled: False
	Check Total:	137.86			
Vendor: 00434	American Security Alarms				
70603	Am Security - Alarm Service	89.85	11/12/2015	001-028-212000	ACH Enabled: False
74124	AM. Sec Alarm - 3rd Quarter	22.46	11/12/2015	001-029-225000	
74124	AM. Sec Alarm - 3rd Quarter	22.46	11/12/2015	001-021-110500	
74124	AM. Sec Alarm - 3rd Quarter	22.47	11/12/2015	001-025-175500	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
74124	AM, Sec Alarm - 3rd Quarter	22.46	11/12/2015	001-024-161000	
74126	Am Security - Alarm Service	89.85	11/12/2015	001-028-212000	
	Check Total:	269.55			
Vendor: 00460	Arbour & Associates			Check Sequence: 5	ACH Enabled: False
D-ARB 1026	Arbour & Assoc - Parking spot	100.00	11/12/2015	001-024-161000	
	Check Total:	100.00			
Vendor: 00603	Backflow Management Inc			Check Sequence: 6	ACH Enabled: False
7854	Backflow Mgmt - Letters mailed	44.00	11/12/2015	004-004-414500	
	Check Total:	44.00			
Vendor: 00616	Baker & Taylor Inc			Check Sequence: 7	ACH Enabled: False
4011347764	Baker & Taylor - New books	36.91	11/12/2015	001-029-230500	
4011354423	Baker & Taylor - New books	146.77	11/12/2015	001-029-230500	
4011354669	Baker & Taylor - New books	9.75	11/12/2015	001-029-230500	
4011358239	Baker & Taylor - New books	78.54	11/12/2015	001-029-230500	
4011358240	Baker & Taylor - New books	95.64	11/12/2015	001-029-230500	
4011358265	Baker & Taylor - New books	31.61	11/12/2015	001-029-230500	
4011361508	Baker & Taylor - New books	13.55	11/12/2015	001-029-230500	
4011361539	Baker & Taylor - New books	144.52	11/12/2015	001-029-230500	
4011361684	Baker & Taylor - New books	274.42	11/12/2015	001-029-230500	
4011361769	Baker & Taylor - New books	222.31	11/12/2015	001-029-230500	
4011364027	Baker & Taylor - New books	16.90	11/12/2015	001-029-230500	
4011368553	Baker & Taylor - New books	476.59	11/12/2015	001-029-230500	
4011368582	Baker & Taylor - New books	73.20	11/12/2015	001-029-230500	
4011368645	Baker & Taylor - New books	344.88	11/12/2015	001-029-230500	
4011368672	Baker & Taylor - New books	409.23	11/12/2015	001-029-229500	
4011368672	Baker & Taylor - New books	456.09	11/12/2015	001-029-230500	
4011369946	Baker & Taylor - New books	55.91	11/12/2015	001-029-230500	
4011370701	Baker & Taylor - New books	76.56	11/12/2015	001-029-230500	
4011372554	Baker & Taylor - New books	95.17	11/12/2015	001-029-230500	
4011376575	Baker & Taylor - New books	88.31	11/12/2015	001-029-230500	
4011376575	Baker & Taylor - New books	91.20	11/12/2015	001-029-229500	
4011377854	Baker & Taylor - Books	24.06	11/12/2015	001-029-230500	
4011377861	Baker & Taylor - Books	78.80	11/12/2015	001-029-230500	
4011380313	Baker & Taylor - Books	358.18	11/12/2015	001-029-230500	
4011382259	Baker & Taylor - Books	325.11	11/12/2015	001-029-230500	
4011384432	Baker & Taylor - Books	412.97	11/12/2015	001-029-230500	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
	Check Total:	4,437.18			
Vendor: 00736	Beck Electric Inc				ACH Enabled: False
19588	Beck Electric - Replace ballast/lamps	140.50	11/12/2015	Check Sequence: 8 001-021-110500	
19629	Beck Electric - Replace breaker/ballast	221.00	11/12/2015	001-025-175500	
	Check Total:	361.50			
Vendor: 01170	Cascade Form Systems				ACH Enabled: False
1173	Cascade Forms - Utility bills	801.49	11/12/2015	Check Sequence: 9 004-004-403000	
	Check Total:	801.49			
Vendor: 01240	CESSCO Inc.				ACH Enabled: False
362157	Cessco - Rescue dry blade	288.00	11/12/2015	Check Sequence: 10 001-025-182000	
362232	Cessco - Cut-off saw	879.00	11/12/2015	001-025-182000	
	Check Total:	1,167.00			
Vendor: 01320	Chuck's Heating & Cooling				ACH Enabled: False
19940	Chuck's Htg - Annual service	470.00	11/12/2015	Check Sequence: 11 005-005-507000	
	Check Total:	470.00			
Vendor: 01343	Cintas Corporation No. 2				ACH Enabled: False
5003705508	Cintas - First Aid Supplies	32.43	11/12/2015	Check Sequence: 12 001-025-175500	
5003845623	Cintas - First aid supplies	140.56	11/12/2015	001-024-161000	
5003845626	Cintas - First aid supplies	51.94	11/12/2015	001-025-175500	
5003845627	Cintas - First aid supplies	361.65	11/12/2015	004-004-408500	
	Check Total:	586.58			
Vendor: 01530	Clack Cty Crim Justice Training				ACH Enabled: False
Resv Academy	CLK Crim Justice Trng - Reserve Academy	400.00	11/12/2015	Check Sequence: 13 001-024-158700	
	Check Total:	400.00			
Vendor: 01375	Clackamas Auto Parts Inc				ACH Enabled: False
247694	Clackamas Auto Parts - Supplies	12.34	11/12/2015	Check Sequence: 14 005-005-504500	
247758	Clackamas Auto Parts - Supplies	83.75	11/12/2015	005-005-504500	
247760	Clackamas Auto Parts - Supplies	10.94	11/12/2015	005-005-504500	
247924	Clackamas Auto Parts - Supplies	4.95	11/12/2015	001-025-173000	
248354	Clackamas Auto Parts - Supplies	31.26	11/12/2015	005-005-504500	
248616	Clackamas Auto Parts - Supplies	26.86	11/12/2015	005-005-504500	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
249448	Clackamas Auto Parts - Supplies	97.02	11/12/2015	005-005-504500	
249466	Clackamas Auto Parts - Supplies	23.68	11/12/2015	001-026-194000	
	Check Total:	290.80			
Vendor: 01396	Clackamas Blueprint			Check Sequence: 15	ACH Enabled: False
140663	Clackamas Blueprint - Town Hall supplies	14.00	11/12/2015	001-021-111500	
140725	Clackamas Blueprint - Town Hall supplies	8.20	11/12/2015	001-021-111500	
140830	Clackamas Blueprint - Town Hall supplies	5.00	11/12/2015	001-021-111500	
140888	Clackamas Blueprint - Town Hall supplies	5.00	11/12/2015	001-021-111500	
	Check Total:	32.20			
Vendor: 01576	Clackamas, County of			Check Sequence: 16	ACH Enabled: False
29505	Clackamas Co - Striping	3,249.07	11/12/2015	001-021-107000	
29506	Clackamas Co - Striping	9,083.11	11/12/2015	005-005-515000	
42395	Clack Co - LINCC Data Bases	4,967.34	11/12/2015	001-029-229000	
42604	Clack Co - Work Crew	1,700.00	11/12/2015	001-026-191500	
42792	Clackamas Co - Jail inmate crew	2,242.50	11/12/2015	001-026-194000	
42794	Clackamas Co - Jail inmate crew	1,137.50	11/12/2015	001-026-194000	
42799	Clackamas Co - Ammo	188.00	11/12/2015	001-024-161500	
42807	Clackamas Co - Fingerprinting	30.00	11/12/2015	001-025-175500	
42808	Clackamas Co - Fingerprinting	30.00	11/12/2015	001-024-161000	
42923	Clackamas Co - Dispatch fees	7,244.08	11/12/2015	001-025-181900	
42953	Clackamas Co - Dispatch fees	10,021.17	11/12/2015	008-008-816480	
43057	Clackamas Co - Telecom Services	65.00	11/12/2015	001-024-161000	
43149	Clack Co. - Dispatch fees	7,244.08	11/12/2015	001-025-181900	
43183	Clackamas Co - Emerg Prep calendars	150.00	11/12/2015	001-024-164600	
43304	Clack Co. - Dispatch fees	10,021.17	11/12/2015	008-008-816480	
	Check Total:	57,373.02			
Vendor: 01640	Clackamas, County of			Check Sequence: 17	ACH Enabled: False
0360437	Clk Co Public Health - Spray Park licensing	244.00	11/12/2015	001-026-194200	
	Check Total:	244.00			
Vendor: 01810	Classic Pool & Spa			Check Sequence: 18	ACH Enabled: False
17716-1	Classic Pool - Spray Park supplies	75.90	11/12/2015	001-026-194200	
	Check Total:	75.90			
Vendor: 01839M	Coastal Farm & Home Supply			Check Sequence: 19	ACH Enabled: False
16899	Constal - Generator	999.99	11/12/2015	003-003-303000	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
16917	Coastal - Supplies	6.71	11/12/2015	005-005-507000	
16926	Coastal - Supplies	4.50	11/12/2015	004-004-406500	
16932	Coastal - Supplies	87.99	11/12/2015	004-004-408500	
16942	Coastal - Supplies	89.99	11/12/2015	004-004-408500	
	Check Total:	1,189.18			
Vendor: 01893D	Comcast Cable			Check Sequence: 20	ACH Enabled: False
0226429 1115	Comcast - Cable	37.72	11/12/2015	001-025-175500	
	Check Total:	37.72			
Vendor: 01916	Community Classifieds			Check Sequence: 21	ACH Enabled: False
15803605	Comm Classifieds - Planning Comm vacancies	78.75	11/12/2015	001-021-114500	
15803605	Comm News - Board Vacancy ads	42.00	11/12/2015	001-021-116500	
	Check Total:	120.75			
Vendor: 02168	Cycle Express			Check Sequence: 22	ACH Enabled: False
24827	Cycle Express - Stickers	9.00	11/12/2015	001-025-175500	
24864	Cycle Express - Town Hall banner	156.00	11/12/2015	001-021-111500	
24871	Cycle Express - Stickers	13.50	11/12/2015	001-025-175500	
24874	Cycle Express - Stickers	222.00	11/12/2015	001-025-175500	
24884	Cycle Express - Town Hall banner	58.00	11/12/2015	001-021-111500	
	Check Total:	458.50			
Vendor: 02210D	W.S. Darley & Co.			Check Sequence: 23	ACH Enabled: False
17213178	Darley - Hose	242.17	11/12/2015	001-025-182000	
	Check Total:	242.17			
Vendor: 02414M	Duke's Root Control			Check Sequence: 24	ACH Enabled: False
11431	Duke's - Sewer root control	5,326.07	11/12/2015	003-003-303000	
	Check Total:	5,326.07			
Vendor: 02502	Earth Dynamics LLC			Check Sequence: 25	ACH Enabled: False
15908	Earth Dynamics - Data acquisition	798.75	11/12/2015	004-004-406500	
	Check Total:	798.75			
Vendor: 02540	Ed's Mower & Saw Shoppe			Check Sequence: 26	ACH Enabled: False
91547	Ed's Mower - Repair mower	449.30	11/12/2015	001-026-194000	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
	Check Total:	449.30			
Vendor: 02635	Energispect Medical Solutions			Check Sequence: 27	ACH Enabled: False
23742	Energispect - LIFEPAK Battery	825.51	11/12/2015	001-025-180000	
	Check Total:	825.51			
Vendor: 02731	Executive Copy & Printing			Check Sequence: 28	ACH Enabled: False
63145	Executive Copy - Town Hall supplies	239.00	11/12/2015	001-021-111500	
	Check Total:	239.00			
Vendor: 02731G	Extreme Products			Check Sequence: 29	ACH Enabled: False
30269	Extreme Prod - Supplies	74.47	11/12/2015	001-024-156000	
30468	Extreme Prod - Supplies/Uniform	1,015.70	11/12/2015	001-024-159500	
	Check Total:	1,090.17			
Vendor: 02818	Ferguson Enterprises Inc			Check Sequence: 30	ACH Enabled: False
480958	Ferguson - Supplies	6,116.09	11/12/2015	004-004-406500	
484148	Ferguson - Supplies	1,023.48	11/12/2015	004-004-406500	
	Check Total:	7,139.57			
Vendor: 02830	Fich, Anthony			Check Sequence: 31	ACH Enabled: False
Fich reimb	Fich reimbursement - Training meals	34.71	11/12/2015	001-024-158700	
Fich reimb	Fich reimbursement - Training gasoline	34.80	11/12/2015	001-024-155000	
	Check Total:	69.51			
Vendor: 02899	Foremost Promotions			Check Sequence: 32	ACH Enabled: False
320162	Foremost Promotions - Frisbees	2,086.20	11/12/2015	001-025-178000	
	Check Total:	2,086.20			
Vendor: 02941	Fowler, H.D. Co. Inc.			Check Sequence: 33	ACH Enabled: False
14054317	Fowler - Supplies	855.08	11/12/2015	004-004-406500	
14054318	Fowler - Supplies	629.20	11/12/2015	004-004-406500	
14056153	Fowler - Supplies	618.28	11/12/2015	003-003-303000	
14058969	Fowler - Supplies	735.32	11/12/2015	004-004-406500	
14067121	Fowler - Supplies	384.66	11/12/2015	004-004-406500	
	Check Total:	3,222.54			

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 03000	Mike Funk				
Reimb	Funk Reimb - Open House candy	275.82	11/12/2015	Check Sequence: 34 001-025-178000	ACH Enabled: False
Reimb	Funk Reimb - Kitchen supplies	105.85	11/12/2015	001-025-175500	
Reimb	Funk Reimb - Tape/gift card	29.98	11/12/2015	001-025-175500	
	Check Total:	411.65			
Vendor: 03056	Gall's Inc.				
004184607	Gall's - Badges/supplies	135.00	11/12/2015	Check Sequence: 35 001-024-159500	ACH Enabled: False
004244459	Gall's - Badges/supplies	135.00	11/12/2015	001-024-159500	
	Check Total:	270.00			
Vendor: 03151	General Tree Service				
526384	General Tree - Pow Wow maint.	218.00	11/12/2015	Check Sequence: 36 001-026-196000	ACH Enabled: False
	Check Total:	218.00			
Vendor: 03300	Gold Wrench				
60051	Gold Wrench - Service Ford Interceptor	378.00	11/12/2015	Check Sequence: 37 001-024-155000	ACH Enabled: False
60361	Gold Wrench - Service Chevy Tahoe	382.50	11/12/2015	001-024-155000	
60646	Gold Wrench - Service Dodge Charger	65.25	11/12/2015	001-024-155000	
60709	Gold Wrench - Service Crown Vic	60.00	11/12/2015	001-024-155000	
60721	Gold Wrench - Service Dodge Charger	490.00	11/12/2015	001-024-155000	
60740	Gold Wrench - Service Chevy Tahoe	85.00	11/12/2015	001-024-155000	
60752	Gold Wrench - Service Crown Vic	22.00	11/12/2015	001-024-155000	
60874	Gold Wrench - Service 1996 Safari	642.25	11/12/2015	001-025-173000	
	Check Total:	2,125.00			
Vendor: 03818	Honey Buckets				
2-1376313	Honey Bucket	85.00	11/12/2015	Check Sequence: 38 001-026-195500	ACH Enabled: False
2-1390296	Honey Bucket	334.20	11/12/2015	001-026-195500	
2-1405370	Honey Bucket	476.40	11/12/2015	001-026-195500	
	Check Total:	895.60			
Vendor: 03765	Houston, Marc R				
1009	Dr: Houston - Drill Inst Oct 2015	140.00	11/12/2015	Check Sequence: 39 001-025-180500	ACH Enabled: False
1009	Dr: Houston - Nov 2015	800.00	11/12/2015	001-025-180500	
	Check Total:	940.00			
Vendor: 04142	Johnson, Robert C				
	Check Total:	940.00		Check Sequence: 40	ACH Enabled: False

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
380	Robert Johnson - Maintenance	210.00	11/12/2015	001-029-225000	
	Check Total:	210.00			
Vendor: 04152J	Melissa Jones PLLC			Check Sequence: 41	ACH Enabled: False
105	Jones - Prosecuting Services	3,000.00	11/12/2015	001-022-123000	
	Check Total:	3,000.00			
Vendor: 04157J	Thomas Joseph			Check Sequence: 42	ACH Enabled: False
233	Thoma Joseph - Cleaning	12.50	11/12/2015	001-025-174500	
	Check Total:	12.50			
Vendor: 04243C	Catherine Kerrigan			Check Sequence: 43	ACH Enabled: False
Kerrigan reimb	Kerrigan reimbursement - Training	172.52	11/12/2015	001-024-158700	
	Check Total:	172.52			
Vendor: 04262	Knapp Construction			Check Sequence: 44	ACH Enabled: False
870 E Berkeley	Knapp Const - 870 E. Berkeley	5,625.00	11/12/2015	004-004-406500	
Parkway	Knapp Const - Parkway	2,525.00	11/12/2015	004-004-406500	
Stocker Park	Knapp Const - Stocker Park	2,650.00	11/12/2015	001-026-194000	
	Check Total:	10,800.00			
Vendor: 04419	Leedway LLC			Check Sequence: 45	ACH Enabled: False
10141501	Leeway - Body Armor	719.95	11/12/2015	001-024-159500	
	Check Total:	719.95			
Vendor: 04561P	Life-Assist Inc			Check Sequence: 46	ACH Enabled: False
729156	Life Assist - Supplies	180.25	11/12/2015	001-025-180000	
729335	Life Assist - Supplies	400.00	11/12/2015	001-025-180000	
	Check Total:	580.25			
Vendor: 04590	Lithia Subaru of Oregon City			Check Sequence: 47	ACH Enabled: False
201102	Lithia Auto - Service sale	100.00	11/12/2015	001-024-155000	
	Check Total:	100.00			
Vendor: 04633M	Lord & Associates Inc			Check Sequence: 48	ACH Enabled: False
30129	Lord & Assoc - Flagging	476.00	11/12/2015	004-004-406500	
30155	Lord & Assoc - Flagging	476.00	11/12/2015	004-004-406500	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
30172	Lord & Assoc - Flagging	633.25	11/12/2015	004-004-406500	
	Check Total:	1,585.25			
Vendor: 04677	Mackenzie			Check Sequence: 49	ACH Enabled: False
1036321	Mackenzie - Consulting fee	6,690.00	11/12/2015	001-021-116000	
	Check Total:	6,690.00			
Vendor: 04781	Sarah McIntyre			Check Sequence: 50	ACH Enabled: False
McIntyre	McIntyre mileage	142.77	11/12/2015	001-029-220000	
	Check Total:	142.77			
Vendor: 04831	Meterenders			Check Sequence: 51	ACH Enabled: False
7268	Meterenders	2,112.96	11/12/2015	004-004-409000	
	Check Total:	2,112.96			
Vendor: 04900	Midwest Tape			Check Sequence: 52	ACH Enabled: False
93246474	Midwest Tape - Non print items	80.92	11/12/2015	001-029-230500	
93246475	Midwest Tape - Non print items	50.92	11/12/2015	001-029-230500	
93247198	Midwest Tape - Non print items	38.49	11/12/2015	001-029-230500	
93247199	Midwest Tape - Non print items	53.49	11/12/2015	001-029-230500	
93251623	Midwest Tape - Non print items	26.64	11/12/2015	001-029-230500	
93255512	Midwest Tape - Non print items	72.67	11/12/2015	001-029-230500	
93260934	Midwest Tape - Non print items	95.56	11/12/2015	001-029-230500	
93263221	Midwest Tape - Non print items	48.49	11/12/2015	001-029-230500	
93264577	Midwest Tape - Non print items	53.28	11/12/2015	001-029-230500	
93265922	Midwest Tape - Non print items	57.31	11/12/2015	001-029-230500	
93279278	Midwest Tape - Non print items	79.92	11/12/2015	001-029-230500	
93284149	Midwest Tape - Non print items	131.20	11/12/2015	001-029-230500	
93288905	Midwest Tape - Non print items	194.59	11/12/2015	001-029-230500	
93291206	Midwest Tape - Non print items	30.99	11/12/2015	001-029-230500	
93297439	Midwest Tape - Non print items	20.64	11/12/2015	001-029-230500	
93304185	Midwest Tape - Non print items	43.49	11/12/2015	001-029-230500	
93309613	Midwest Tape - Non print items	48.49	11/12/2015	001-029-230500	
93309747	Midwest Tape - Non print items	59.02	11/12/2015	001-029-230500	
93309749	Midwest Tape - Non print items	109.54	11/12/2015	001-029-230500	
93319459	Midwest Tape - Non-print	211.12	11/12/2015	001-029-230500	
93319660	Midwest Tape - Non-print	142.52	11/12/2015	001-029-230500	
93324441	Midwest Tape - Non-print	193.96	11/12/2015	001-029-230500	
93326256	Midwest Tape - Non-print	47.02	11/12/2015	001-029-230500	
93327140	Midwest Tape - Non-print	33.49	11/12/2015	001-029-230500	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
93327141	Midwest Tape - Non-print	43.49	11/12/2015	001-029-230500	
93336860	Midwest Tape - Non-print	45.14	11/12/2015	001-029-230500	
93338143	Midwest Tape - Non-print	76.98	11/12/2015	001-029-230500	
93338144	Midwest Tape - Non-print	48.49	11/12/2015	001-029-230500	
93339720	Midwest Tape - Non-print	29.89	11/12/2015	001-029-230500	
93339721	Midwest Tape - Non-print	53.28	11/12/2015	001-029-230500	
93339723	Midwest Tape - Non-print	53.92	11/12/2015	001-029-230500	
93339740	Midwest Tape - Non-print	199.09	11/12/2015	001-029-230500	
	Check Total:	2,474.04			
Vendor: 04904	Millar's Hiway Tire Factory			Check Sequence: 53	ACH Enabled: False
1050793	Millars - Tires	680.00	11/12/2015	005-005-504500	
	Check Total:	680.00			
Vendor: 05008P	Motion Picture License Corp			Check Sequence: 54	ACH Enabled: False
503965985	MLPC - Motion Picture Licensing	70.14	11/12/2015	001-029-228500	
	Check Total:	70.14			
Vendor: 04955S	Mr. Belvedere's Janitorial			Check Sequence: 55	ACH Enabled: False
1558	Mr. Belvedere - Janitorial Svc	540.00	11/12/2015	001-021-108500	
1559	Mr. Belvedere - Janitorial Svc	405.00	11/12/2015	001-025-176000	
1560	Mr. Belvedere - Janitorial Svc	335.00	11/12/2015	001-024-161000	
1561	Mr. Belvedere - Janitorial Svc	475.00	11/12/2015	001-028-215500	
	Check Total:	1,755.00			
Vendor: 05382	Casey Newton			Check Sequence: 56	ACH Enabled: False
Newton reimb	Newton reimbursement - Training meals	10.58	11/12/2015	001-024-158700	
	Check Total:	10.58			
Vendor: 05432	North Clackamas County			Check Sequence: 57	ACH Enabled: False
NCCWC15-784	No Clackamas Water purchases	29,789.69	11/12/2015	004-004-405500	
	Check Total:	29,789.69			
Vendor: 05547	Northwest Safety Clean			Check Sequence: 58	ACH Enabled: False
15-12248	NW Safety clean - Screen printing	43.40	11/12/2015	001-025-174500	
	Check Total:	43.40			
Vendor: 05641	Oak Lodge Sanitary Dist.			Check Sequence: 59	ACH Enabled: False

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
23-15501 1031	Oak Lodge Sanitary Sept-Oct 2015	73,575.92	11/12/2015	003-003-304000	
	Check Total:	73,575.92			
Vendor: 05675	Office Depot			Check Sequence: 60	ACH Enabled: False
1856151854	Office Depot - Supplies - Town Hall	17.99	11/12/2015	001-021-111500	
795089571001	Office Depot - Supplies	26.39	11/12/2015	001-021-113000	
795089674001	Office Depot - Supplies	4.42	11/12/2015	001-021-113000	
795171215001	Office Depot - Supplies	72.23	11/12/2015	001-029-225500	
795942969001	Office Depot - Supplies	14.39	11/12/2015	001-029-225500	
795943170001	Office Depot - Supplies	8.50	11/12/2015	001-029-225500	
795943170001	Office Depot - Supplies	15.38	11/12/2015	001-029-225500	
795943172001	Office Depot - Supplies	31.99	11/12/2015	001-029-225500	
798577093001	Office Depot - Supplies	328.76	11/12/2015	001-024-156500	
798577093002	Office Depot - Supplies	6.03	11/12/2015	001-024-156500	
799782846001	Office Depot - Supplies	267.63	11/12/2015	001-021-113000	
800437845001	Office Depot - Supplies	7.99	11/12/2015	001-021-113000	
801048056001	Office Depot - Supplies	38.76	11/12/2015	001-029-225500	
801048342001	Office Depot - Supplies	91.15	11/12/2015	001-029-225500	
	Check Total:	931.61			
Vendor: 05679	Office Max			Check Sequence: 61	ACH Enabled: False
50899	Office Max - Supplies	31.60	11/12/2015	001-022-124500	
50899	Office Max - Supplies	91.21	11/12/2015	001-021-113000	
952324	Office Max - Supplies	13.67	11/12/2015	001-022-124500	
952324	Office Max - Supplies	53.15	11/12/2015	001-021-113000	
952371	Office Max - Supplies	2.58	11/12/2015	001-021-113000	
	Check Total:	192.21			
Vendor: 05684N	Oldcastle Precast			Check Sequence: 62	ACH Enabled: False
20164737	Oldcastle - Materials	124.00	11/12/2015	003-003-303000	
	Check Total:	124.00			
Vendor: 05687D	Dustin Olson			Check Sequence: 63	ACH Enabled: False
Olson reimb	Olson reimbursement - Training meals	11.77	11/12/2015	001-024-158700	
	Check Total:	11.77			
Vendor: 05706	One Call Concepts Inc			Check Sequence: 64	ACH Enabled: False
5090373	One Call Concepts - Utility notifications	109.28	11/12/2015	005-005-507000	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
	Check Total:	109.28			
Vendor: 05870	Oregon City Scuba			Check Sequence: 65	ACH Enabled: False
656	Oregon City Scuba - Dive control specialist	1,999.98	11/12/2015	001-025-179000	
673	Oregon City Scuba - Tank	225.00	11/12/2015	001-025-184000	
	Check Total:	2,224.98			
Vendor: 05986	Oregon Fire Chiefs Assoc.			Check Sequence: 66	ACH Enabled: False
200002102	OR Fire Chiefs - Memberships	425.00	11/12/2015	001-025-176500	
	Check Total:	425.00			
Vendor: 06030	Oregon, State of			Check Sequence: 67	ACH Enabled: False
Shepherd	State of OR - Shepherd cross connect cert.	70.00	11/12/2015	004-004-404500	
	Check Total:	70.00			
Vendor: 06251A	Oregon, State of			Check Sequence: 68	ACH Enabled: False
60755-093015	DMV - driving records	3.00	11/12/2015	001-021-116500	
	Check Total:	3.00			
Vendor: 06346	Oregonian			Check Sequence: 69	ACH Enabled: False
1974874 102716	Oregonian - subscription	312.00	11/12/2015	001-029-227000	
4370839 0121	Oregonian - subscription	96.00	11/12/2015	001-024-161000	
	Check Total:	408.00			
Vendor: 06540	Pacific Northwest Telco, Inc.			Check Sequence: 70	ACH Enabled: False
04-19086	Pacific NW Telco - Service charge	152.50	11/12/2015	001-029-226000	
	Check Total:	152.50			
Vendor: 06586	Pacific Office Automation Inc			Check Sequence: 71	ACH Enabled: False
812757	Pacific Ofc Auto - copier usage	47.32	11/12/2015	001-024-156500	
	Check Total:	47.32			
Vendor: 06640	Paramount Pest Control Inc			Check Sequence: 72	ACH Enabled: False
83325	Paramount Pest Control	54.00	11/12/2015	001-021-110500	
	Check Total:	54.00			

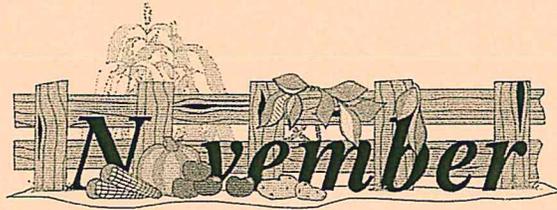
Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 06825 4652	Perkins Law Office, LLC Perkins Legal - Pro tem Judge	12.00	11/12/2015	Check Sequence: 73 001-022-125500	ACH Enabled: False
	Check Total:	12.00			
Vendor: 07482	Pitney Bowes			Check Sequence: 74	ACH Enabled: False
35861780	Pitney Bowes - Postage	7.99	11/12/2015	001-025-173500	
35861780	Pitney Bowes - Postage	230.37	11/12/2015	004-004-403000	
35861780	Pitney Bowes - Postage	208.56	11/12/2015	001-021-113000	
35861780	Pitney Bowes - Postage	0.48	11/12/2015	001-029-225500	
35861780	Pitney Bowes - Postage	474.35	11/12/2015	001-022-125000	
35861780	Pitney Bowes - Postage	167.25	11/12/2015	001-024-157000	
	Check Total:	1,089.00			
Vendor: 07021	Portland General Electric			Check Sequence: 75	ACH Enabled: False
PGE Oct 2015	PGE - October 2015	584.18	11/12/2015	001-028-213500	
PGE Oct 2015	PGE - October 2015	1,800.67	11/12/2015	001-029-224500	
PGE Oct 2015	PGE - October 2015	42.91	11/12/2015	003-003-302500	
PGE Oct 2015	PGE - October 2015	1,283.95	11/12/2015	004-004-406000	
PGE Oct 2015	PGE - October 2015	327.62	11/12/2015	005-005-507000	
PGE Oct 2015	PGE - October 2015	548.63	11/12/2015	005-005-508000	
PGE Oct 2015	PGE - October 2015	475.63	11/12/2015	001-026-193500	
PGE Oct 2015	PGE - October 2015	614.11	11/12/2015	001-025-177500	
PGE Oct 2015	PGE - October 2015	750.85	11/12/2015	001-021-109500	
PGE Oct 2015	PGE - October 2015	179.01	11/12/2015	001-024-161000	
	Check Total:	6,607.56			
Vendor: 07023	Portland General Electric			Check Sequence: 76	ACH Enabled: False
321605	PGE - Streetlight cost	446.65	11/12/2015	005-005-506000	
321703	PGE - Streetlight cost	446.65	11/12/2015	005-005-506000	
	Check Total:	893.30			
Vendor: 07027	Portland Rehabilitation Center			Check Sequence: 77	ACH Enabled: False
88450	Portland Rehabilitation - janitorial	415.59	11/12/2015	001-021-110500	
88451	Portland Rehabilitation - janitorial	294.14	11/12/2015	001-025-176000	
	Check Total:	709.73			
Vendor: 07060M	Portland Windustrial Co			Check Sequence: 78	ACH Enabled: False
105533-00	Portland Windustrial - Materials	268.84	11/12/2015	003-003-303000	
105594-00	Portland Windustrial - Materials	1,013.60	11/12/2015	003-003-303000	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
105775-00	Portland Windustrial - Materials	1,097.33	11/12/2015	004-004-406500	
	Check Total:	2,379.77			
Vendor: 07198	Prothman			Check Sequence: 79	ACH Enabled: False
2015-5041	Prothman - Recruitment/Fire Chief	6,166.67	11/12/2015	001-021-116500	
2015-5056	Prothman - Recruitment/City Admin	6,166.67	11/12/2015	001-021-116500	
	Check Total:	12,333.34			
Vendor: 07280	Rackspace Email & Apps			Check Sequence: 80	ACH Enabled: False
3513196	Rackspace - email service	941.60	11/12/2015	001-021-115500	
	Check Total:	941.60			
Vendor: 07488S	RH Media Services LLC			Check Sequence: 81	ACH Enabled: False
80	RH Media - Oct 2015 Support/equipment	9,101.65	11/12/2015	001-021-115500	
	Check Total:	9,101.65			
Vendor: 07510M	Ricoh USA Inc			Check Sequence: 82	ACH Enabled: False
95559461	Ricoh - Copier usage	147.24	11/12/2015	001-025-173500	
	Check Total:	147.24			
Vendor: 07674	Safety Vehicle Systems			Check Sequence: 83	ACH Enabled: False
1113	Safety Veh Syst - Service truck lights	3,200.08	11/12/2015	004-004-415000	
	Check Total:	3,200.08			
Vendor: 07717R	Satcom Global			Check Sequence: 84	ACH Enabled: False
AS10151186	Satcom Global -Iridium SIM Card	42.75	11/12/2015	001-024-164000	
	Check Total:	42.75			
Vendor: 07728	Scholastic Book Fairs			Check Sequence: 85	ACH Enabled: False
11861651	Scholastic - New books	1,267.75	11/12/2015	001-029-229500	
	Check Total:	1,267.75			
Vendor: 07780	SeaWestern			Check Sequence: 86	ACH Enabled: False
187233	SeaWestern - Equipment	6,138.00	11/12/2015	001-025-181700	
	Check Total:	6,138.00			

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 07873	ServiceMaster of Oregon			Check Sequence: 87	ACH Enabled: False
156599	ServiceMaster - janitorial	1,035.00	11/12/2015	001-029-228000	
156762	ServiceMaster - janitorial	365.62	11/12/2015	001-029-228000	
	Check Total:	1,400.62			
Vendor: 07901S	Shred-it USA LLC			Check Sequence: 88	ACH Enabled: False
9407699909	Shred-It	94.04	11/12/2015	001-024-161000	
	Check Total:	94.04			
Vendor: 07905	Sierra Springs			Check Sequence: 89	ACH Enabled: False
5338633 101215	Sierra Springs - Water	98.12	11/12/2015	001-024-161000	
	Check Total:	98.12			
Vendor: 07970	Six States Distributors Inc			Check Sequence: 90	ACH Enabled: False
08 671086	Six States - Back-up light	47.72	11/12/2015	001-025-173000	
	Check Total:	47.72			
Vendor: 08128	Gabe Stalker			Check Sequence: 91	ACH Enabled: False
Stalker	Gabe Stalker - Conf reimbursement	275.00	11/12/2015	001-025-175000	
	Check Total:	275.00			
Vendor: 08137	Stark Street Lawn and			Check Sequence: 92	ACH Enabled: False
931100	Stark St Lawn - Oil	13.75	11/12/2015	001-025-175500	
	Check Total:	13.75			
Vendor: 08205	Stein Oil Co. Inc.			Check Sequence: 93	ACH Enabled: False
CL11983	Stein Oil - Gasoline	221.32	11/12/2015	001-024-155000	
CL12046	Stein Oil - Gasoline	1,023.81	11/12/2015	001-024-155000	
	Check Total:	1,245.13			
Vendor: 08371	Scott Tabor			Check Sequence: 94	ACH Enabled: False
Tabor reimb	Tabor reimbursement - Hadronex SmartRain	96.00	11/12/2015	003-003-303000	
	Check Total:	96.00			
Vendor: 08465	Tigard Sand & Gravel			Check Sequence: 95	ACH Enabled: False
186579	Tigard Sand & Gravel - materials	930.21	11/12/2015	003-003-303000	
186876	Tigard Sand & Gravel - materials	928.53	11/12/2015	003-003-303000	

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 08476 2106	Check Total: Timberline Development Timberline Dev - Repairs 6975 Monticello	1,858.74 3,910.50	11/12/2015	Check Sequence: 96 003-003-303000	ACH Enabled: False
Vendor: 08530 82042 82692	Check Total: Top Industrial Supply TOP Industrial - Parts TOP Industrial - Hose	3,910.50 18.96 238.37	11/12/2015 11/12/2015 11/12/2015	Check Sequence: 97 005-005-504500 004-004-406500	ACH Enabled: False
Vendor: 08566 100159	Check Total: Traffic Safety Supply Co. Inc. Traffic Safety Supply - Supplies	257.33 5,193.00	11/12/2015	Check Sequence: 98 001-026-194000	ACH Enabled: False
Vendor: 08652 571352 571353	Check Total: Tualatin Valley Fire & Rescue Tualatin Valley - Fleet Maintenance Tualatin Valley - Fleet Maint Services	5,193.00 2,221.50 2,221.50	11/12/2015 11/12/2015	Check Sequence: 99 001-025-173000 001-025-173000	ACH Enabled: False
Vendor: 02915 November 2015 November 2015	Check Total: Union Security Insurance Sept 2015 life insurance Nov 2015 life insurance	4,443.00 96.86 2.01	11/12/2015 11/12/2015	Check Sequence: 100 001-025-177000 001-024-160000	ACH Enabled: False
Vendor: 08799 772160 773157 777788	Check Total: USA Blue Book USA BlueBook - Hydrant relief valve USA BlueBook - Universal Feed Tapper USA BlueBook - Supplies	98.87 1,445.11 2,445.24 867.75	11/12/2015 11/12/2015 11/12/2015	Check Sequence: 101 004-004-406500 004-004-406500 004-004-406500	ACH Enabled: False
Vendor: 08943C 8134-00012 1019 8134-00013 1019 8134-00017 1019 8134-00018 1019 9492-00001 1023	Check Total: Verizon Verizon - Phone svc Verizon - Phone svc Verizon - Phone svc Verizon - Phone svc Verizon - Phone svc	4,758.10 267.40 161.80 40.01 409.49 89.01	11/12/2015 11/12/2015 11/12/2015 11/12/2015 11/12/2015	Check Sequence: 102 001-024-164000 001-024-164000 005-005-507000 001-024-164000 005-005-507000	ACH Enabled: False

Invoice No	Description	Amount	Payment Date	Acct Number	Reference
Vendor: 08983 1506	Check Total: Vision Marketing Vision Mktg - Name tags	967.71 112.35	11/12/2015	Check Sequence: 103 001-025-175500	ACH Enabled: False
Vendor: 08995 Voss reimb	Check Total: Kevin Voss Voss reimbursement - Training	112.35 20.24	11/12/2015	Check Sequence: 104 001-024-158700	ACH Enabled: False
Vendor: 09257 38360 38377	Check Total: Willamette Valley Printing Inc Willamette Printing - Bus Cards/Turner & Johns Willamette Printing - pmt agreements	20.24 170.00 160.00	11/12/2015 11/12/2015	Check Sequence: 105 001-021-111500 001-022-125000	ACH Enabled: False
Vendor: 09281T 44844	Check Total: Wilsonville Lock & Security Wilsonville Lock - Service call	330.00 103.00	11/12/2015	Check Sequence: 106 005-005-507000	ACH Enabled: False
Vendor: 09286 3277 3323	Check Total: Wire Works LLC Wire Works - MDT Swap outs X3 Labor/mat Wire Works - Docking Station Labor/mat	103.00 285.00 404.00	11/12/2015 11/12/2015	Check Sequence: 107 001-025-179500 001-024-155000	ACH Enabled: False
	Check Total:	689.00			
	Total for Check Run:	306,177.40			
	Total of Number of Checks:	107			



REGULAR AGENDA

City of Gladstone Staff Report

Report Date: November 2nd, 2015
Meeting Date: November 10th, 2015
To: Gladstone City Council
From: Ross Schultz

SUBJECT: Bulkhead/Dahl Beach Restoration Partnership Opportunity with the Port of Portland

PROJECT PROPOSAL

The Port of Portland (Port) Bulkhead/Dahl Beach restoration project at Meldrum Bar Park includes two restoration sites:

- Removal of the failed Bulkhead, stabilization and restoration of the adjacent riverbank, and
- Partial removal of the lower Dahl Beach parking lot asphalt and restoration of the riverbank.

The two restoration sites are part of a package proposed by the City of Gladstone (City) and Port designed to address City priorities and Port Terminal 4 clean-up mitigation requirements.

The Bulkhead was constructed as part of a logging operation sometime in the 1950s, fell out of use, and ultimately failed in 2005/2006, apparently due to the undermining of the sheet piles from the Willamette River. The bulkhead has created localized bank erosion and degraded channel habitat conditions. In addition, it is a public safety hazard. The restoration project would remove the existing failed bulkhead structure from City and Department of State Lands (DSL) property, including all riprap and sheet piles, lay back and grade the bank to a more natural and stable riverbank, and plant native trees and shrubs on the riverbank.

Development of the lower Dahl Beach parking lot appears to have begun in 1980. By 1998, the parking lot was paved and appeared much as it does today. The restoration project would remove part of the lower parking lot, including concrete and riprap. Approximately one-third of the lower parking lot would be retained with an estimated 8 to 10 spaces (9 feet by 18 feet). Parking space in the upper lot would remain. The bank would be graded to a more natural and stable riverbank and native trees and shrubs would be planted and established.

The Port would cover all restoration construction cost, including City direct staff costs and site access compensation. Removal of all debris would be off-site and included in the construction costs. The Port would be responsible for construction contingency costs and maintenance and monitoring until both sites are fully established.

The Port has completed a preliminary design (30% level) for the restoration project based on available information and a number of studies (i.e., topographic and bathymetric surveys, geotechnical analysis, geomorphic analysis, reference site reconnaissance, and historical aerial photo review). The Port design considers input from the City and public safety factors in addition to habitat restoration. For City Council's reference, a Port memorandum, *Dahl Beach* –

Bulkhead Mitigation Project: Technical Information and Basis for the Preliminary Design, October 30, 2015 providing details on the preliminary design and assessments conducted is attached.

BACKGROUND ON PROJECT PROPOSAL

Discussions with the City on the restoration project were first initiated in November 2014 with City Administrator Pete Boyce by Falling Springs, on behalf of the Port. The Port was working with a number of organizations such as Falling Springs to assist them in identifying restoration partnership opportunities. The original proposal assumed removal of the entire lower parking area at Dahl Beach and did not include the Bulkhead area.

The Bulkhead was identified as a City priority in restoration planning meetings held in March 2015 with Mayor Jacobellis, Planning Commission Chair Tammy Stempel, and other City staff (Info provided by Tammy Stempel - CITY confirmation through Scott Tabor/Tammy Stempel). Based on feedback from City staff in April 2015, the Port modified the project proposal to minimize parking impacts at Dahl Beach and include removal of the bulkhead and restoration of the riverbank. On June 9, 2015, City Council and the Parks and Recreation Advisory Committee reviewed the Port's conceptual proposal and directed City staff to work on next steps and provide more detail on the conceptual restoration plans.

PARTNERSHIP OPPORTUNITY

The Bulkhead/Dahl Beach restoration project is designed to address both City and Port priorities. The City needs to address public safety hazard and overall liability associated with the bulkhead and address stormwater and maintenance issues associated with the lower parking area at Dahl Beach. The partnership with the Port affords the City the opportunity to address City issues at no financial cost to the City. No alternative funding for removal of the bulkhead from City and Department of State Lands property has been identified. The project also provides the acreage and type of salmon habitat restoration required to address the Port's Terminal 4 clean-up regulatory requirements.

Under this partnership, the Port would:

- Conduct all project activities:
 - Bulkhead removal, regrade, replant;
 - Partial parking lot removal, regrade, replant, storm water improvements; and
 - Conduct maintenance, replanting, and other efforts necessary to ensure the project is performing as intended for a period of at least 5 years.
- Fund all associated restoration project costs, including direct City staff costs and site access compensation.

Under this partnership, the City would:

- Provide access and right of entry to both restoration sites;
- Support the permitting requirements for the project; and
- Agree to maintain the two sites as a natural area/park through a deed restriction for these sites. (Note: Since these sites flood during winter river flows, the areas are already regulated and protected by state and federal agencies.).

BENEFIT IMPACT ANALYSIS

Benefits

The benefits to the City are:

- Addresses the public safety hazard by removing the metal sheet pile bulkhead. The bulkhead is an attractive nuisance which creates potential liabilities for the City.
- Remedies steep, unstable riverbanks adjacent to the bulkhead that will continue to erode if not fixed; and could over time threaten the top of the bank.
 - A geotechnical assessment to evaluate the stability of bank as part of the Port's preliminary design (Attached) found that "*The slopes are only marginally stable and a destabilizing event could trigger a slope failure which could worsen the public safety hazard, including impacting top of bank.*" An example of a *destabilizing event* would be a normal winter high flow. This assessment was conducted by a geotechnical firm Hart Crowser.
 - A slope failure could result in substantial loss of City property, including portions of the parking area at the top of bank.
- Resolves potential City liabilities as the City likely would be required by state or federal agencies to remove the bulkhead structure.
 - Scott Tabor and Tammy Stempel recently indicated that DSL requested the City address the bulkhead structure several years ago. We are working to confirm this directly with DSL staff and will provide more information at Council on November 10, if available.
 - In evaluating Oregon Administrative Rules related to structures on state-owned submerged and/or submersible DSL property, we have learned that DSL would look to the adjacent property owner to address this issue including the financial obligations (OAR 141-082-0310). Specifically, the rule states that "*The Department may require the owner of an unauthorized structure on state-owned submerged and/or submersible land to remove it at their own expense.*"
- To date, City staff has not identified an alternative funding source for removing the bulkhead and it generally does not qualify for typical habitat restoration grants.
- Removing a portion of the lower parking area will provide the City with a reduction in impervious surface and stormwater runoff that can help meet the City's Department of Environmental Quality stormwater management requirements, Reducing the parking area, which floods annually, will help to minimize City maintenance related to flooding.
- Other benefits:
 - The two restoration sites are located near the confluence of the Clackamas and Willamette Rivers. Restoration will provide critical fish and wildlife habitat and further demonstrates the City's environmental stewardship in the Park.
 - Improving habitat and native vegetation at the two sites will improve the environment, while also enhancing the Park's safety and reducing long-term maintenance.

Impacts

The impact to the City and its residents are:

- Loss of parking spaces at the lower parking lot at Dahl Beach. Fishing access would still be available with the remaining lower parking lot and parking spaces available in the upper parking lot.
- Approximately 2,900 square feet of asphalt will need to be removed from the parking lot above the Bulkhead structure with stabilization of the riverbank. As a result, a small amount of the upper parking area near the vertical riverbank also will be eliminated. This parking area is already in jeopardy and impacts are anticipated to be minimal.

FINANCIAL ANALYSIS

There is no financial obligation to the City under this partnership. The Port will be responsible for all the costs associated with the restoration project. This includes:

- \$460,000 estimated for total construction cost assuming no contingencies, of which \$325,000 is associated with the Bulkhead removal and \$15,000 in Dahl Beach stormwater improvements.
- Payment to City for direct staff costs associated with project estimated at \$15,000.
- Payment of \$20,000 to City for right-of-entry to implement the project with City discretion on payment use. For example, the compensation could be used to cover a portion of the costs for a Parks Master Plan estimated by staff at \$50,000-\$60,000.
- The total cost for all project elements is \$480,000 (not including construction contingency costs and maintenance and monitoring until both sites are fully established).

In addition, the Port's assumption of the City's liability associated with removal of the Bulkhead represents a direct savings to the City for planning, design, and construction costs associated with the Bulkhead removal and Dahl Beach stormwater improvements. These savings amount to \$420,000 (\$340,000 and a standard 20 percent contingency for a construction project of this scope and size).

It is worth noting that the Port's initial restoration project proposal for Dahl Beach would have construction cost at approximately \$250,000. The new Bulkhead/Dahl Beach proposal represents nearly a 50% increase in the cost. According to Port staff, these project costs are approaching the upper bounds of a typical mitigation project on a percentage basis.

STAKEHOLDERS

- City of Gladstone and residents taxpayers
- Gladstone Parks and Recreation Committee and park users
- Fishing community (Staff is currently reviewing groups to participate)
- Environmental community (Clackamas River Basin Council)

PUBLIC OUTREACH

- June 9, 2015: Joint Council and Parks and Recreation Advisory Committee hearing
- October 7, 2015: Notice of upcoming public hearing in Clackamas Review
- October 13, 2015: City Council and public hearing – Testimony from public supportive of the project.
- October 26, 2015: Parks and Recreation Advisory Committee meeting – Voted 4-2 in support of the Bulkhead/Dahl Beach restoration project.
- November 4, 2015: Notice of upcoming public hearing in Clackamas Review
- Oct. 27th, 2015: Posting of upcoming public hearing in Meldrum Park.
- November 10, 2015: City Council and public hearing

OVERALL PROJECT TIMELINE

The following is an overall project timeframe to meet a 2016 construction for this project:

- October 2015: Complete relevant studies and 30 percent design
- November 2015: Decision by Council
- December 2016: Complete intergovernmental agreement between the City and Port formalizing the commitments outlined above
- January 2016: Complete 60 percent design and submit permit applications to local, state, and federal agencies to meet 2016 construction window
- February 2016: Complete 100 percent design

- March-June 2016: Construction planning
- July-August 2016: Construction and implementation
- August 2016 – December 2021 (or until performing as intended): Maintenance and monitoring

REQUEST FOR COUNCIL ACTION

Following the second public hearing on November 10, 2015 and third Council discussion, City staff requests that City Council vote on the resolution on the Bulkhead/Dahl Beach restoration project resolution presented by staff on October 27, 2015.

Attachment

- Port of Portland Memorandum, *Dahl Beach – Bulkhead Mitigation Project: Technical Information and Basis for the Preliminary Design*, October 30, 2015.
- Dahl Beach Mitigation Project, October 27th, 2015
- Dahl Beach Mitigation Project, October 12th, 2015

Ross E. Schully 11/2/2015

RESOLUTION NO. 1067

CITY OF GLADSTONE, OREGON

A Resolution Authorizing the City Administrator to Negotiate an Intergovernmental Agreement with the Port of Portland for Restoration of the Dahl Beach and Bulkhead Sites in Meldrum Park

WHEREAS, the City of Gladstone has identified public benefits that may be achieved from the Port of Portland's proposal to restore two shoreline sites in Meldrum Park – Dahl Beach and Bulkhead.

WHEREAS, the Gladstone City Council held a joint work session with the Gladstone Parks and Recreation Advisory Committee on June 9, 2015 to discuss the Port of Portland's shoreline restoration project.

WHEREAS, restoration at these two sites is designed to address both City of Gladstone (City) and Port of Portland (Port) priorities.

WHEREAS, the partnership between the City and Port offers a unique opportunity to provide resources to implement Park infrastructure improvements and remove the bulkhead at no cost to the City. The Bulkhead removal is expensive and does not qualify for any typical habitat restoration grant funding sources.

WHEREAS, restoring the shoreline, habitat and native vegetation at the two sites in Meldrum Park will improve fish and wildlife habitat, enhance the Park's safety, and reduce City long-term liabilities and maintenance costs.

WHEREAS, the Bulkhead removal will stabilize an area that has steep, unstable slopes; will continue to erode if not fixed; and could over time threaten the top of bank area including the parking area. The current steep slopes and metal structures are an attractive nuisance which creates potential liabilities for the City. The project will address the public safety hazard by removing the metal structures and improving the steep, unstable slopes.

WHEREAS, ecological restoration at the Dahl Beach site will improve fish and wildlife habitat while still providing parking and recreational access. Removing a portion of the lower parking area will provide the City with a reduction in impervious surface and stormwater run-off that can help meet the City's Oregon Department of Environmental Quality stormwater management requirements. It will also help minimize City maintenance related to seasonal flooding of the parking area that potentially is at risk of long term erosion.

WHEREAS, the Port's restoration proposal to the City will fulfill the Port's habitat restoration requirements associated with the Terminal 4 cleanup in the Portland Harbor Superfund site, while supporting the City's goals and objectives. The two restoration sites combined provide the necessary area and type of habitat function required by regulatory requirements.

WHEREAS, the Gladstone Council directed City staff at their June 9, 2015 meeting to provide details and next steps associated with the restoration project.

WHEREAS, at a public meeting on October 13, 2015, and November 10th, the Port presented the cost and details associated with the restoration proposal and received feedback from the City Council and residents on the proposal.

WHEREAS, the Port will cover the full costs of the restoration. The current total construction cost of the project is estimated at \$460,000 without contingencies. In addition, Port will cover direct City staff costs related to the project and compensation for site access, estimated at \$35,000.

WHEREAS, the Port will be responsible for the maintenance and monitoring requirements of the sites until both sites meet agency regulatory approval.

WHEREAS, City of Gladstone will commit through a deed restriction to keeping the use of these sites consistent with their restoration as natural habitat.

NOW, THEREFORE, BE IT RESOLVED, the Gladstone City Council hereby determines that the Port's restoration proposal has merit and directs the City Administrator, or the Interim City Administrator, to act on behalf of the City under this resolution to negotiate an agreement with the Port based on the terms presented to Council on November 10, 2015.

Effective Date. This resolution is effective immediately upon adoption by the City Council.

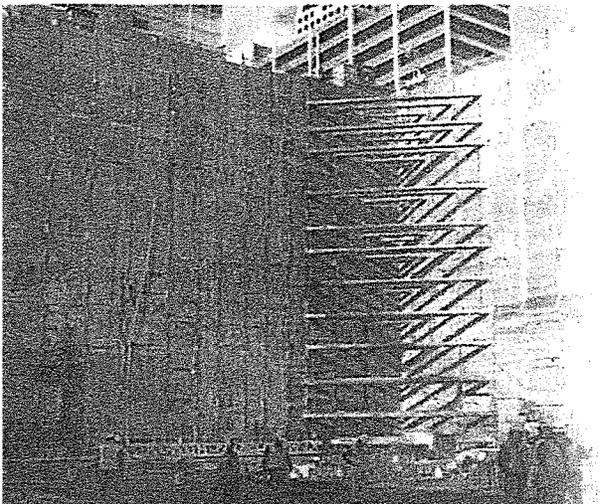
ADOPTED this 10th day of November, 2015

City of Gladstone, Oregon

ATTEST:

Dominick Jacobellis, Mayor

Jolene Morishita, Assistant City Administrator



Report of Geotechnical
Engineering Services

**Dahl Beach Mitigation
Project
Gladstone, Oregon**

Prepared for
Cascade Environmental Group

October 27, 2015
15984-03



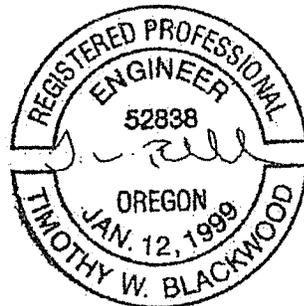
HARTCROWSER

Report of Geotechnical Engineering Services
Dahl Beach Mitigation Project
Gladstone, Oregon

Prepared for
Cascade Environmental Group

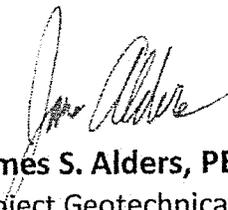
October 27, 2015
15984-03

Prepared by
Hart Crowser, Inc.



EXPIRES 12/31/2015

Timothy W. Blackwood, PE, GE, CEG
Principal, Geotechnical Engineer


James S. Alders, PE
Project Geotechnical Engineer

Contents

1.0 INTRODUCTION	1
2.0 SCOPE OF SERVICES	1
3.0 SITE CONDITIONS	2
3.1 Surface Conditions	2
3.2 Geologic and Soil Mapping	3
3.3 Subsurface Conditions	3
3.3.1 General	3
3.3.2 Soil Conditions	4
3.3.3 Groundwater	4
4.0 SLOPE STABILITY ANALYSIS FOR BULKHEAD REMOVAL SITE	4
4.1 General	4
5.0 CONCLUSIONS	6
6.0 EARTHWORK RECOMMENDATIONS	7
6.1 Demolition	7
6.2 Stripping and Subgrade Preparation	8
6.3 Excavation	8
6.4 Structural Fill Placement	8
7.0 CONSTRUCTION OBSERVATION	10
8.0 LIMITATIONS	10
9.0 REFERENCES	11

TABLES

1	Soil Properties Used in Stability Analyses	5
2	Stability Analysis Results for Existing and Regraded Geometry Section A-A'	6
3	Guidelines for Uncompacted Lift Thickness	9

FIGURES

1	Vicinity Map
2	Bulkhead Removal Site Plan
3	Parking Lot Site Plan

APPENDIX A

Field Explorations Methods and Analysis

APPENDIX B

Slope Stability Analysis

Report of Geotechnical Engineering Services
Dahl Beach Mitigation Project
Gladstone, Oregon

1.0 INTRODUCTION

Hart Crowser, Inc., is pleased to submit our report of geotechnical engineering services for the Dahl Beach Mitigation project in Gladstone, Oregon. Our work was completed in general accordance with our July 10, 2015 proposal, which detailed our scope and fee.

The project includes rehabilitation of the shoreline at two locations along the Willamette River and Clackamas River waterfronts, referred to as the Bulkhead Removal and Parking Lot Sites in this report. The Bulkhead Removal Site consists of a derelict sheet pile bulkhead on the east shore of the Willamette River approximately 900 feet downriver from its confluence with the Clackamas River. Based on our review of available aerial photography, it appears the bulkhead experienced a catastrophic failure during the winter of 2005/2006. We understand the sheet piles will be removed and the site will be regraded to better reflect a more natural river shore. We understand the regrading will consist mainly of cuts; however, one small fill is planned near the toe of the bulkhead. The Parking Lot Site consists of an existing asphalt paved parking lot located on the northeast shore of the Willamette/Clackamas River confluence. We understand the approximate western half of the parking lot will be demolished and the site will be regraded to better reflect a more natural river shore landscape.

This report contains the results of our analysis and provides recommendations for geotechnical design and construction for the two sites. The report is organized into several sections. The first section provides an overview of the project information discussed in the text. The main body of the report presents our geotechnical engineering findings and recommendations in detail. Figures are presented at the end of the text. The locations of the project sites are shown on Figure 1, the layout showing existing conditions at the Bulkhead Removal Site is shown on Figure 2, and the layout showing existing conditions at the Parking Lot Site is shown on Figure 3. Supporting information is included in the appendices. Appendix A contains subsurface exploration logs, and Appendix B contains the results of our slope stability modeling.

2.0 SCOPE OF SERVICES

The purpose of our work was to evaluate soils at both sites and provide earthwork recommendations for the sites, with an emphasis on final slope conditions. Our specific scope of work was detailed in our proposal and generally included the following tasks.

- Reviewed existing published geotechnical information and geologic maps that covered the site and vicinity.
- Advanced three borings to depths ranging from 11.5 to 31.0 feet below ground surface (bgs).

- Conducted a program of laboratory testing on select soil samples.
- Completed engineering analysis to evaluate the effects of removing the sheet piles at the bulkhead site and to develop earthwork recommendations.
- Prepared this draft report outlining our findings and recommendations, including information related to the following:
 - Subsurface soil and groundwater conditions,
 - Site preparation and grading,
 - The results of our slope stability modeling at the Bulkhead Removal site, and
 - Bulkhead removal recommendations.
- Provided project management and support services, including coordinating staff and subcontractors and conducting telephone consultations and email communications with the design team.

3.0 SITE CONDITIONS

3.1 Surface Conditions

Ground surface elevations are referenced to the NAVD 88 vertical datum.

Bulkhead Removal Site: The Bulkhead Removal Site is bound by the Willamette River on the southwest, beaches on the northwest and southeast, and Dahl Park Road on the northeast. A derelict ruptured sheet pile bulkhead is present in two pieces extending into the river. The bulkhead was originally oriented approximately northwest-southeast prior to failure. Several steel-braided cables extend into the slope behind the wall. An abandoned concrete wall, or possibly a strip footing, is present at the crest of the slope on the west border of the parking lot. The concrete wall/footing is flush to the adjacent parking lot asphalt and appears to be a part of a demolished structure formerly present at the site. The concrete wall/footing is underpinned by a steel sheetpile bulkhead extending approximately 30 feet beyond the intersection of the ruptured bulkhead and the parking lot. The natural slopes surrounding the site are vegetated with large shrubs, tall grasses, and several mature trees.

The site varies significantly in elevation moving from east at the crest of the slope to west in the riverbed. The ground surface varies from an average of elevation -7 feet in the river to elevation 42 feet at the crest of the slope. A bathymetry survey completed for the project indicates a scour hole approximately 50 feet in diameter and approximately 6 feet deeper than the surrounding riverbed near the toe of the wall. The ground surface behind the crest of the slope is generally flat at approximate average elevation 42 feet. The ground surface immediately behind the wall has sloughed back to an approximate 1.5 horizontal to 1 vertical (1.5H:1V) slope. An approximately 10-foot-tall, near-vertical terrace is present behind the wall just below the slope crest. Natural and riverbed slopes surrounding the site lie at slopes of up to a 1.5H:1V grade.

Parking Lot Site: The Parking Lot Site is bound by the rivers on south and west, and parking lots on the east and north. A riprap-protected slope lies below the parking lot. The natural slopes surrounding the site are vegetated with large shrubs, tall grasses, and several mature trees.

The ground surface is relatively level in the parking area, with an average elevation of 21 feet. Two approximately 30- to 40-foot-wide driveways, lying at an approximately 5H:1V slope, connect the lower parking lot project area to another parking lot above the site. The ground surface at the top of the driveways is at elevation 30 feet. The riprap-protected slope below the parking lot project area, and natural slopes northwest of it, lie at an approximate 2H:1V grade. Riverbank slopes below the riprap slope are relatively shallow lying at about 6H:1V.

3.2 Geologic and Soil Mapping

The geology of the site was mapped by the Oregon Department of Geology and Mineral Industries Geological Map of the Oregon City 7.5' Quadrangle, Clackamas County, Oregon (Madin 2009). The map indicates the site is underlain by Quaternary alluvial and terrace gravel, sand, silt, and clay deposits overlying Tertiary Columbia River Basalt (CRB). Site explorations encountered materials consistent with the geologic mapping, with the exception that CRB was not encountered.

The near-surface soils at the site are mapped by the U.S. Department of Agriculture (USDA) as found on the Web Soil Survey website (USDA 2006). The Web Soil Survey indicates that Camas Gravelly Sandy Loam is mapped at the Bulkhead Removal Site and Riverwash is mapped at the Parking Lot Site. Camas soil is described as excessively drained alluvium formed on stream floodplains. Permeability of the soil is listed as high (2 to 6 inches/hour). Riverwash soil is described as well-drained alluvium formed on stream floodplains. Permeability of the Riverwash soil is not provided. The Web Soil Survey indicates the Riverwash unit is frequently flooded.

3.3 Subsurface Conditions

3.3.1 General

Soil conditions interpreted from geologic maps and our explorations, in conjunction with soil properties inferred from field observations and laboratory tests, formed the basis for the conclusions and recommendations in this report. Appendix A describes our field exploration procedures and presents field data and logs.

We completed explorations at the site by advancing three borings, designated B-1A, B-1B, and B-2, to depths between 11.5 and 31.0 feet bgs on July 30, 2015. Borings B-1A and B-1B were completed at the Bulkhead Removal Site, while boring B-2 was completed at the Parking Lot Site. It should be noted that boring B-1B was completed when the drilling subcontractor accidentally dropped a steel sampler into boring B-1A at a depth of 20 feet, above the intended boring depth, blocking completion of boring B-1A. Therefore, boring B-1B was completed approximately 10 feet north of boring B-1A to the intended depth of 31.0 feet. The boring locations are shown on Figures 2 and 3.

Descriptions of the subsurface conditions encountered at the two sites are provided below.

6-14

3.3.2 Soil Conditions

Bulkhead Removal Site

Approximately 3.5 inches of asphalt pavement was encountered at the ground surface in borings B-1A and B-1B. Gravel, cobbles, and boulders were encountered underlying the asphalt in borings B-1A and B-1B, extending to the maximum depth explored. The gravel, cobbles, and boulders contain varying sand content ranging from approximately 20 to 30 percent and varying silt content from 5 to 10 percent. Based on Standard Penetration Test (SPT) blow counts, the relative density of the gravel, cobbles, and boulders ranges from medium dense to very dense, but is more typically dense to very dense. An approximately 3-foot-thick silty sand lens was encountered in the gravel, cobbles, and boulders soil unit at a depth of approximately 14 feet bgs. Based on SPT blow counts, the relative density of the silty sand is medium dense.

Parking Lot Site

Approximately 3 inches of asphalt pavement was encountered at the ground surface in boring B-2 underlain by approximately 4 inches of crushed aggregate base fill. Gravel, cobbles, and boulders were encountered underlying the asphalt and aggregate base in Boring B-2, extending to the maximum depth explored. The gravel, cobbles, and boulders are sandy with fine to coarse sand and contain trace silt. Based on SPT blow counts, the relative density of the gravel, cobbles, and boulders ranges from loose to dense.

Limitations

The subsurface information used for this study represents conditions at discrete locations across the project sites. Actual conditions in other areas could vary. The nature and extent of any variations in subsurface conditions may not become evident until construction begins. If significant variations are observed at that time, we may need to modify our conclusions and recommendations accordingly to reflect actual site conditions.

3.3.3 Groundwater

Groundwater was not encountered in the borings completed at the site. We anticipate groundwater will closely follow the nearby Willamette River and Clackamas River levels and could approach the ground surface during flooding events.

4.0 SLOPE STABILITY ANALYSIS FOR BULKHEAD REMOVAL SITE

4.1 General

We completed slope stability analyses at the Bulkhead Removal site in the approximate location of Cross Section A-A' as shown on Figure 2. Soil properties used in the analyses were estimated from testing of similar soils from other projects we have completed and from our experience with similar soils. The cross sectional surface geometry was based on a topographic survey completed by Waterways Consulting, Inc. Subsurface stratigraphy was interpreted from our borings and our observations of soils exposed in the site slopes. We evaluated the stability of the existing slopes in

their current geometry with varying water levels from elevation 42 feet to elevation 15 feet. We re-evaluated the slopes with new geometry to develop a recommendation for final gradients that would achieve a satisfactorily stable slope and prevent excessive cuts and fill. The soil parameters used in our analysis are shown in Table 1.

Table 1 – Soil Properties Used in Stability Analyses

Soil Unit	Friction Angle (Degrees)	Cohesion (psf)	Moist Unit Weight (pcf)
Sand	32	0	115
Gravel, Cobbles, and Boulders	36	15	130

Notes: psf = pounds per square foot • pcf = pounds per cubic foot

The soil parameters and subsurface stratigraphy were determined as noted above. However, the parameters were modified within a reasonable range of expected values to achieve a temporary stability for the slope in its current geometry.

Our analysis used the computer program SlopeW, which models the stability of the slope in terms of a factor of safety (FS) against sliding for a series of potential failure surfaces with different geometries. Potential failure surfaces were modeled as a rotational failure using the Spencer's Method of Slices, a derivation of the original method of slices. The Spencer method satisfies both moment and force equilibrium and accounts for both normal and shear forces acting between the slices. An FS value of 1.0 reflects a condition in which the resisting and driving forces along the failure surface are equal and a failure could occur if the resisting forces are reduced or the driving forces are increased. An increasing FS value presents a more stable slope and a decreasing FS a less stable slope. An FS value below 1.0 means the slope will theoretically fail, as the forces resisting failure are less than those driving it. For any given slope geometry, subsurface stratigraphy, and soil parameters modeled in the program, the lowest FS value calculated among all the failure surfaces is considered the *critical failure surface*.

Analysis figures are provided in Appendix B. The calculated FS values are shown in Table 2 for the critical failure surface in each condition prior to ("Existing") and after finish grading is complete ("Regraded"). Changes in FS due to the proposed cut would reflect changes in stability of the slope due to the grading. The results of our analyses show that the slopes in their current configurations are marginally stable. Therefore, if an external destabilizing influence occurs, such as a large surcharge load placed near the crest of the slope or scour at the toe of the slope, a slope failure would be likely. Our analyses have determined that a final slope angle of 2H:1V will be relatively stable under varying water levels of the adjacent rivers. It should be noted that regardless of final slope configuration, erosion will continue to act as a destabilizing influence. Some maintenance may be required to maintain the stability of the slope beyond this project. The level of maintenance will depend on the extent and severity of future erosion.

Table 2 –Stability Analysis Results for Existing and Regraded Geometry, Section A-A'

Condition	FS Value	Notes
Case 1: High Water Existing	1.07	Water at Elevation 42 feet
Case 2: High Water Regraded	1.53	Water at Elevation 42 feet
Case 3: Low Water Existing	1.03	Water at Elevation 15 feet
Case 4: Low Water Regraded	1.46	Water at Elevation 15 feet
Case 5: Ordinary High Water Existing	0.98	Water at Elevation 25 feet
Case 6: Ordinary High Water Regraded	1.37	Water at Elevation 25 feet

5.0 CONCLUSIONS

Our evaluations indicate the site is suitable for the proposed grading, provided the recommendations in this report are included in design and construction. Considerations for the design and construction of the fill include the following items.

- The results of our stability analyses indicate final cut and fill slope angles should not exceed 2H:1V.
- The small fill planned at the toe of the existing wall should be constructed as structural fill to provide sufficient slope stability. Based on our conversations with Cascade Environmental, we understand the fill material will consist of the gravel, cobbles, and boulders excavated from the cuts on site. Recommendations for the placement of site soils as structural fill are provided in following sections.
- One of the main objectives for the project at the Bulkhead Removal Site is to remove the existing steel sheet pile wall. It has been our experience that old sheet piles can be difficult to remove. Some construction delays and field modifications should be anticipated for this work.
- We did not encounter evidence of fill during our reconnaissance or subsurface explorations on site; however, we anticipate some undocumented fill will be present. Construction planning should anticipate the presence of fill within the zone of excavation.

We anticipate fill will consist of the gravel, cobbles, and boulders found on site. However, in our experience, fill often contains man-made objects, including construction debris (such as concrete, brick, steel, lumber, and other materials), organic materials (such as plants and wood), and in some cases general garbage. Fill consisting only of gravel, cobbles, and boulders soil will likely not be distinguishable from native soils and will be suitable for reuse as structural fill, provided the recommendations of *Section 6.4 – Structural Fill Placement* are followed. Fill containing debris similar to those indicated above may not be suitable for reuse as structural fill and should be evaluated by Hart Crowser prior to reuse.

The following sections of the report present our conclusions and recommendations for geotechnical aspects of the project. We developed our recommendations using our current understanding of the project and the subsurface conditions encountered during our site explorations. If the nature or location of the work is different than we have assumed, we should be notified so we can change or confirm our recommendations.

6.0 EARTHWORK RECOMMENDATIONS

Based on available information, the project consists of earthwork and demolition, including mainly cuts and one small fill to establish the recommended final slope angle.

All earthwork should be conducted in accordance with City of Gladstone Municipal Code Title 15.06 – Earthwork and Erosion Control Standards (City of Gladstone 2015) and the Oregon Standard Specifications for Construction (OSSC) (ODOT 2015). In the event of conflict between the two standards, the City of Gladstone Municipal Code should prevail. Specific recommendations for earthworks are provided in the following sections.

6.1 Demolition

Removal of the existing sheet pile walls may encounter difficulties, as the sheets may have become stuck together and the steel may have degraded over the years. Construction delays should be anticipated with regards to this. We understand that removal of the piles will be first attempted. However, if some sections of pile are not easily pulled free, the piles will be cut below finish grade and covered with on-site soils.

Based on the original wall configuration and our observations of steel cables protruding from the existing slope, we believe the wall was originally anchored by the cables to a buried deadman. It is unknown what type of deadman may be present; however, in our experience, deadmen typically consist of a set of steel sheet piles or large concrete block(s). The planned cut may daylight the deadman. We understand that if the deadman daylights in the cut, it will be cut back or broken up below final grade and covered with on-site soils.

Permanent construction debris, such as stuck sheet piles or the deadman, that are cut or broken up below final grade and covered with on-site soils should not pose a risk to the long-term stability of the slope, provided they are covered with structural fill as recommended later in this report. We recommend sheet piles be cut off and existing debris be removed to approximately 3 feet below final grade, and then backfilled with structural fill.

We understand recent reconnaissance of the site has revealed that the sheet pile wall extends along the crest of the slope approximately 30 feet northwest of the intersection of the crest and the sheets. Cuts are planned along this section of the slope to accommodate the recommended slope angle. We recommend the sheet piles along this section of wall be left in place, since they will increase the stability of the final slope configuration. The piles should be cut below final grade and covered with on-site soils as recommended above.

Materials generated during demolition of existing improvements should be transported off site for disposal or stockpiled in areas designated by the owner. In general, these materials will be suitable for reuse as engineered fill, provided they meet the specifications provided in *Section 6.4 - Structural Fill and Backfill* of this report.

6.2 Stripping and Subgrade Preparation

We understand one small fill is planned near the toe of the existing wall at the Bulkhead Removal Site. We recommend the fill be placed as structural fill so the soil provides the same level of shear resistance we assumed in our slope stability analysis. Prior to any filling, the fill area should be stripped of surficial organic material. No explorations were completed in the area of the fill; however, we anticipate the depth of stripping will be 8 to 12 inches. Actual stripping depths should be evaluated and modified as appropriate based on observations during stripping operations.

The suitability of the subgrade should be evaluated by a representative of Hart Crowser by probing with a foundation probe to identify any loose or unsuitable areas after stripping is complete. The evaluation should be conducted prior to placing fill. We anticipate that the subgrade will be loose granular material. If this is found to be the case, that subgrade will need to be compacted with several passes of a vibratory pneumatic smooth drum roller or heavy vibratory plate compactor, provided the material is near its optimum moisture. If soft silty subgrade is identified during subgrade excavation, these areas should be overexcavated to the extent indicated by Hart Crowser and replaced with structural fill as described in *Section 6.4 - Structural Fill and Backfill* of this report.

6.3 Excavation

Site soils within expected excavation depths generally consist of sandy gravel, cobbles, and boulders and silty sand. It is our opinion that conventional earthmoving equipment in proper working condition should be capable of making necessary general excavations for earthwork. The earthwork contractor should be responsible for providing equipment and following procedures as needed to excavate the site soils, as described in this report, while protecting the subgrade.

Temporary excavations are expected to be minimal for this project, including only those necessary for filling at the toe of the sheetpile wall and demolition of existing elements as noted previously in this report. Soils at the site are granular in nature and generally classify as Occupational Safety and Health Administration (OSHA) class C for purposes of excavation. The contractor should be responsible to ensure that all temporary excavations are completed in accordance with OSHA requirements, including maximum slope gradients, shoring or other measures to meet the requirements and provide for worker safety.

We recommend that permanent slopes not exceed 2H:1V to maintain the levels of stability as noted previously in this report. We recommend a setback from the top of the slope to the edge of any improvements, such as the parking lot, of 2 to 5 feet to provide some buffer for raveling and surface disturbance of the granular site soils.

6.4 Structural Fill Placement

All permanent fill placed on the site should be constructed as structural fill. Fill should only be placed over a subgrade that has been prepared in accordance with *Section 6.2 - Stripping and Subgrade Preparation* of this report. We understand that on-site soils from other portions of the project will be used as fill for the project. We recommend that the on-site sandy gravel soils be used as structural fill, provided they are free of debris, clay balls, roots, organic matter, frozen soil, man-made contaminants, and other deleterious materials. The

material should be generally well-graded and individual particles exceeding half the uncompacted lift thickness in size should be removed from the fill before placing it. In our opinion, structural fill constructed from this material should provide a comparable magnitude of shear resistance to the native soils encountered in our explorations, provided the recommendations below are used during construction.

- If the fill is placed on a slope steeper than 5H:1V, benches should be cut into the slope. An initial bench should be excavated at the toe of the existing slope with a minimum width of 5 feet and large enough to accommodate the compaction equipment to be used. The bench should be leveled flat prior to installation of the fill. The bench should extend into the existing slope a minimum of 3 feet. Additional benches should be cut into the hillslope every 3 vertical feet of fill placement that are a minimum of 3 feet wide.
- Place the fill in uniform horizontal lifts with a thickness appropriate for the material type and compaction equipment. Table 3 provides general guidance for uncompacted lift thicknesses. Boulders and cobbles were observed at the ground surface throughout the project site. In order to achieve proper compaction of the native materials, we recommend that oversized materials greater than half of the lift thickness be removed prior to placement of each lift. Lifts are typically 12 inches thick; therefore, we anticipate material larger than 6 inches will need to be removed.
- Do not place fill and backfill until the required tests and evaluation of the underlying materials have been made and the appropriate approvals have been obtained.
- Control the moisture content of the fill to ensure it can be compacted to a dense, well-keyed state. This will require that the fill is visibly moist, but not saturated. Hart Crowser shall confirm suitability of the moisture content during construction.
- Compact fill soils to a well-keyed dense state. Compaction should be verified by Hart Crowser staff through performance testing, such as probing and or other measures during construction of the fill.
- Fill slopes should be overbuilt by at least 12 inches and then trimmed back to the required slope to maintain a firm face.

Table 3 – Guidelines for Uncompacted Lift Thickness

Compaction Equipment	Guidelines for Uncompacted Lift Thickness (inches)		
	Fine-Grained Soil	Granular Soil and Crushed Rock (Maximum Size ≤ 1½ inch)	Crushed Rock (Maximum Size > 1½ inch)
Plate Compactors and Jumping Jacks	4 – 8	4 – 8	Not Recommended
Rubber-Tire Equipment	6 – 8	10 – 12	6 – 8
Light Roller	8 – 10	10 – 12	8 – 10
Heavy Roller	10 – 12	12 – 18	12 – 16
Hoe Pack Equipment	12 – 16	18 – 24	12 – 16

Note: The above table is based on our experience and is intended to serve as a guideline. The information provided in this table should not be included in the project specifications.

7.0 CONSTRUCTION OBSERVATION

Satisfactory earthwork performance depends to a large degree on quality of construction. Sufficient monitoring of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during subsurface explorations. Recognition of changed conditions often requires experience; therefore, Hart Crowser or its representative should visit the site often enough to detect whether subsurface conditions change significantly from those anticipated.

We recommend retaining Hart Crowser to monitor construction at the site to confirm that subsurface conditions are consistent with those identified by the site explorations and that the intent of project plans and specifications relating to earthwork construction is being met. In particular, we recommend that Hart Crowser evaluate subgrade preparation and observe/test the placement/compaction of structural fill.

8.0 LIMITATIONS

We have prepared this report for the exclusive use of Cascade Environmental Group and its authorized agents for the Dahl Beach Rehabilitation Project in Gladstone, Oregon, in accordance with our July 10, 2015 proposal detailing our scope and fee. Our report is intended to provide our opinion of geotechnical parameters for preliminary design of the proposed project based on exploration locations that are believed to be representative of site conditions. However, conditions can vary significantly between exploration locations, and our conclusions should not be construed as a warranty or guarantee of subsurface conditions or future site performance.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty, express or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments, are only a copy of the original document. The original document is stored by Hart Crowser and will serve as the official document of record.

9.0 REFERENCES

City of Gladstone 2015. Gladstone Municipal Code, Gladstone, Oregon. Accessed October 8, 2015 <http://qcode.us/codes/gladstone/>

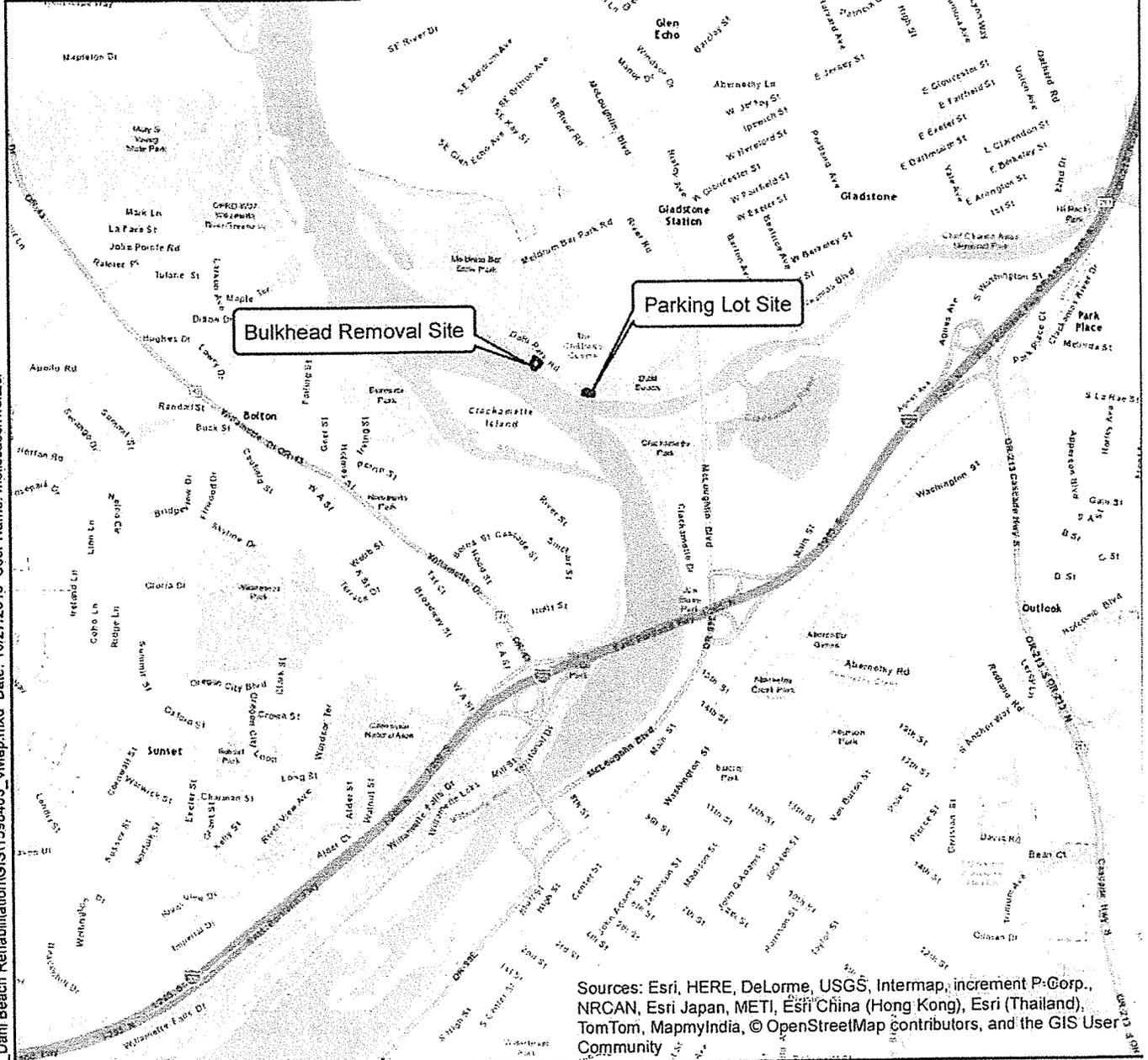
Madin, Ian P., 2009. Geologic Map of the Oregon City 7.5' Quadrangle, Clackamas County, Oregon.

Oregon Department of Transportation (ODOT) 2015. Oregon Department of Transportation. Oregon Standard Specifications for Construction.

ODOT 2014. Oregon Department of Transportation, Geotechnical Design Manual, Volume 1. November 2014.

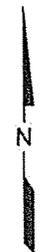
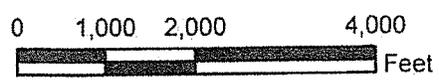
U.S. Department of Agriculture (USDA) 2006. National Resources Conservation Service. Web Soil Survey. Accessed August 6, 2015 <http://websoilsurvey.nrcs.usda.gov/>.

F:\Notebooks\1598403_Dahl Beach Rehabilitation\Deliverables\Report-FINAL 10-27-15\Dahl Beach Mitigation Report.docx



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P-Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Document Path: F:\Notebooks\1598403_Dahl Beach Rehabilitation\GIS\1598403_VMap.mxd Date: 10/27/2015 User Name: melissaschweitzer



Dahl Beach Mitigation Project
Gladstone, Oregon

Vicinity Map

15984-03

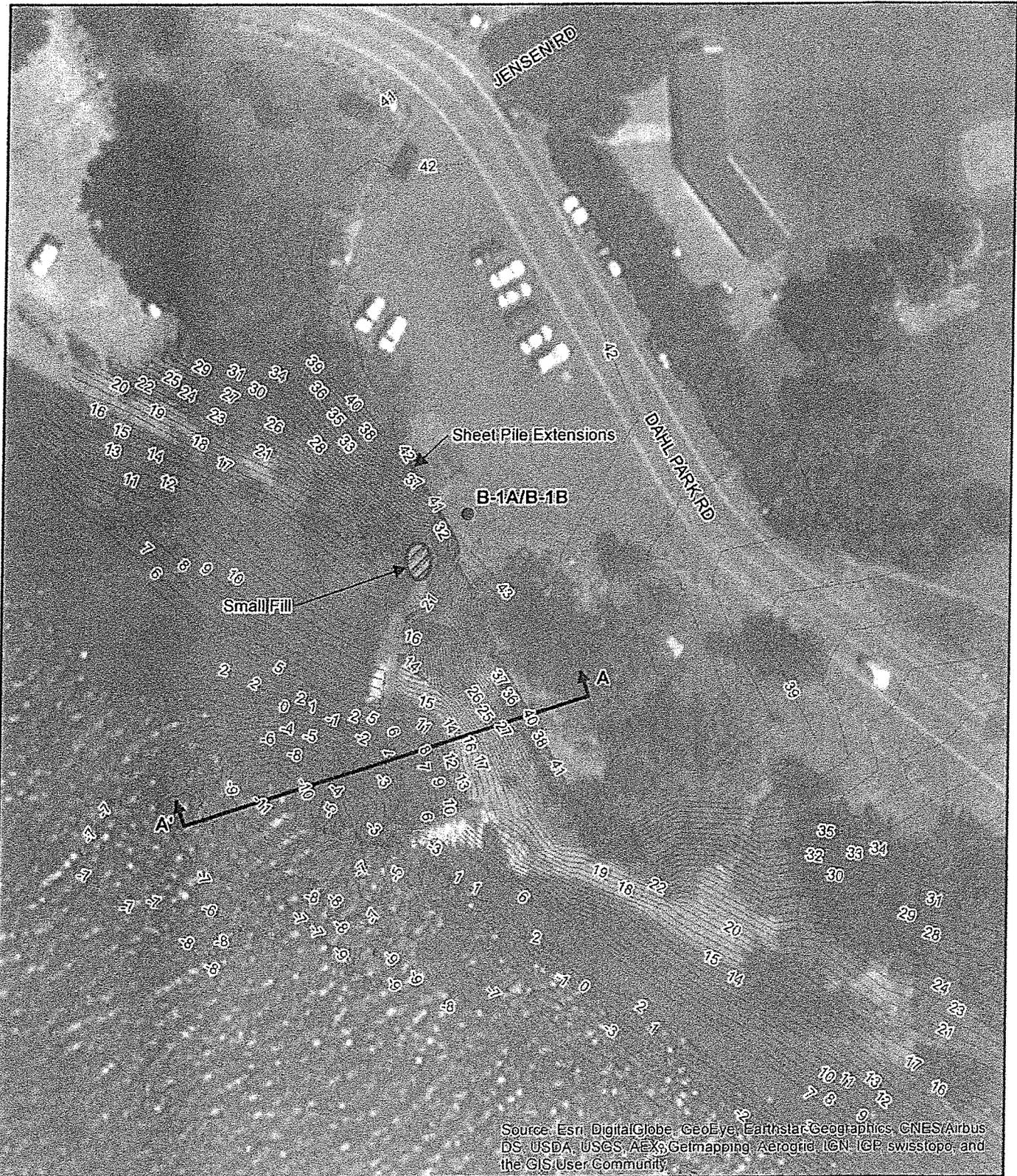
10/15



Figure

1

Document Path: F:\Notebooks\1598403_Dahl Beach Rehabilitation\GIS\1598403_SP.mxd Date: 10/27/2015 User Name: melissaschweitzer



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- Boring
- ↑↑ Cross Section

Surveyed Elevation Contours (NAVD 88) Provided by Cascade Environmental Group 8/12/2015

0 30 60 120

Feet

Note: Locations of features are approximate.



Dahl Beach Mitigation Project
Gladstone, Oregon

Bulkhead Removal Site Plan

15984-03

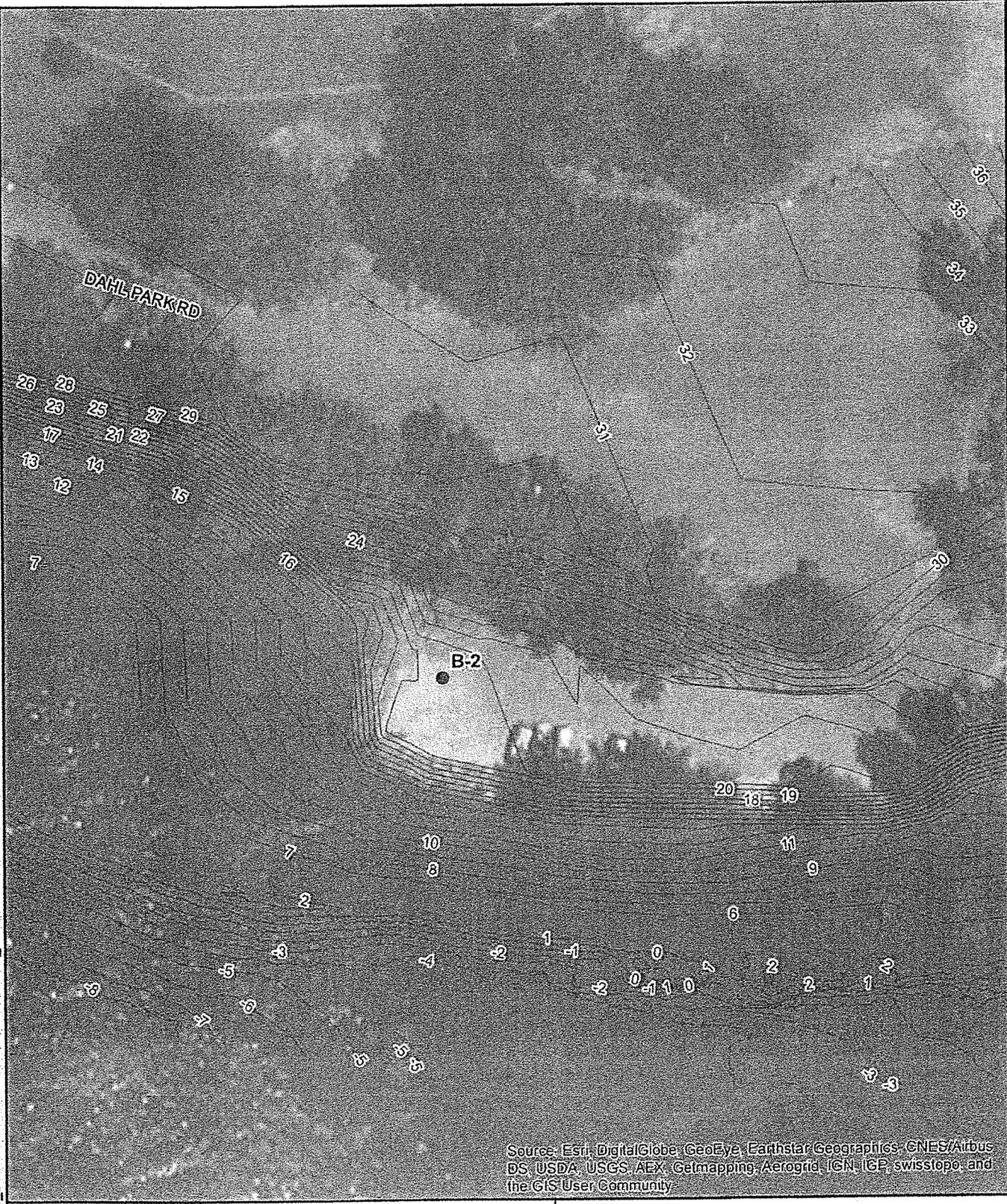
10/15



Figure

2

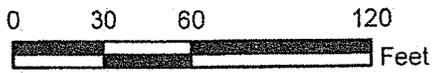
Document Path: F:\Notebooks\1598403_Dahl Beach Rehabilitation\GIS\1598403_SP2.mxd Date: 10/27/2015 User Name: melissaschweitzer



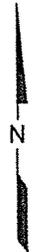
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- Boring
- Surveyed Elevation Contours (NAVD 88) Provided by Cascade Environmental Group 8/12/2015



Note: Locations of features are approximate.

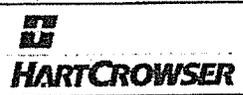


Dahl Beach Mitigation Project
Gladstone, Oregon

Parking Lot Site Plan

15984-03

10/15



Figure

3

APPENDIX A
Field Explorations Methods and Analysis

APPENDIX A

Field Explorations Methods and Analysis

This appendix documents the processes Hart Crowser used to determine the nature and quality of the soil and groundwater underlying the project site addressed by this report. The following sections are included:

- Explorations and Their Locations,
- Drilled Borings, and
- Sampling Procedures.

Explorations and Their Locations

Explorations at the site included three borings, B-1A, B-1B, and B-2. The exploration logs in this appendix show our interpretation of the explorations and sampling data. The logs indicate the depths where the soils change. Note that soil changes may be gradual. In the field, we classified the samples taken from the explorations according to the methods presented on the Key to Exploration Logs. This key also provides a legend explaining the symbols and abbreviations used in the logs.

Figures 2 and 3 of the report show the locations of explorations. Exploration locations were estimated in the field based on existing landmarks.

Drilled Borings

One mud rotary boring (B-1A) and two hollow-stem auger borings (B-1B and B-2) were completed at the site using a truck-mounted drill rig subcontracted by Hart Crowser. The borings were completed on July 30, 2015. The drilling was continuously observed by geotechnical staff members from Hart Crowser and detailed field logs of the borings were prepared. The logs are presented at the end of this appendix.

Sampling Procedures

Samples were obtained from the borings using a split-spoon sampler (SPT sampler) with an inner diameter of 1-1/2 inches and a split-spoon sampler (D&M sampler) with an inner diameter of 3.0 inches in general accordance with guidelines presented in ASTM D 1586. The split-barrel samplers were driven into the soil with a 140-pound hammer free falling 30 inches. The samplers were driven a total distance of 18 inches. The number of blows required to drive the samplers the final 12 inches is recorded on the boring logs, unless otherwise noted. Due to the larger D&M sampler size, the blow count field values were reduced by 50 percent on the logs to approximately correlate with the SPT blow counts shown.

Soil samples were recovered from the split-barrel sampler, field classified, and placed into watertight bags. They were then taken to Hart Crowser's laboratory for further classification.

KEY TO EXPLORATION LOGS



SOIL CLASSIFICATION CHART

MATERIAL TYPES	MAJOR DIVISIONS		GROUP SYMBOL	SOIL GROUP NAMES & LEGEND		OTHER MATERIAL SYMBOLS
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE.	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO. 4. SIEVE	CLEAN GRAVELS <5% FINES	GW	WELL-GRADED GRAVEL		Concrete Asphalt Topsoil
			GP	POORLY-GRADED GRAVEL		
		GRAVELS WITH FINES, >12% FINES	GM	SILTY GRAVEL		
			GC	CLAYEY GRAVEL		
	SANDS >50% OF COARSE FRACTION PASSES ON NO. 4. SIEVE	CLEAN SANDS <5% FINES	SW	WELL-GRADED SAND		
			SP	POORLY-GRADED SAND		
SANDS AND FINES >12% FINES		SM	SILTY SAND			
		SC	CLAYEY SAND			
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT <50	INORGANIC	CL	LEAN CLAY		
			ML	SILT		
		ORGANIC	OL	ORGANIC CLAY OR SILT		
	SILTS AND CLAYS LIQUID LIMIT >50	INORGANIC	CH	FAT CLAY		
			MH	ELASTIC SILT		
		ORGANIC	OH	ORGANIC CLAY OR SILT		
HIGHLY ORGANIC SOILS		PT	PEAT			

Note: Multiple symbols are used to indicate borderline or dual classifications

MOISTURE MODIFIERS

Dry - Absence of moisture, dusty, dry to the touch
 Moist - Damp, but no visible water
 Wet - Visible free water or saturated, usually soil is obtained from below the water table

SEEPAGE MODIFIERS

None -
 Slow - < 1 gpm
 Moderate - 1-3 gpm
 Heavy - > 3 gpm

CAVING MODIFIERS

None -
 Minor - isolated
 Moderate - frequent
 Severe - general

MINOR CONSTITUENTS

Trace - < 5% (silt/clay)
 Occasional - < 15% (sand/gravel)
 With - 5-15% (silt/clay) in sand or gravel
 15-30% (sand/gravel) in silt or clay

SAMPLE TYPES

- Dames & Moore
- Standard Penetration Test (SPT)
- Shelby Tube
- Bulk or Grab

LABORATORY/ FIELD TESTS

- ATT - Atterberg Limits
- CP - Laboratory Compaction Test
- CA - Chemical Analysis (Corrosivity)
- CN - Consolidation
- DD - Dry Density
- DS - Direct Shear
- HA - Hydrometer Analysis
- OC - Organic Content
- PP - Pocket Penetrometer (TSF)
- P200 - Percent Passing No. 200 Sieve
- SA - Sieve Analysis
- SW - Swell Test
- TV - Torvane Shear
- UC - Unconfined Compression

GROUNDWATER SYMBOLS

- Water Level (at time of drilling)
- Water Level (at end of drilling)
- Water Level (after drilling)

STRATIGRAPHIC CONTACT

- Distinct contact between soil strata or geologic units
- Gradual or approximate change between soil strata or geologic units

Notes:

Blowcount (N) is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted) per ASTM D-1586. See exploration log for hammer weight and drop.

When the Dames & Moore (D&M) sampler was driven with a 140-pound hammer (denoted on logs as D+M 140), the field blow counts (N-value) shown on the logs have been reduced by 50% to approximate SPT N-values.

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

Refer to the report text and exploration logs for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the exploration locations at the time the explorations were made. The logs are not warranted to be representative of the subsurface conditions at other locations or times.

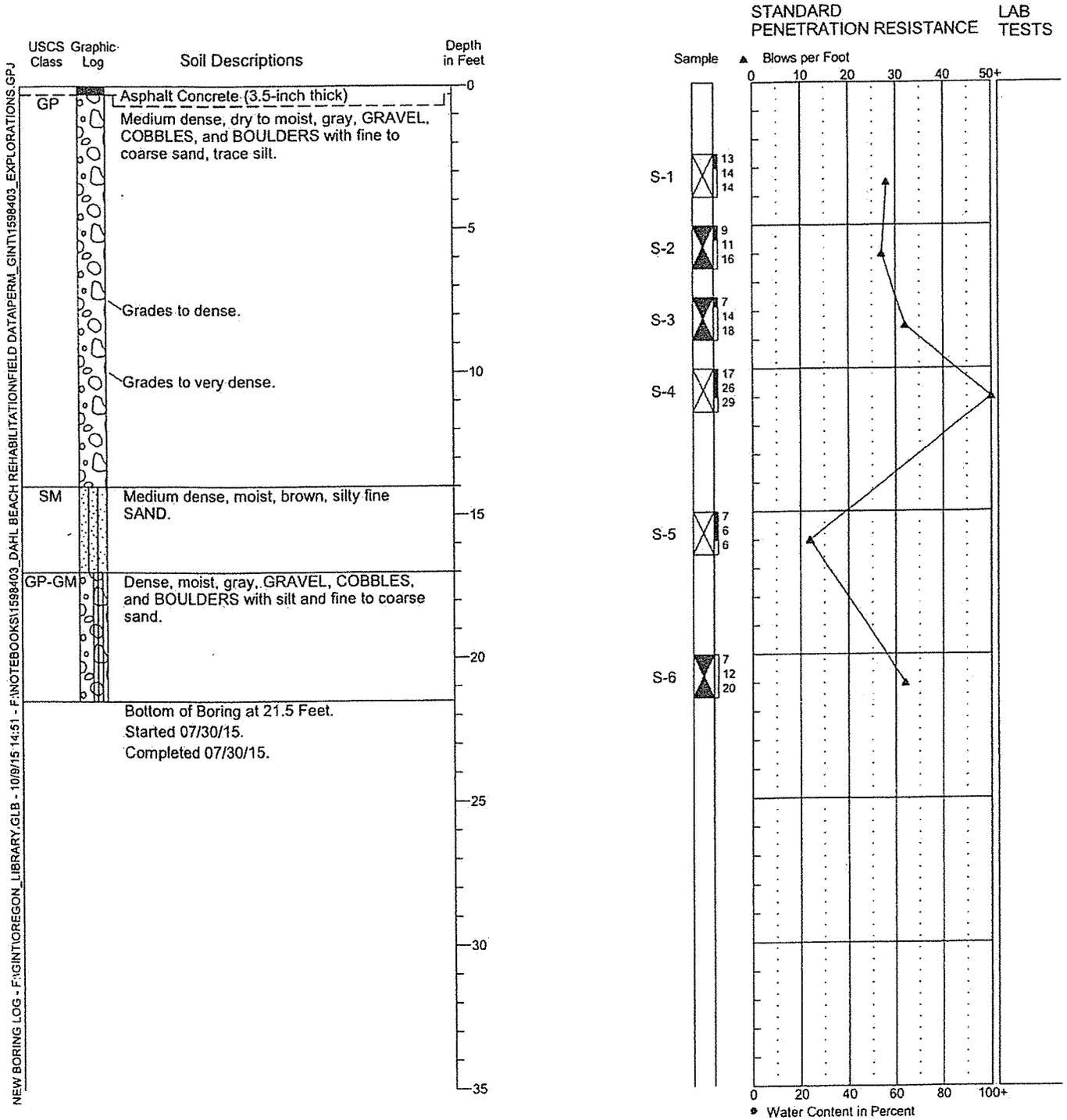
KEY TO EXPLORATION LOGS - F:\GINTY\OREGON LIBRARY.GLB - 8/21/15 11:06 - F:\NOTEBOOKS\1598403 DAHL BEACH REHABILITATION\FIELD DATA\PERM - GINTY\1598403 EXPLORATIONS.GPJ

Figure A-1

Boring Log B-1A

Location: N 629625.75 E 7659906.5
 Approximate Ground Surface Elevation: 42 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Mud Rotary
 Hammer Type: Auto Hammer
 Hole Diameter: 4 7/8 inches
 Logged By: J. Alders Reviewed By: J. Alders

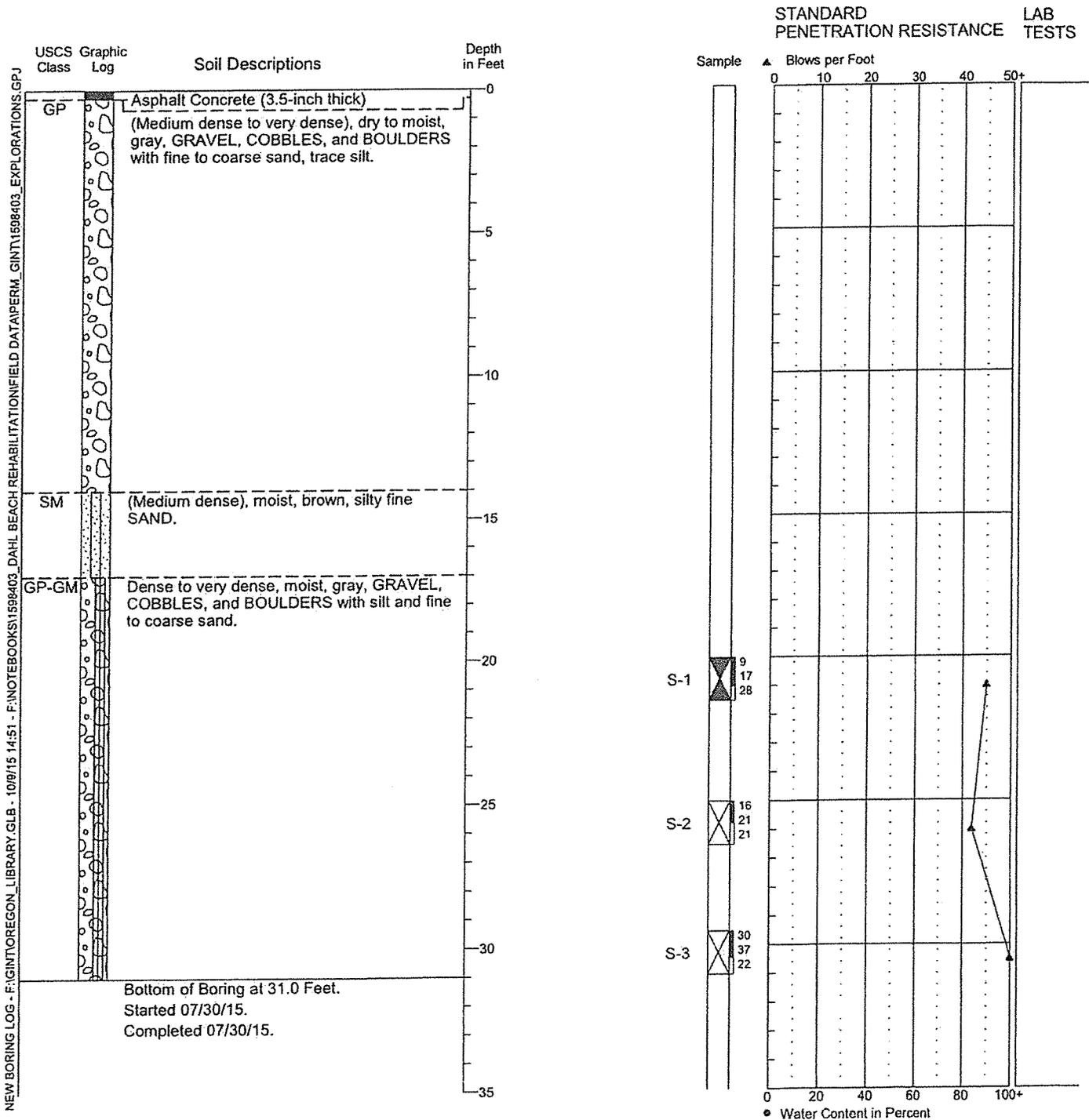


1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Boring Log B-1B

Location: N 629625.75 E 7659906.5
 Approximate Ground Surface Elevation: 42 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Hollow Stem Auger
 Hammer Type: Auto Hammer
 Hole Diameter: 8 inches
 Logged By: J. Alders Reviewed By: J. Alders

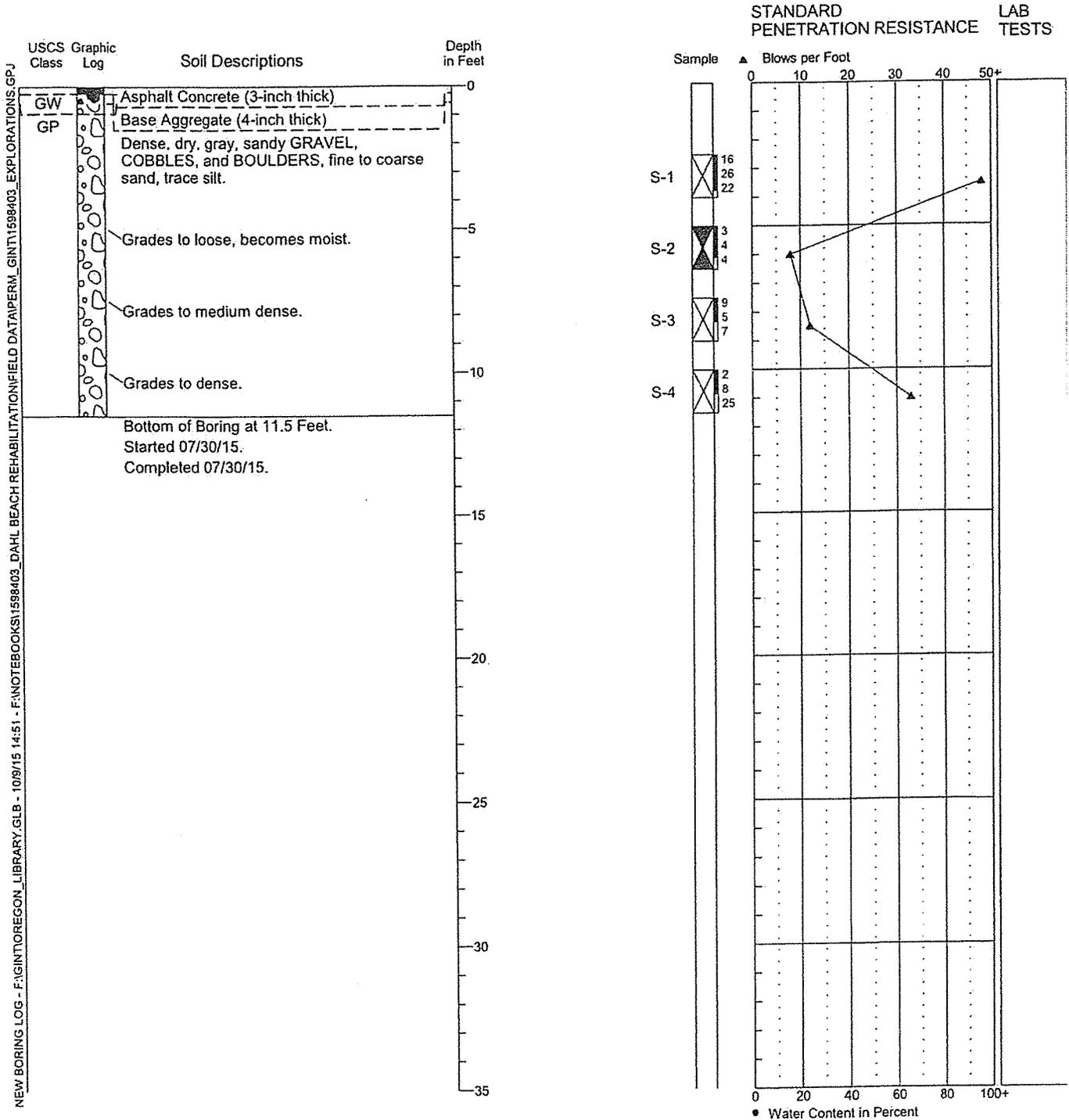


1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

Boring Log B-2

Location: N 629175.375 E 7660574
 Approximate Ground Surface Elevation: 20 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Hollow Stem Auger
 Hammer Type: Auto Hammer
 Hole Diameter: 8 inches
 Logged By: J. Alders Reviewed By: J. Alders



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

APPENDIX B

Slope Stability Analysis

APPENDIX B

Slope Stability Analysis

General

This appendix contains the results of our slope stability analysis.

Our analysis was completed using the program Slope/W by Geo-Slope International, Ltd. The Slope/W program performs two dimensional limit equilibrium analysis to compute slope stability and determine a FS value against global failure.

The FS against global failure is simplistically defined as the ratio of the forces resisting slope movement (e.g., soil strength, soil mass, etc.) to the forces driving slope movement (e.g., gravity, earth pressure). The program predicts the location and geometry of “critical failure planes.” Critical failure planes are the zones with the lowest factors of safety. A FS value less than 1.0 infers that the model is not in equilibrium and slope movement is likely to occur.

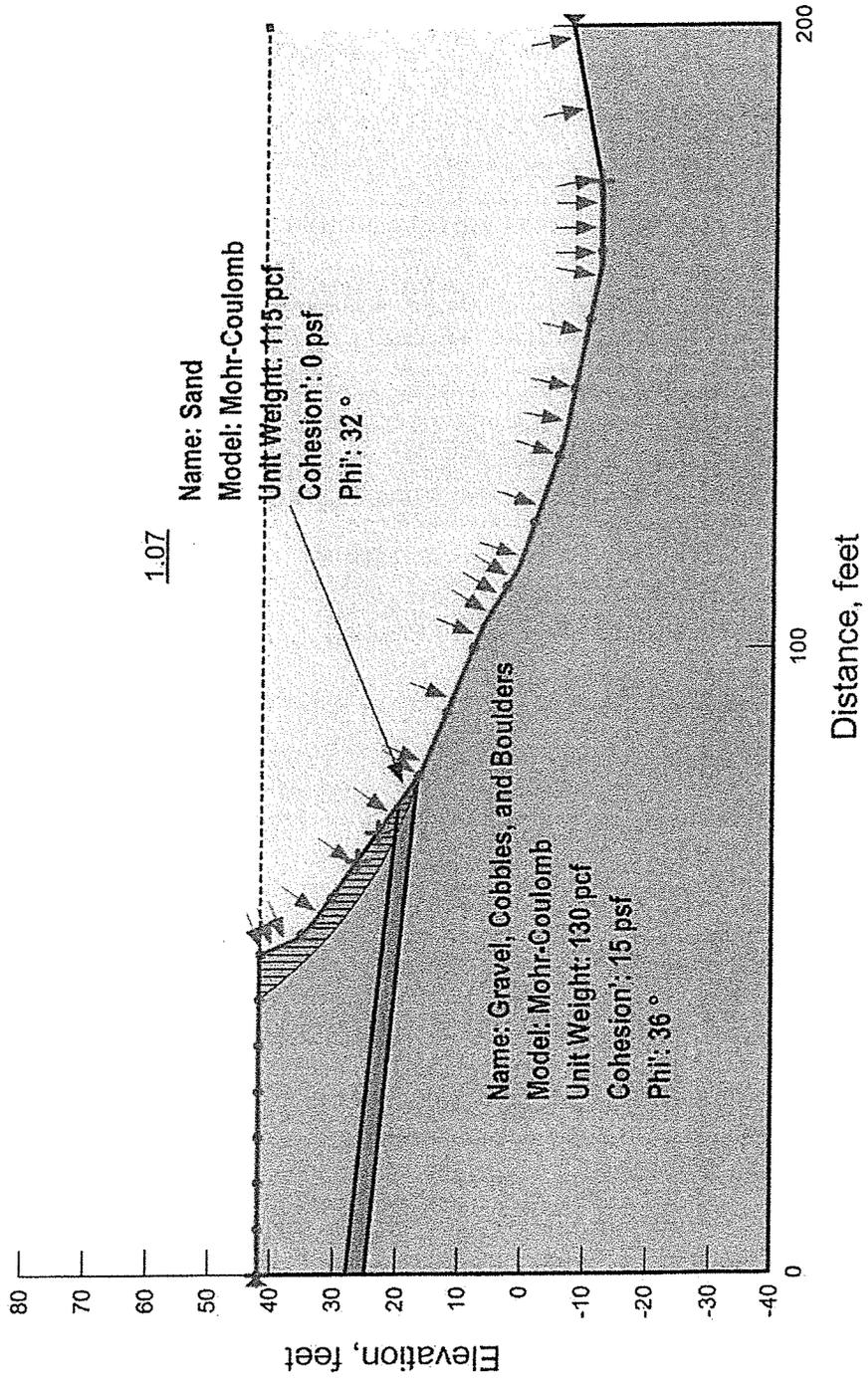
Evaluation Criteria

We used a FS value equal to 1.3 for static stability of slopes not supporting structures as our guideline for finalizing our recommended slope angle. This value was selected based on the ODOT Geotechnical Design Manual (ODOT 2014), which indicates the FS for a stable slope underlying unimproved or non-critical areas should be considered 1.3.

Table 2 in the report text summarizes the FS values we obtained from our analyses. All of the FS values met or exceeded the criteria spelled out above.

Output from our slope stability modeling follows in this appendix.

Title: Dahl Beach Stability Analysis
Created By: Jim Alders
Date: 10/8/2015
Case 1: High Water Existing
Method: Spencer



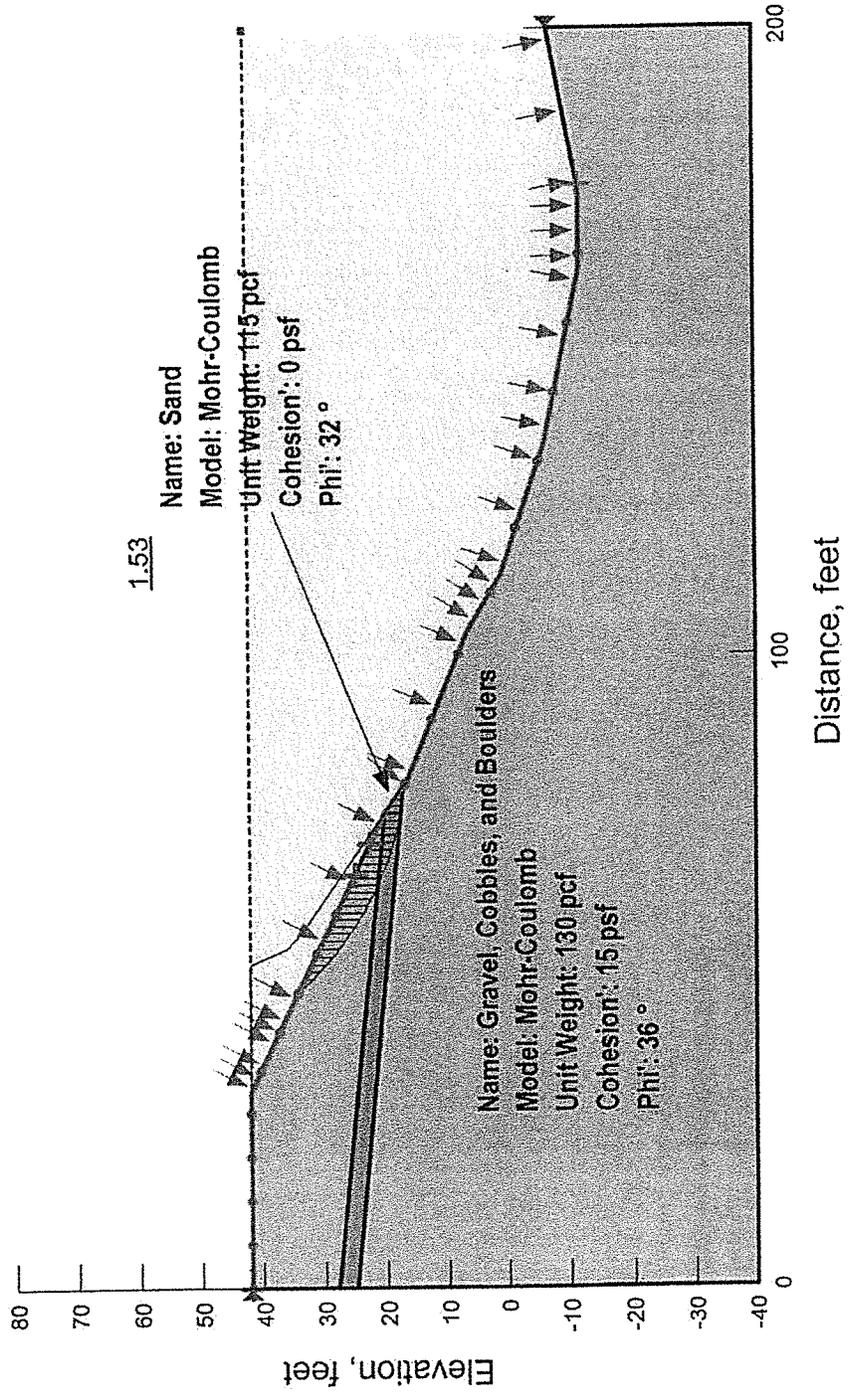
Title: Dahl Beach Stability Analysis

Created By: Jim Alders

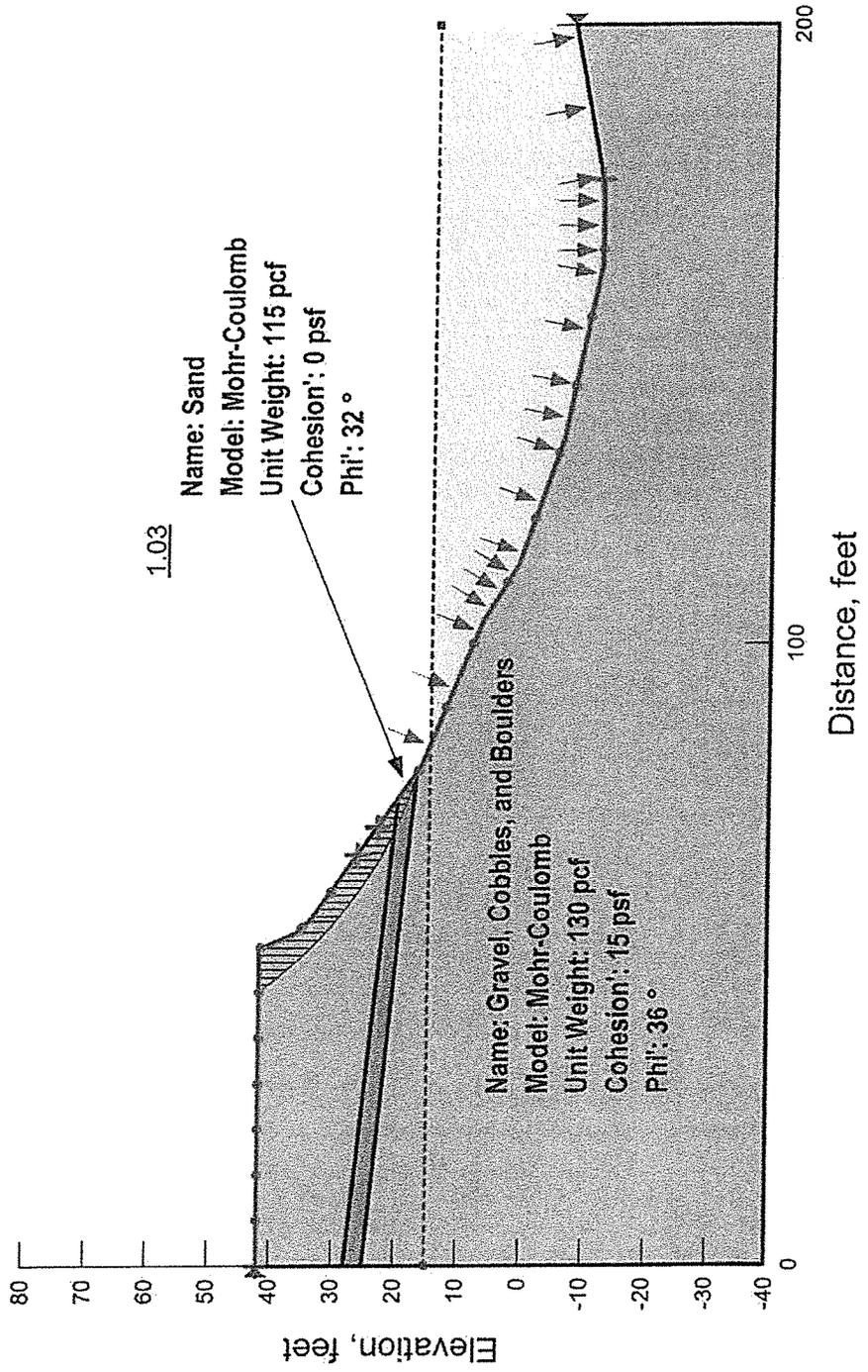
Date: 10/8/2015

Case 2: High Water Regraded

Method: Spencer



Title: Dahl Beach Stability Analysis
 Created By: Jim Alders
 Date: 10/8/2015
 Case 3: Low Water Existing
 Method: Spencer



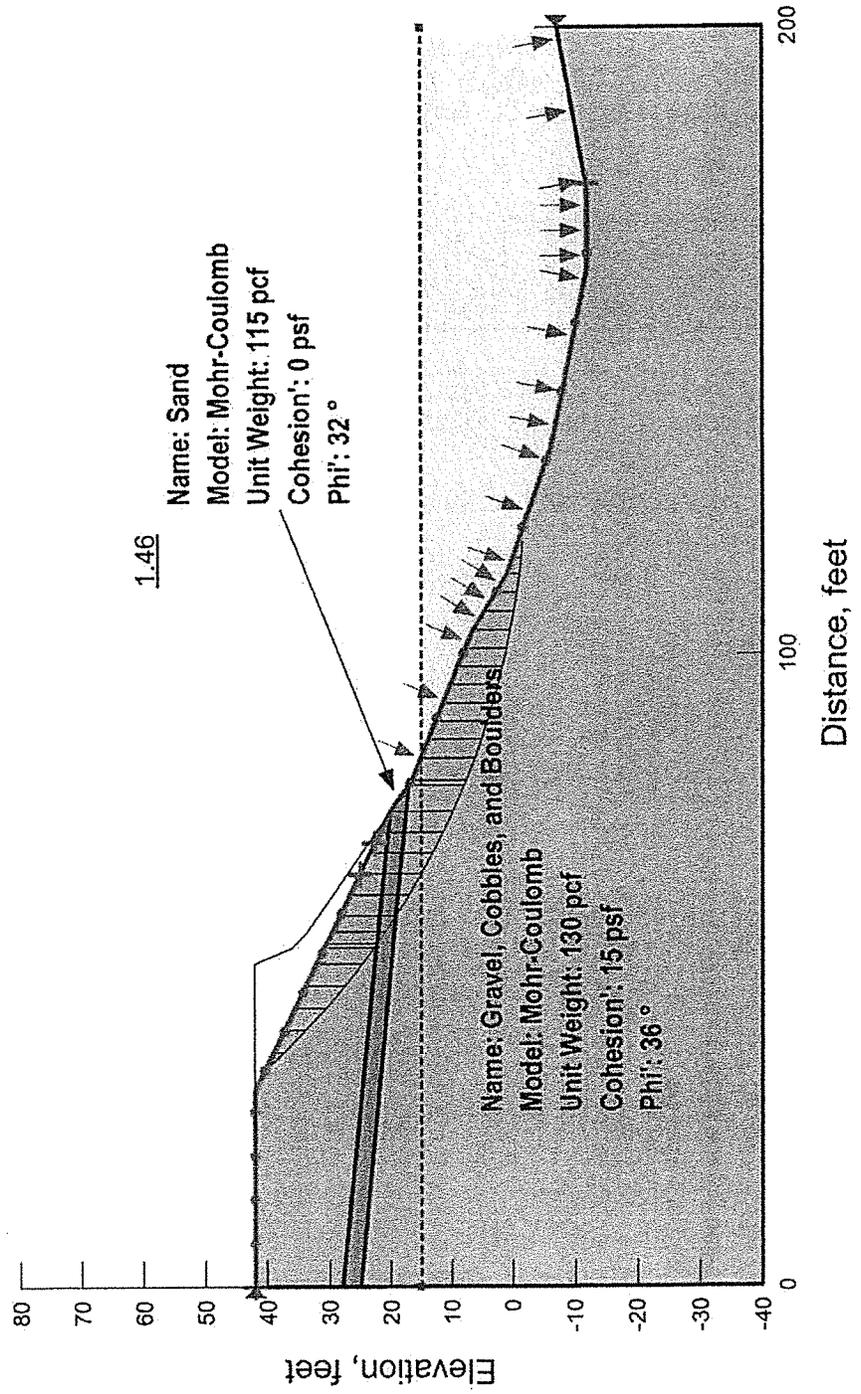
Title: Dahl Beach Stability Analysis

Created By: Jim Alders

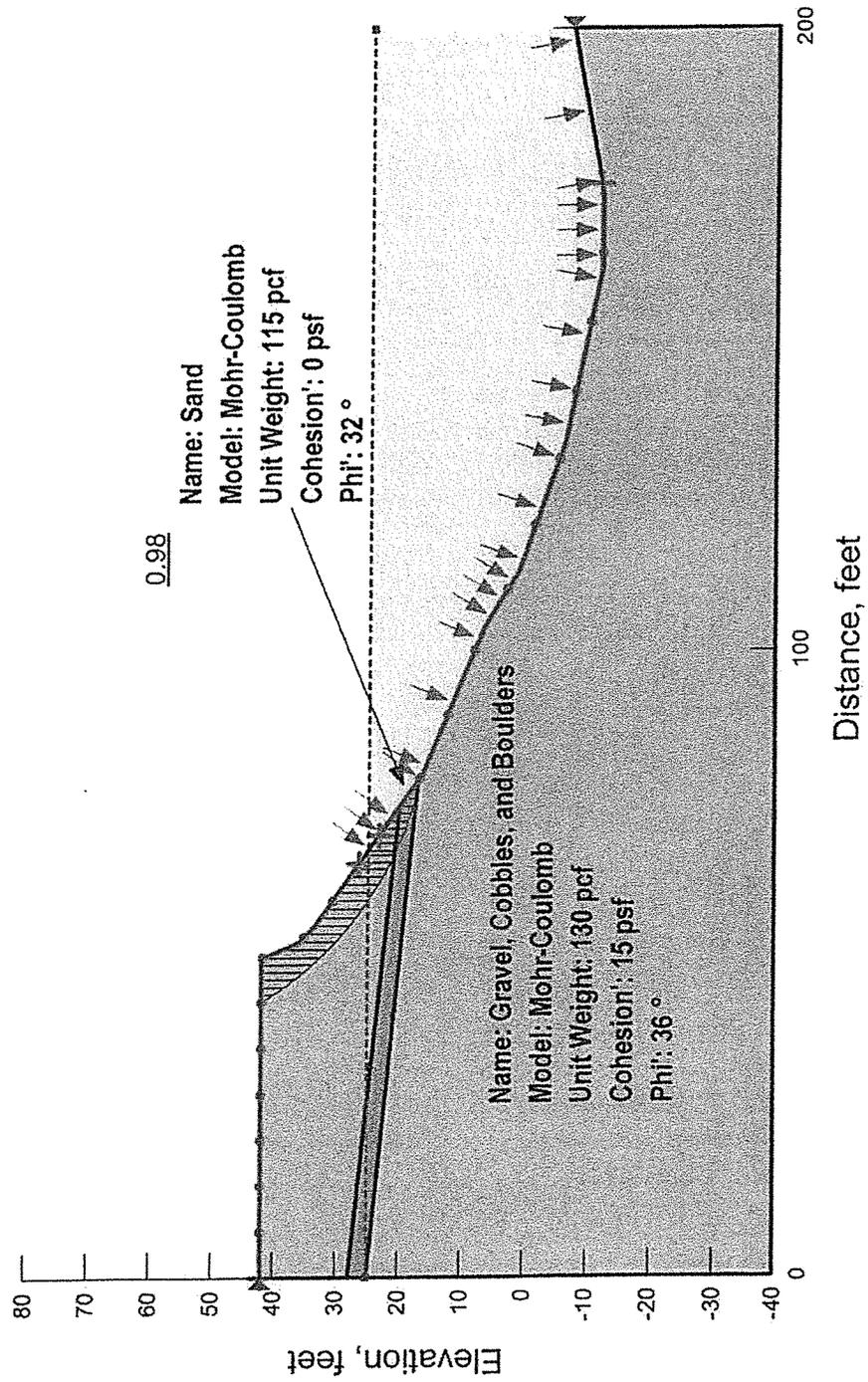
Date: 10/8/2015

Case 4: Low Water Regraded

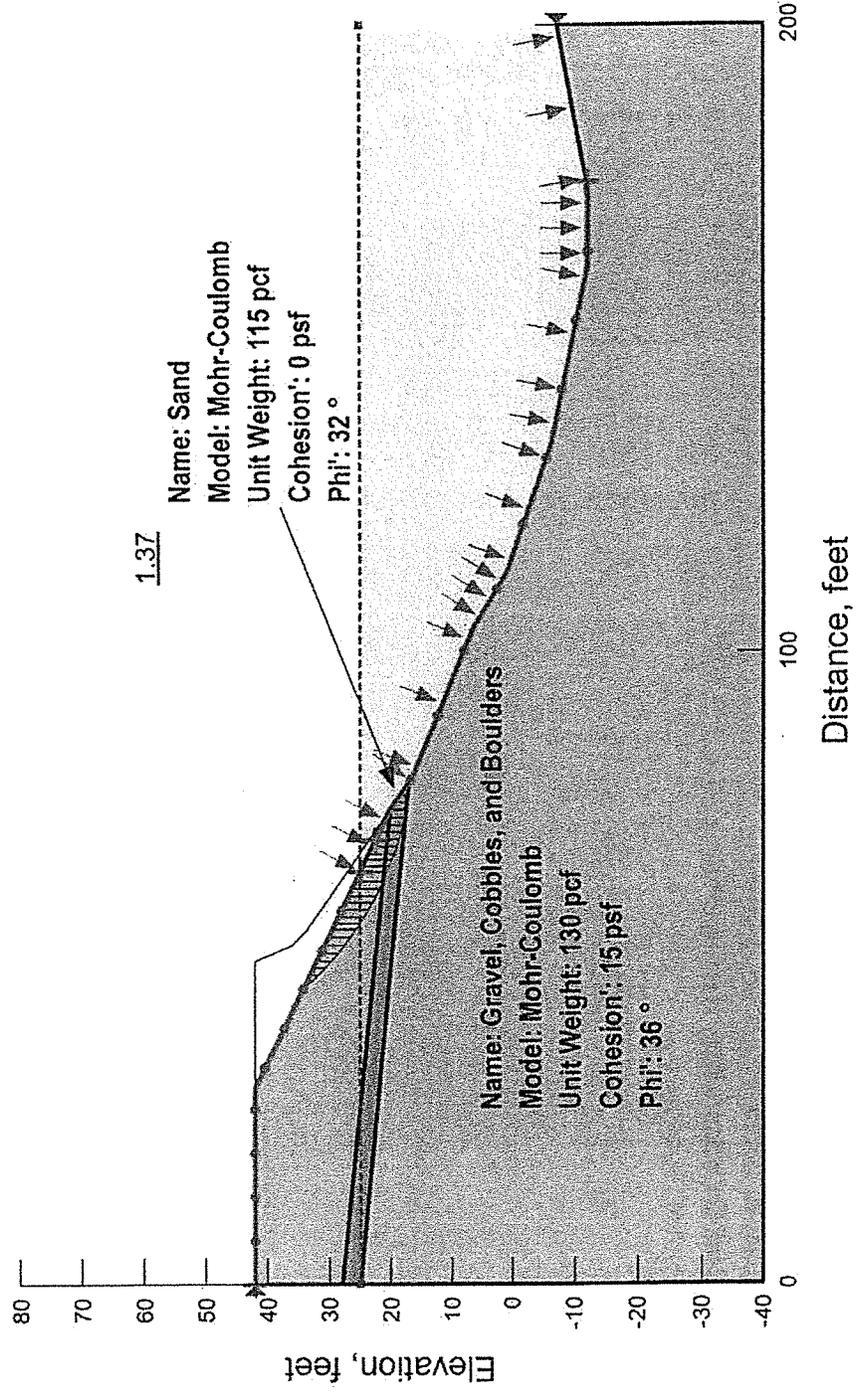
Method: Spencer



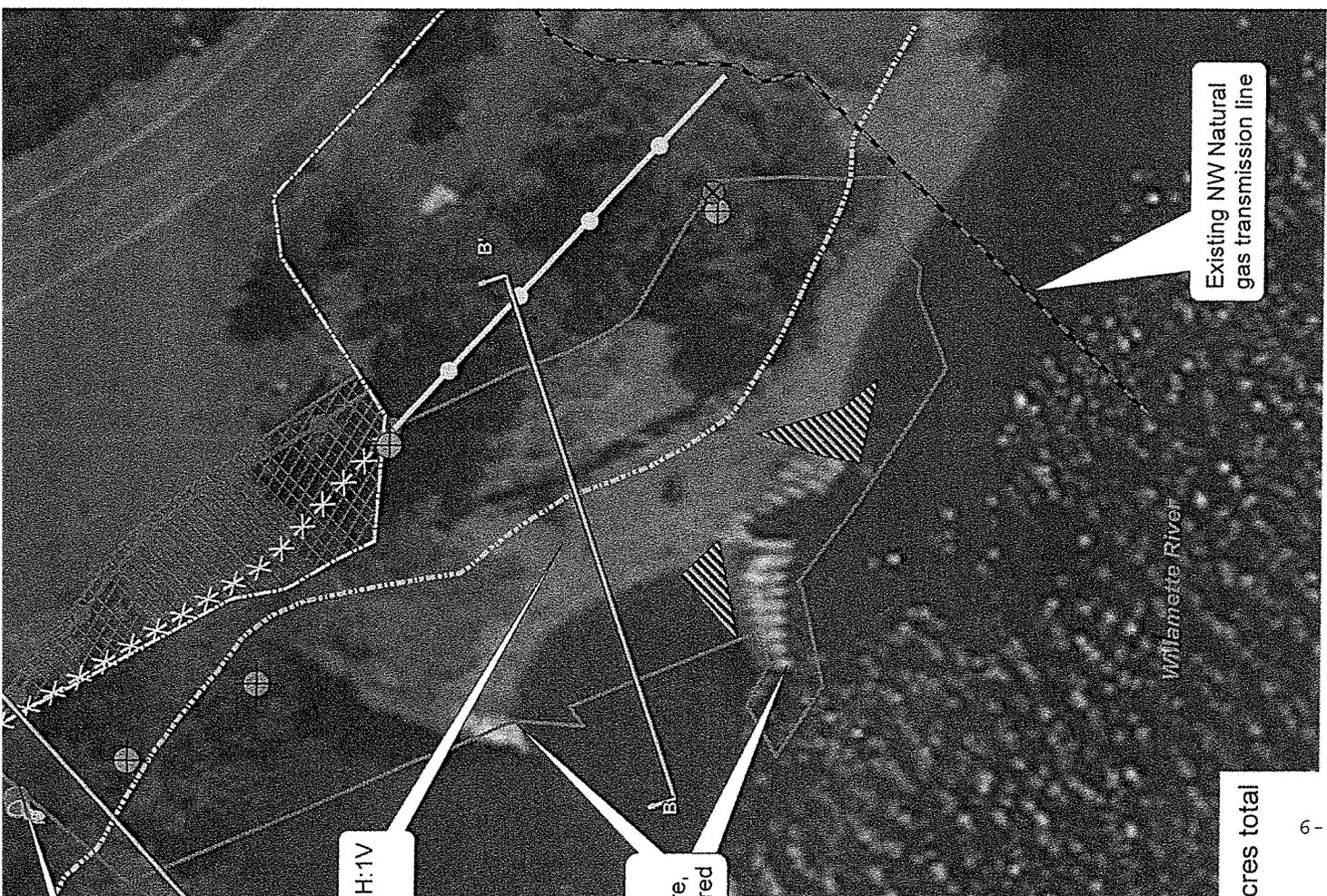
Title: Dahl Beach Stability Analysis
Created By: Jim Alders
Date: 10/8/2015
Case 5: Ordinary High Water Existing
Method: Spencer



Title: Dahl Beach Stability Analysis
Created By: Jim Alders
Date: 10/8/2015
Case 6: Ordinary High Water Regraded
Method: Spencer



-  (Representational)
-  Edge of Pavement
-  Cross-Section Locations
-  Riprap to Remain
-  Existing Fence to Remain
-  Riprap to be Removed
-  Pavement to be Removed
-  Boulders, Gravel, D to be Removed
-  Riprap to be Remon
-  Pavement to be Removed



Parking Lot Area: 0.29 acres total
 Area above OHW: 0.01 acres
 Area below OHW: 0.28 acres

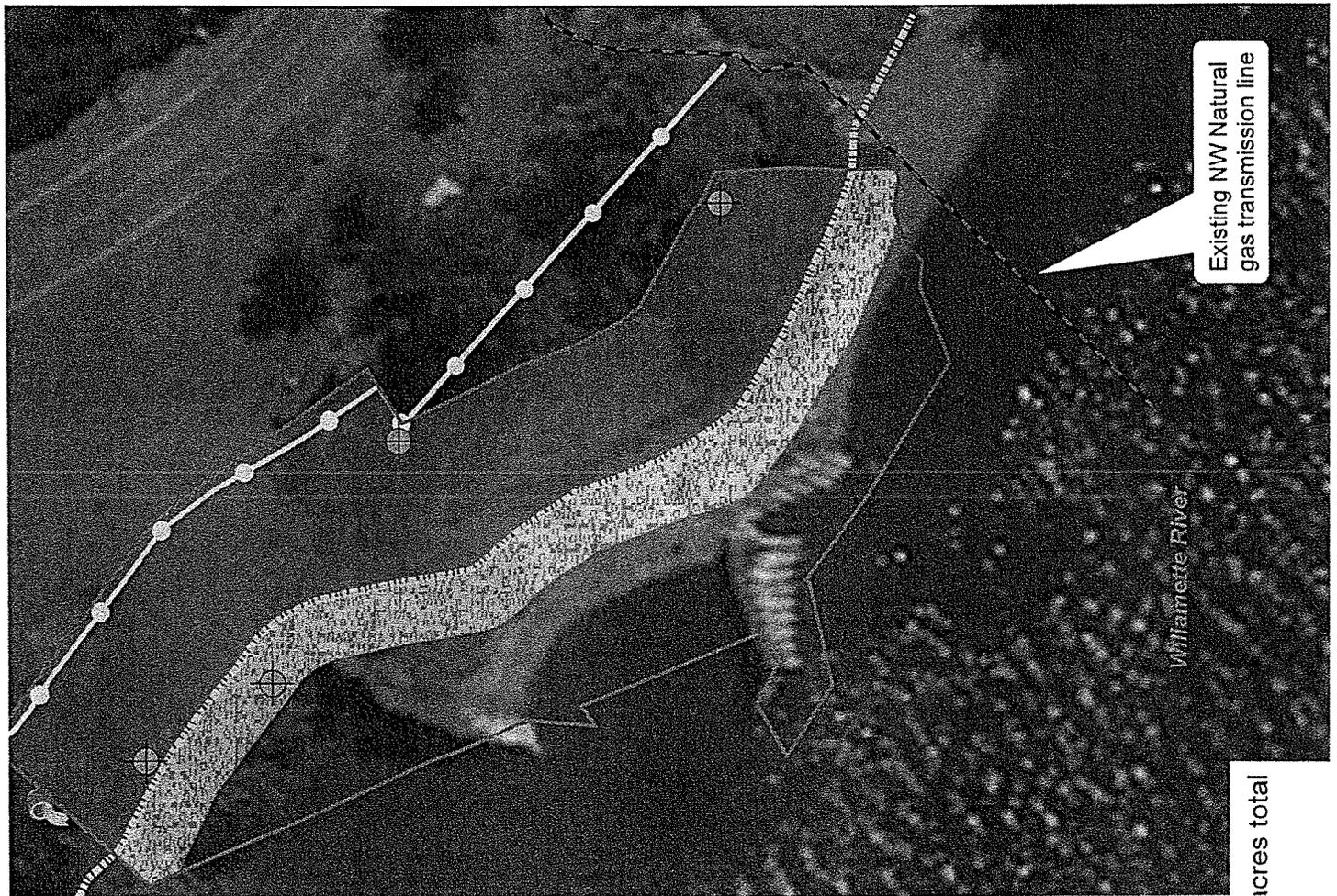
acres total
 6-40



Por
for



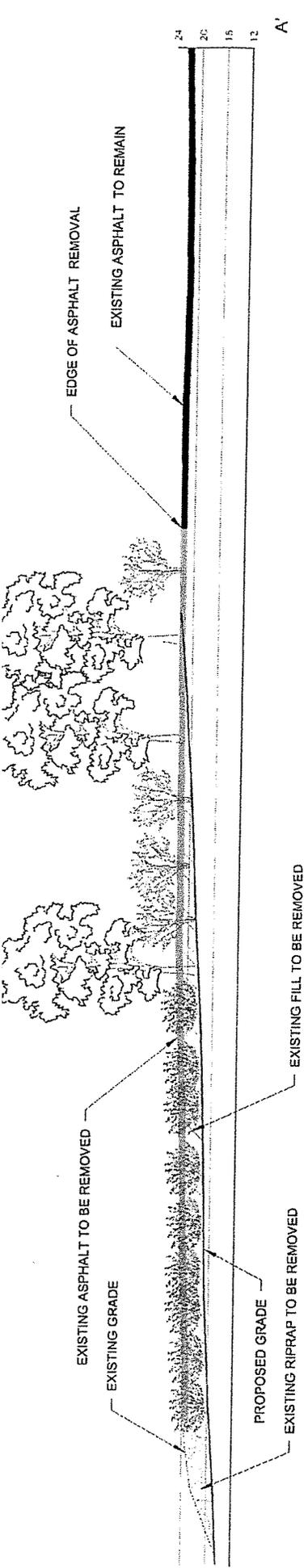
Parking Lot Area: 0.29 acres total
 Area above OHW: 0.01 acres
 Area below OHW: 0.28 acres



Existing NW Natural
 gas transmission line

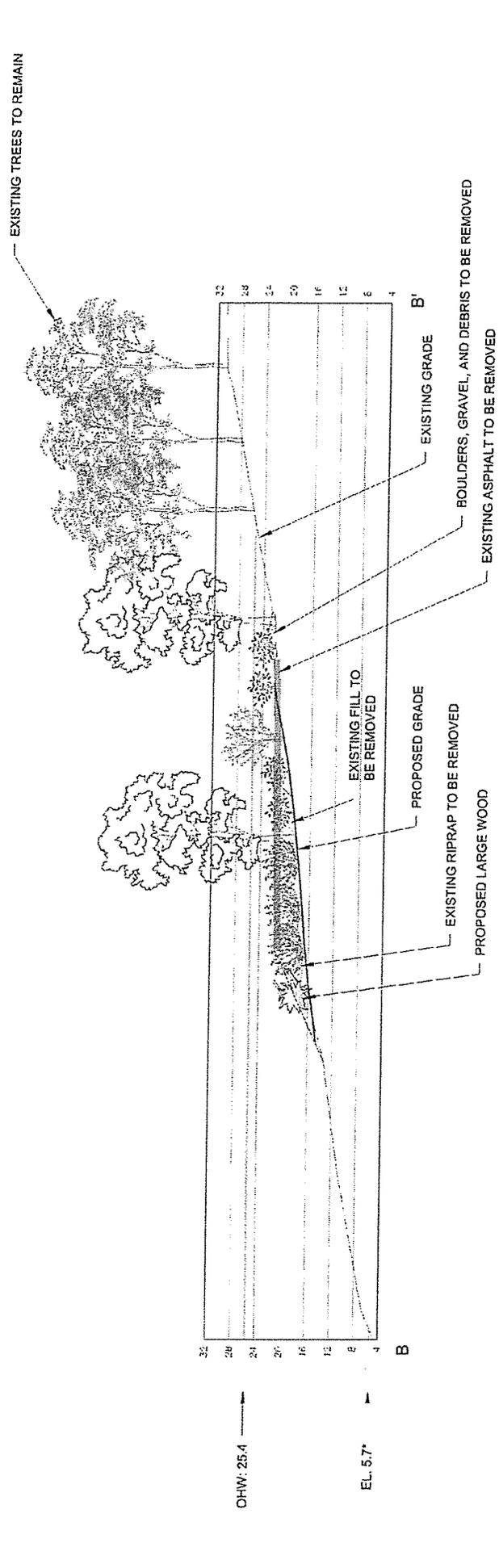
Williamette River

acres total



SECTION A-A': PARKING LOT AREA

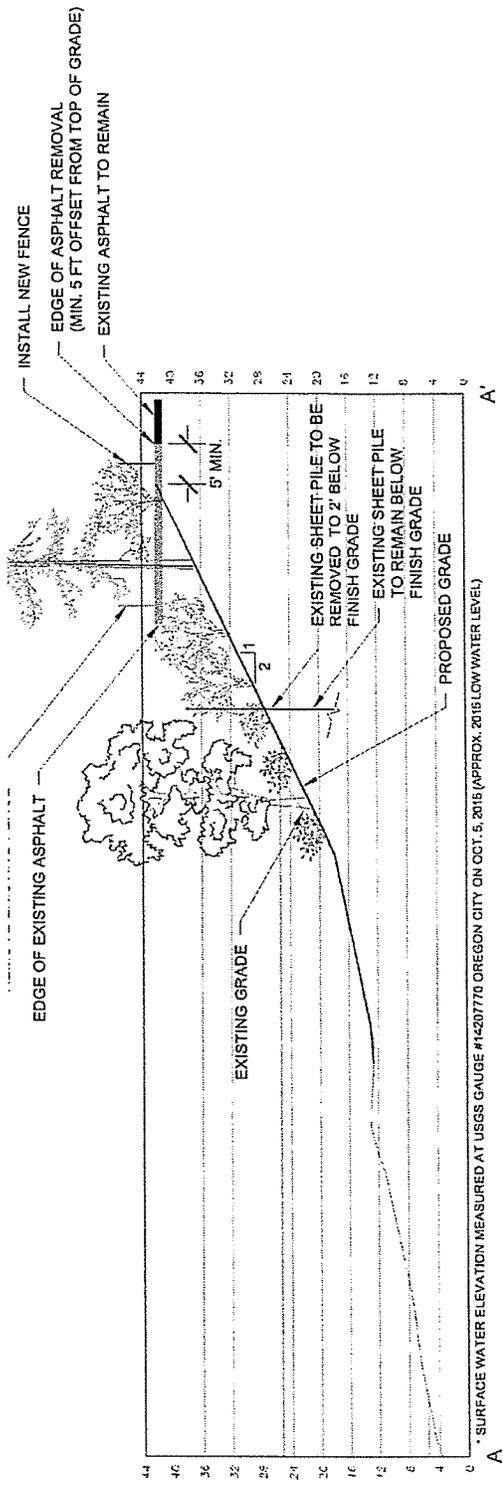
E: VERT. 1"=20' HORIZ. 1"=20'



SECTION B-B': PARKING LOT AREA

E: VERT. 1"=20' HORIZ. 1"=20'

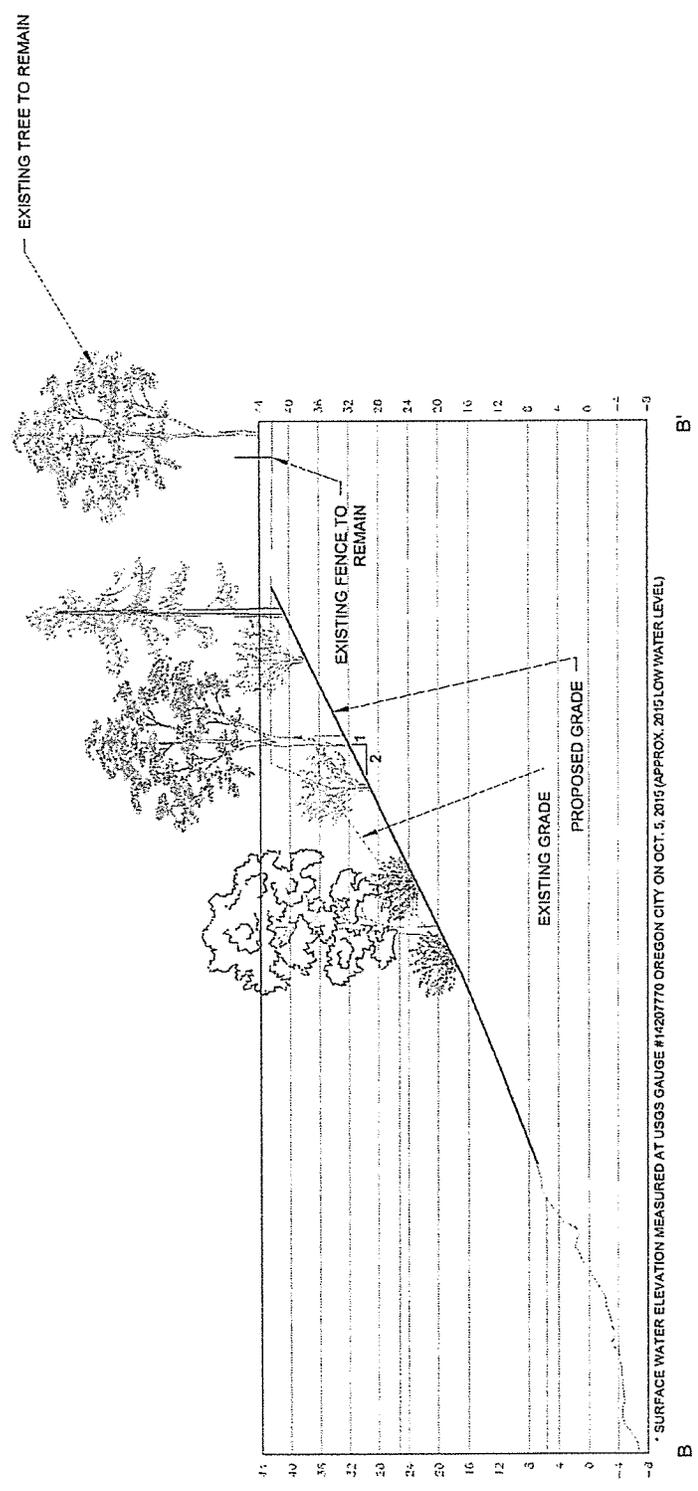
* SURFACE WATER ELEVATION MEASURED AT USGS GAUGE # 14207770 OREGON CITY ON OCT. 5, 2015 (APPROX. 2015 LOW WATER LEVEL)



OHW: 25.4' →
 EL. 5.7' →

SECTION A-A': BULKHEAD REMOVAL AREA

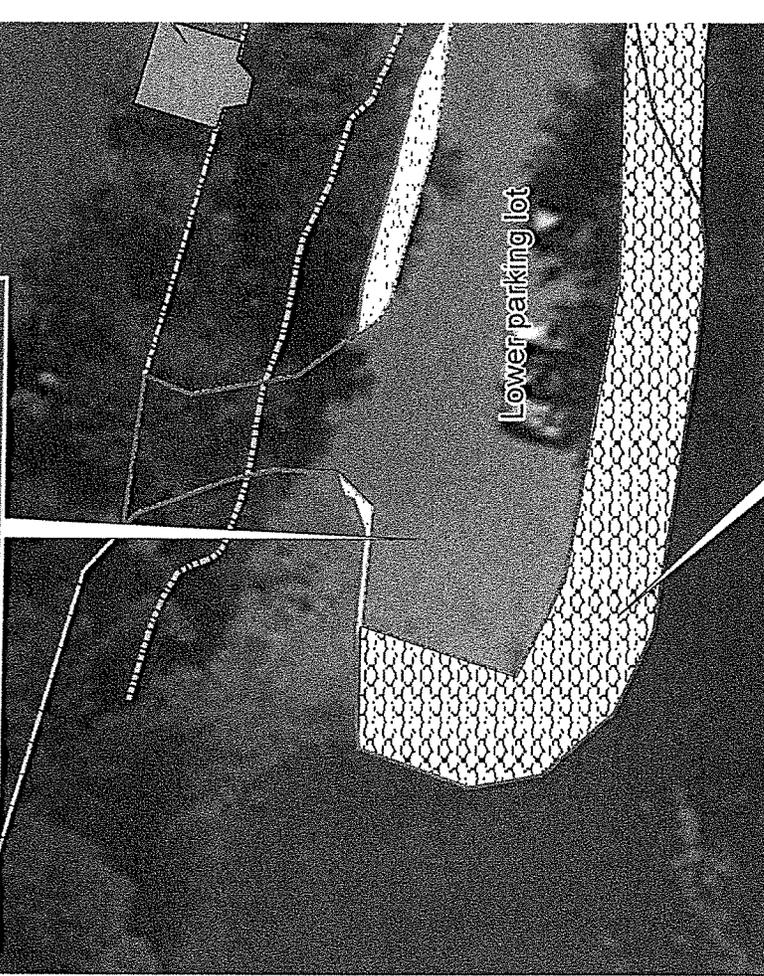
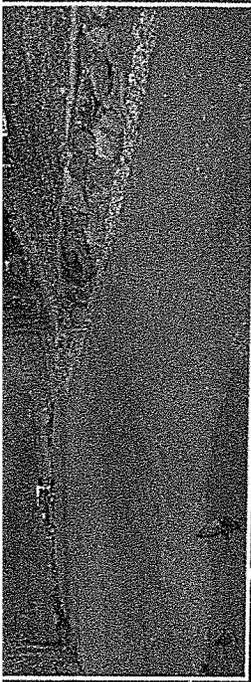
SCALE: VERT. 1"=10' HORIZ. 1"=10'



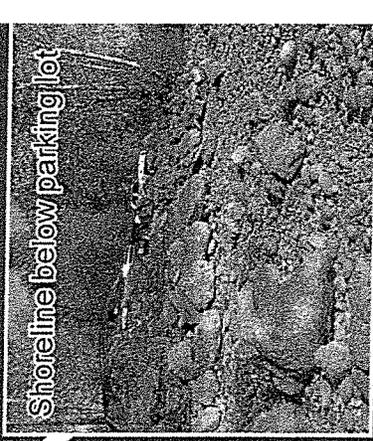
OHW: 25.4' →
 EL. 5.7' →

SECTION B-B': BULKHEAD REMOVAL AREA

SCALE: VERT. 1"=10' HORIZ. 1"=10'

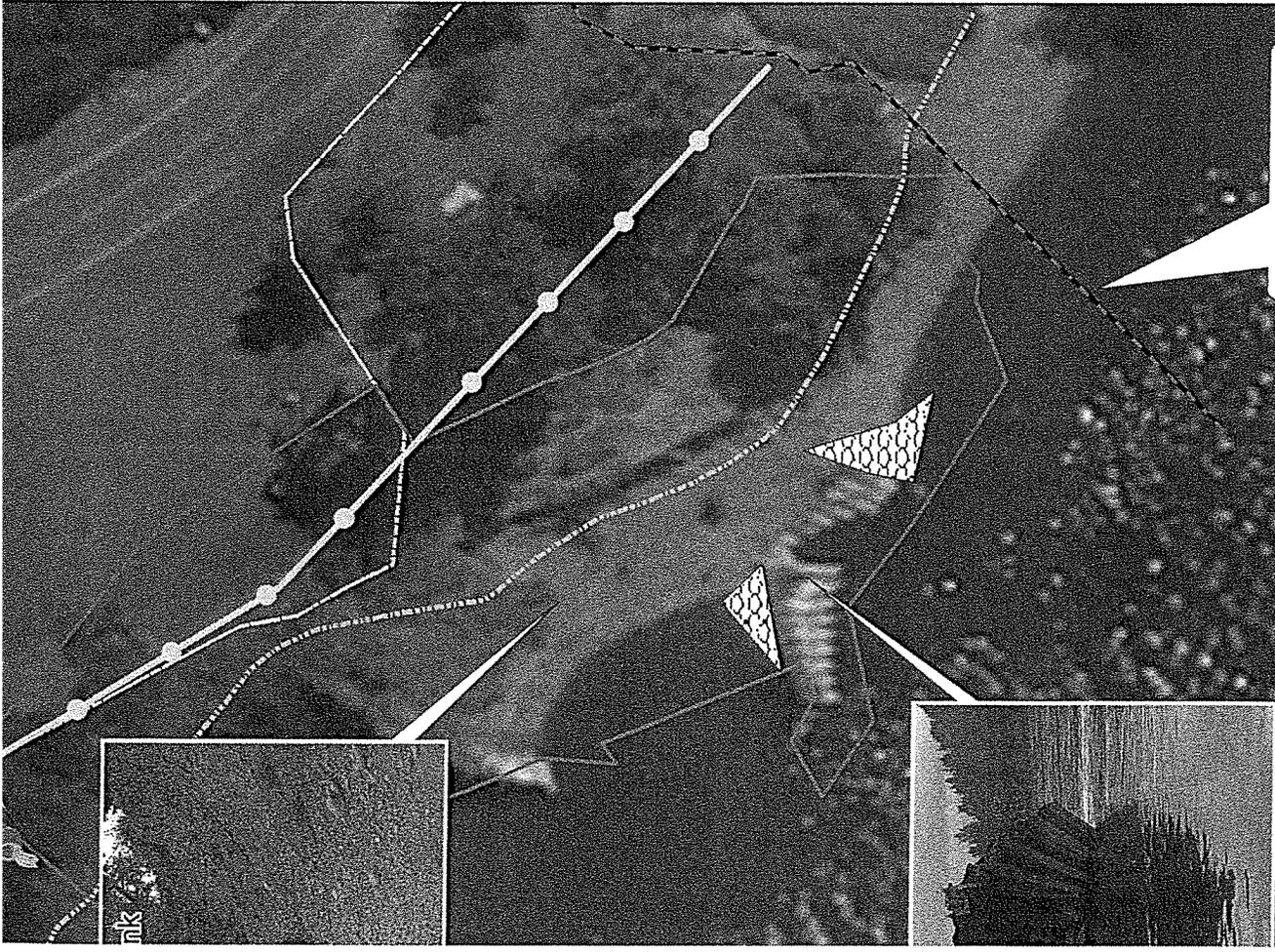


Lower parking lot



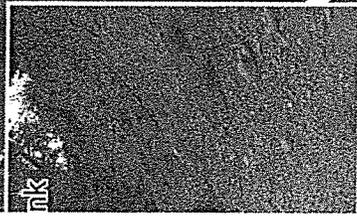
Shoreline below parking lot

Parking Lot Area: 0.29 acres total
Area above OHW: 0.01 acres
Area below OHW: 0.28 acres



Existing NW Natural gas transmission line

Willamette River



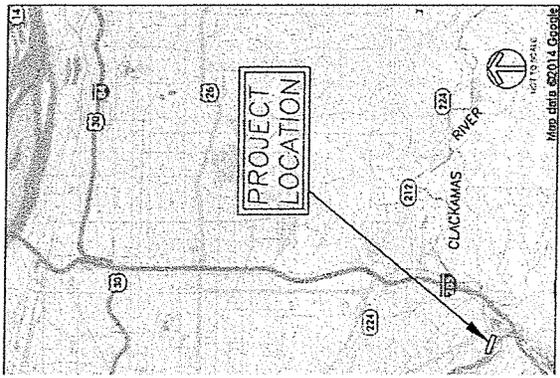
acres total



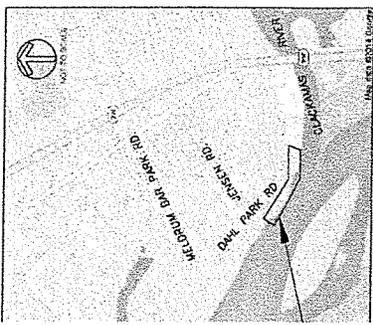
OCTOBER 2015



LOCATION MAP



CITY MAP



SITE MAP

SHEET INDEX

SHEET NUMBER	SHEET NAME	SHEET DESCRIPTION
1	G1	COVER
2	G2	NOTES, GENERAL INFORMATION, AND ABBREVIATIONS
3	G3	PROPOSED SITE OVERVIEW
4	C1	GRADING PLAN: PARKING LOT AREA
5	C2	GRADING PLAN: BULKHEAD REMOVAL AREA
6	C3	CROSS SECTION: PARKING LOT AREA
7	C4	CROSS SECTION: BULKHEAD REMOVAL AREA
8	P1	PLANTING PLAN: PARKING LOT AREA
9	P2	PLANTING PLAN: BULKHEAD REMOVAL AREA

PROJECT TEAM

LANDOWNER
 CITY OF GLADSTONE
 CONTACT: SCOTT TABOR
 525 PORTLAND AVE.
 GLADSTONE, OR 97027
 PH: 503-656-7857

ENVIRONMENTAL CONSULTANT/
 CIVIL ENGINEER
 CASCADE ENVIRONMENTAL
 GROUP
 CONTACT: BRENT HADDADWAY
 222 NW DAVIS ST., SUITE 317
 PORTLAND, OR 97209
 PH: 503-894-8585

SURVEYOR
 WATERW
 CONTACT
 1020 SW
 PORTLAN
 PH: 503-2

SURVEYOR
 HYDRO S
 6635 N. B.
 PORTLAN
 PH: 206-2

GEOTECH
 HARTORC
 CONTACT
 300 W. 15
 VANCOU
 PH: 206-4

ASSUMES ALL LIABILITY AND

6
-46

AND COMPLETE
AS DURING THE COURSE OF
SAFETY OF ALL PERSONS AND
OUSLY AND NOT BE LIMITED TO
TRACTOR SHALL DEFEND,
OWNER'S REPRESENTATIVE
L OR ALLEGED, IN CONNECTION
PROJECT, EXCEPT FOR LIABILITY
OWNER OR THE OWNER'S

CONDITIONS, DIMENSIONS,
REPAIRS TO THE OWNER'S
MENT OF WORK.

IF THIS WORK IS RESPONSIBLE
DURING BUT NOT LIMITED TO
AL PERMITS.

PLAN TO THE CITY AND
CHECKS BEFORE COMMENCING

ATING AND SEQUENCING ALL

DOWN AT 1' INTERVALS.
NO RECOMMENDATIONS FOUND IN GEOTECH REPORT.
POSSIBLE DURING GRADING ACTIVITIES. MINOR
CESSARY.

ITS WILL BE REMOVED THROUGH A
N, AND RE-GROWTH WILL THEN BE TREATED
I WILL BE TREATED BY CUTTING BACK CANES
HERBICIDE. HERBICIDE WILL BE APPLIED WITHIN
IVENESS. HERBICIDE USED WILL BE
HER GLYPHOSATE PRODUCT) LABELED FOR USE

ER INVASIVE NON-NATIVE VEGETATION WILL BE
LOCAL GUIDELINES AND ACCEPTED BEST

REES AND DOWNED WOOD SHALL REMAIN IN

OFFICES OF THE PUBLIC UTILITIES
CENTER. THE TELEPHONE NUMBER
THE OREGON UTILITY NOTIFICATION
CENTER IS 503-232-1987.

POTENTIAL UNDERGROUND FACILITY

Dig Safely.

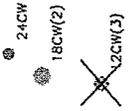
Call the Oregon One-Call Center
DIAL 811 or 1-800-332-

NORTHWEST NATURAL

NOTIFY NORTHWEST NATURAL BEFORE
OR DIGGING ACTIVITIES OCCUR WITHIN
NORTHWEST NATURAL GAS LINE. A NO
NATURAL REPRESENTATIVE MUST BE ON
OBSERVE ANY GRADING OR DIGGING TO
WITHIN THE EASEMENT.



RIPRAP TO REMAIN
RIPRAP TO BE REMOVED
POSSIBLE STORMWATER TREATMENT AREA (TO BE DETERMINED)



EXISTING TREES TO REMAIN
EXISTING TREE TO BE REMOVED (1 TOTAL)
EDGE OF EXISTING PAVEMENT

KEYED NOTES

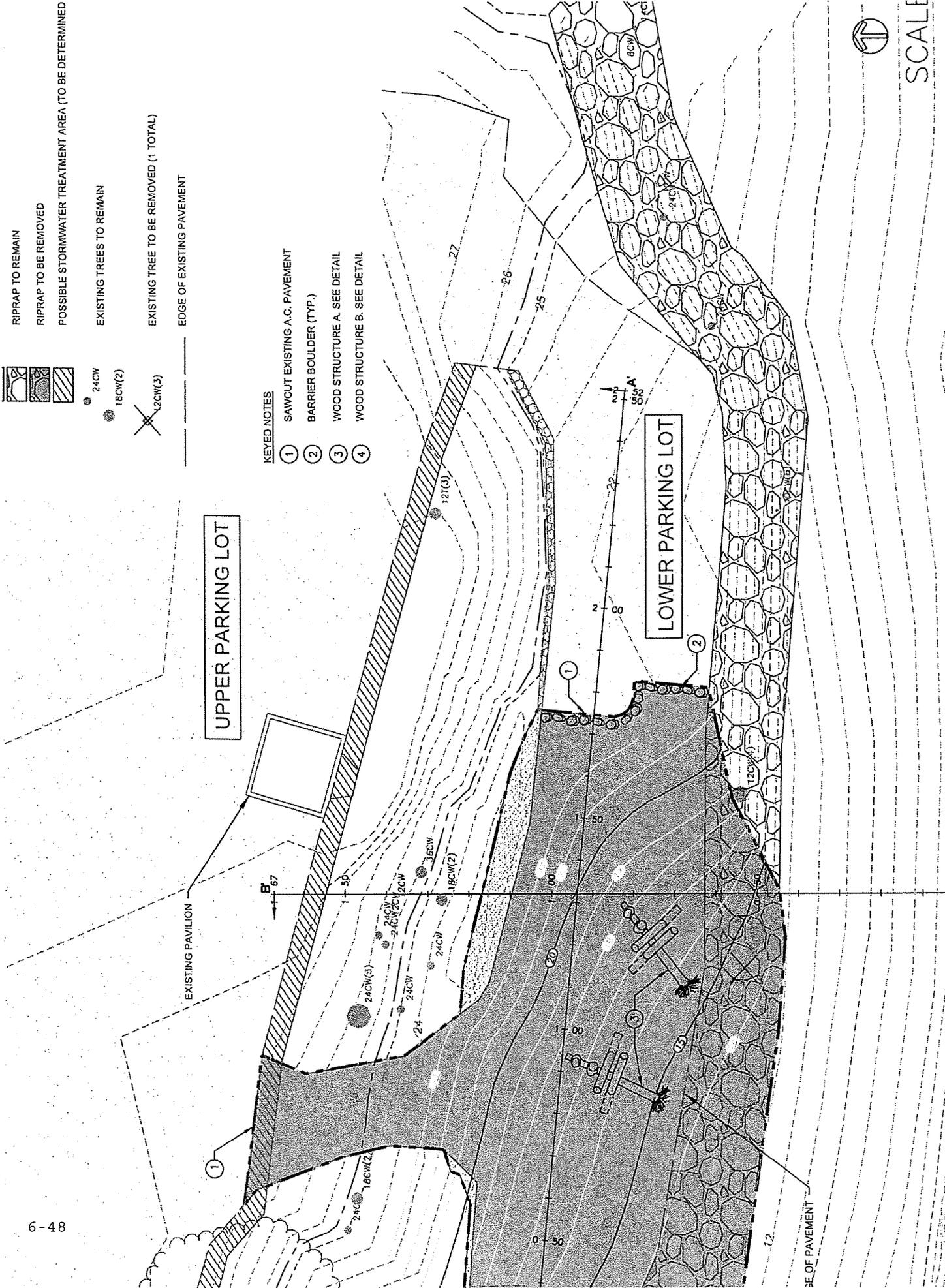
- ① SAWCUT EXISTING A.C. PAVEMENT
- ② BARRIER BOULDER (TYP.)
- ③ WOOD STRUCTURE A. SEE DETAIL
- ④ WOOD STRUCTURE B. SEE DETAIL

UPPER PARKING LOT

LOWER PARKING LOT

EXISTING PAVILION

EDGE OF PAVEMENT



SCALE

BUILDING FOUNDATIONS,
WHERE ENCOUNTERED

NE

ALL FILL TO BE COMPOSED
OF SITE GRADING

AREA (TO BE DETERMINED)

OHW LINE (ELEV. 25.4)

EXISTING FENCE

NEW FENCE

EXISTING TREES INTENDED TO REMAIN

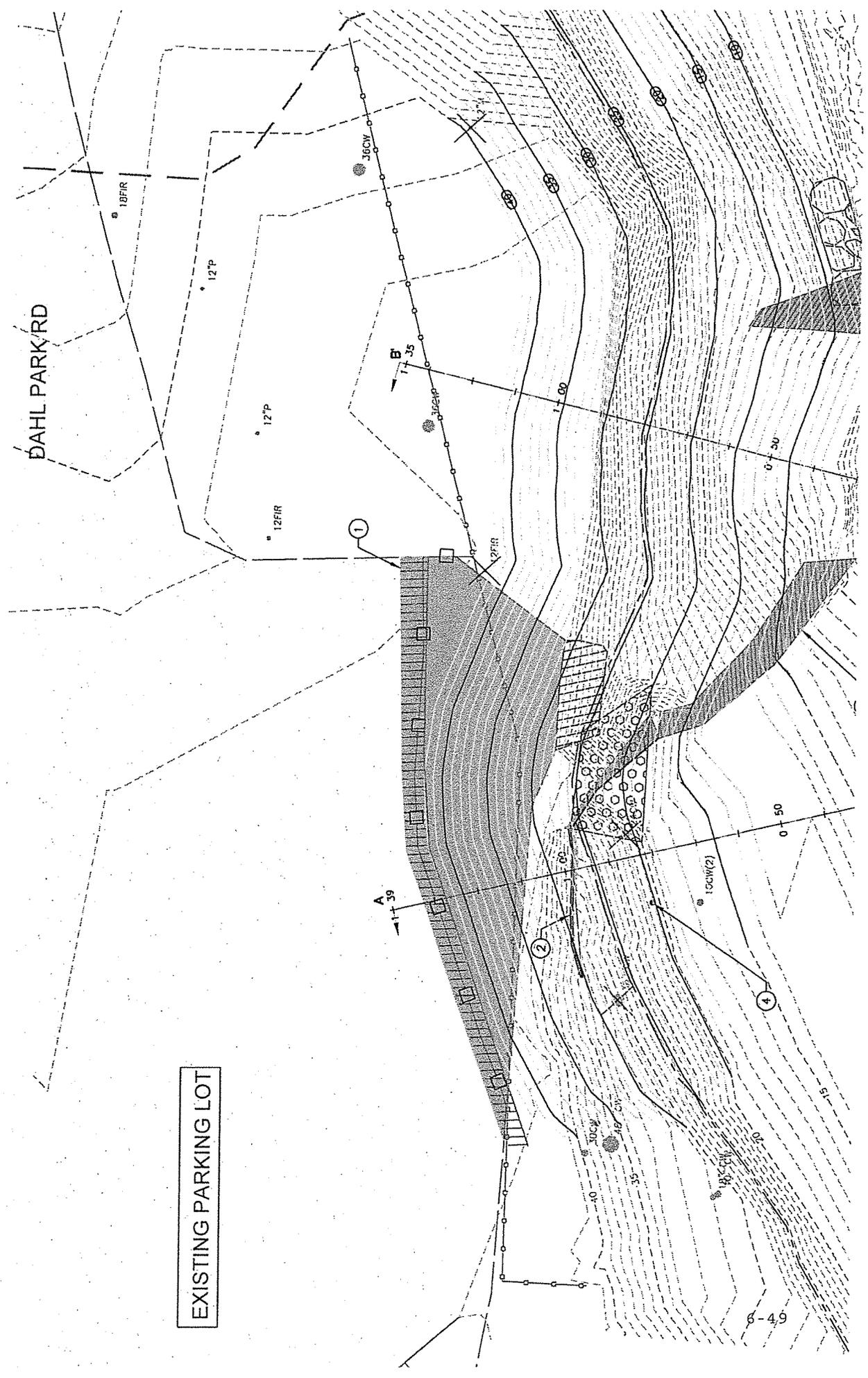
EXISTING TREE TO BE REMOVED (3 TOTAL)

REMOVE EXISTING SHEET PILE BULKHEAD
HARDWARE AND APPURTENANCES WHERE
SHEETPILE SEGMENTS THAT ARE UNABLE
WITHOUT EXTRAORDINARY EFFORT WILL
BELOW GRADE AND BURIED WITH NATIVE
SOIL

PROTECT EXISTING PIPE TO REMAIN

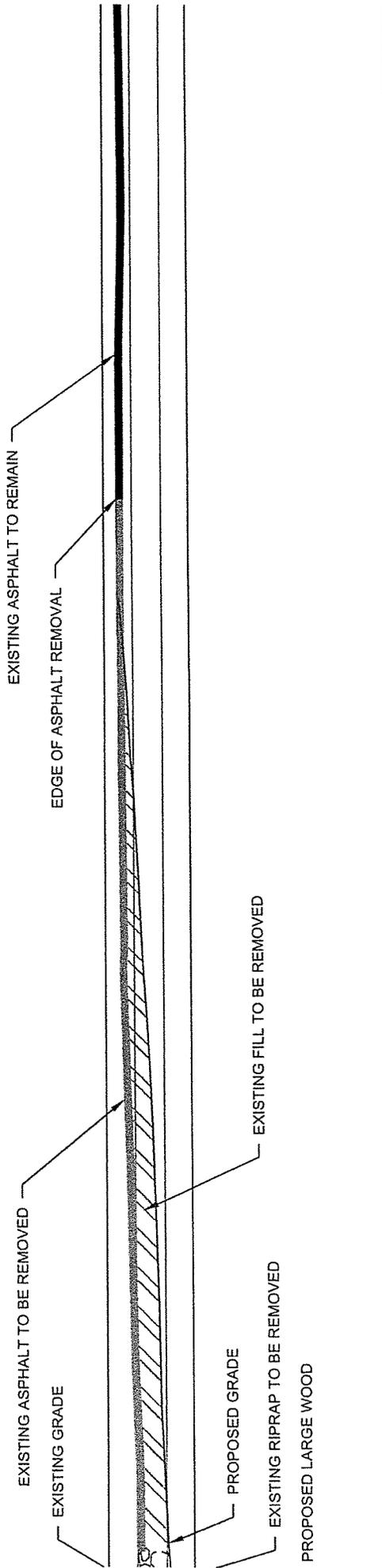
3

4

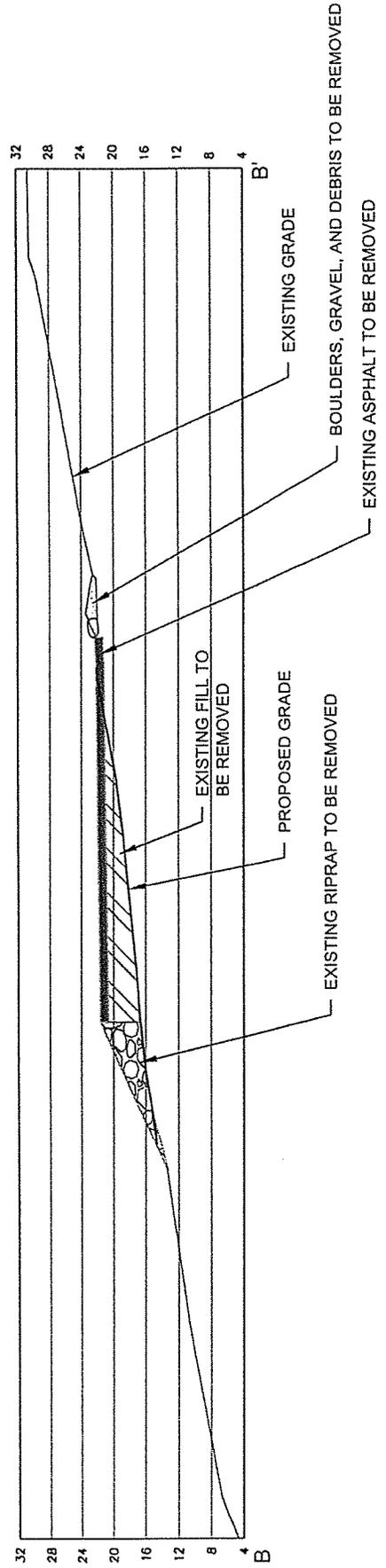


EXISTING PARKING LOT

6-49



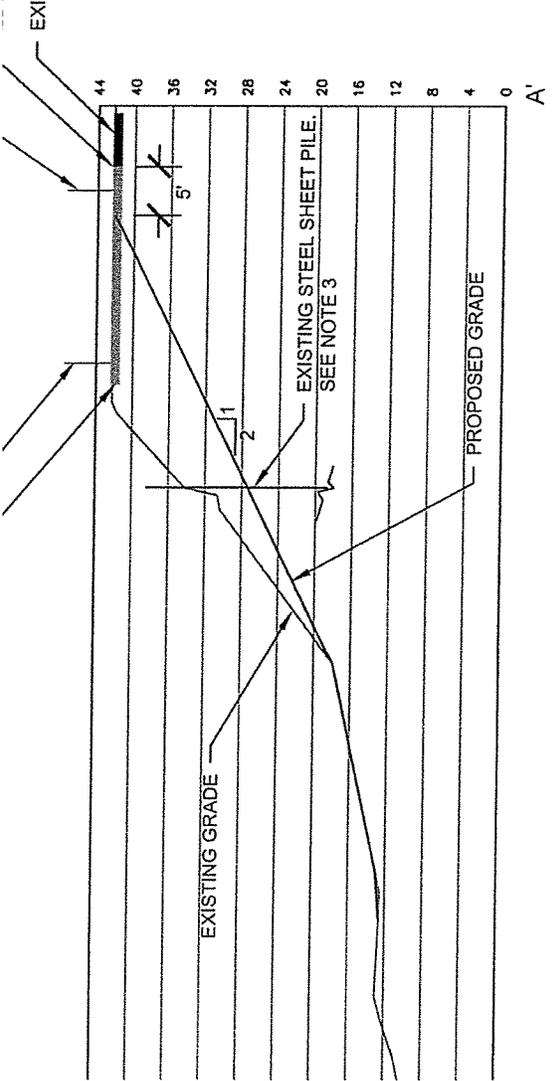
=20'



NOTES

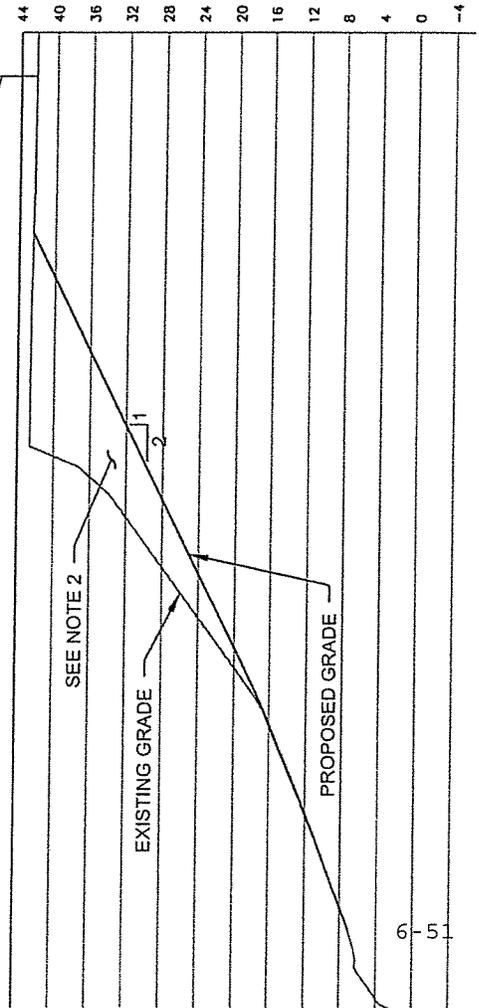
1. REMOVE EXISTING CABLES, HARDWARE, AND OTHER APPUI IF FEATURE EXTENDS BELOW FINISH GRADE, CUT OFF 2-3 F
2. MASS EXCAVATION MATERIAL EXPECTED TO BE SPREAD OR WASHED OF FINES.
3. CUT EXISTING STEEL SHEET PILE 2 FEET BELOW FINISH GR STRUCTURAL FILL.

EXISTING PAVEMENT TO REMAIN

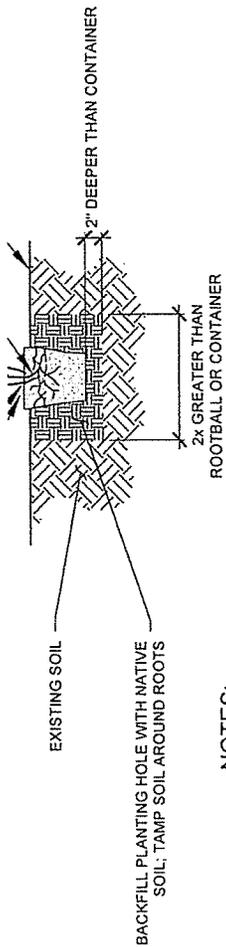


1"=10'

EXISTING FENCE TO REMAIN



6-51

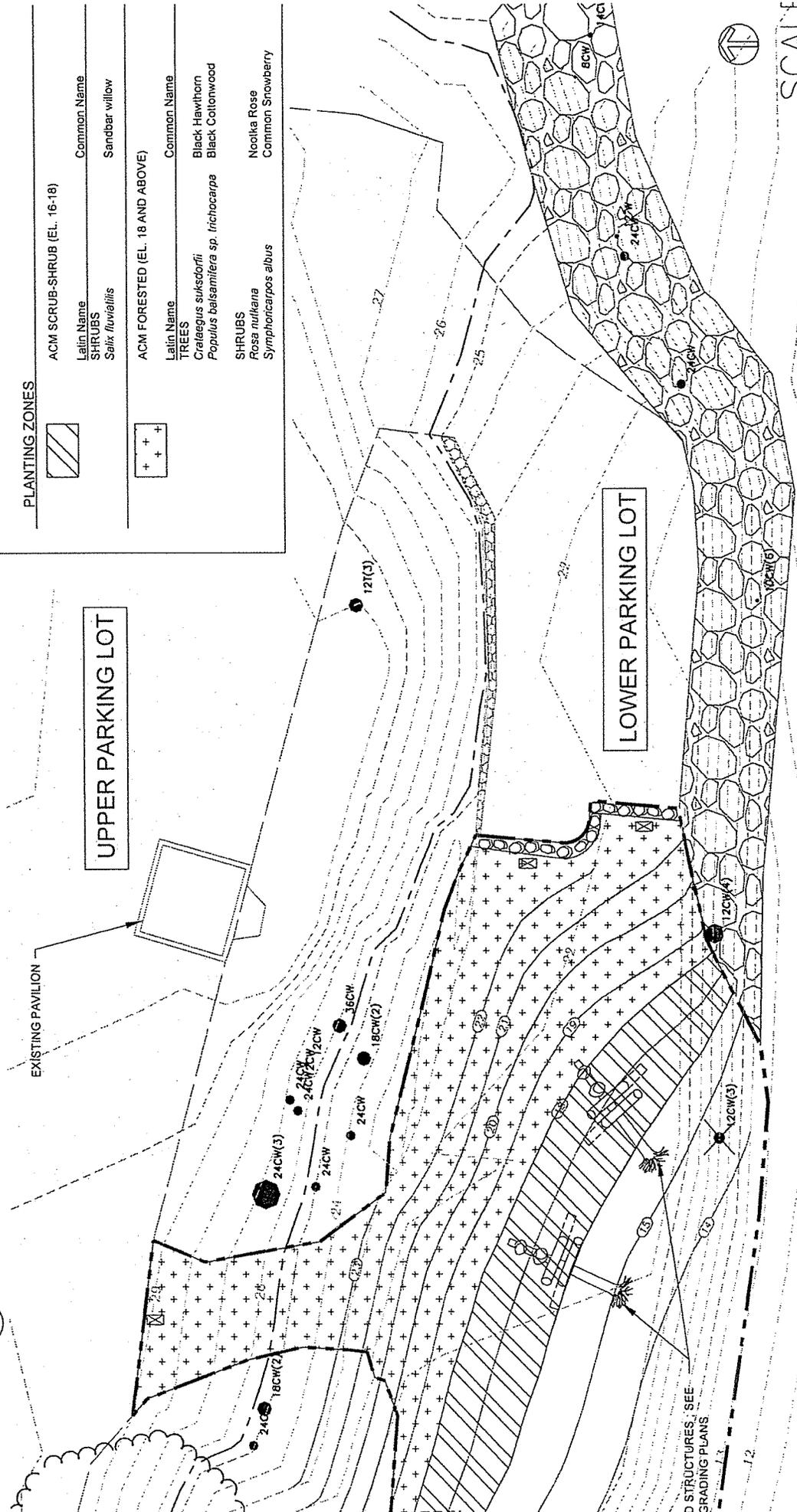


NOTES:

1. SEE SPECIFICATIONS FOR BACKFILL REQUIREMENTS

1 1 GALLON TREE & SHRUB PLANTING

Not to Scale



PLANTING ZONES



ACM SCRUB-SHRUB (EL. 16-18)

Latin Name
Common Name
SHRUBS
Salix fluviatilis
Sandbar willow



ACM FORESTED (EL. 18 AND ABOVE)

Latin Name
Common Name
TREES
Crataegus suksdorfii
Black Hawthorn
Populus balsamifera sp. trichocarpa
Black Cottonwood
SHRUBS
Rosa nutkana
Nootka Rose
Symphoricarpos albus
Common Snowberry

D STRUCTURES, SEE GRADING PLANS

SCALE

ED (3 TOTAL)

NEW FENCE

PROPOSED HABITAT AREA SIGNAGE (2 TOTAL)

ACM FORESTED (EL. 18-25.4)

Quantity

Common Name

Latin Name

20
20

Black Hawthorn
Black Cottonwood

Crataegus douglasii
Populus balsamifera sp. *trichocarpa*

SHRUBS

115
115

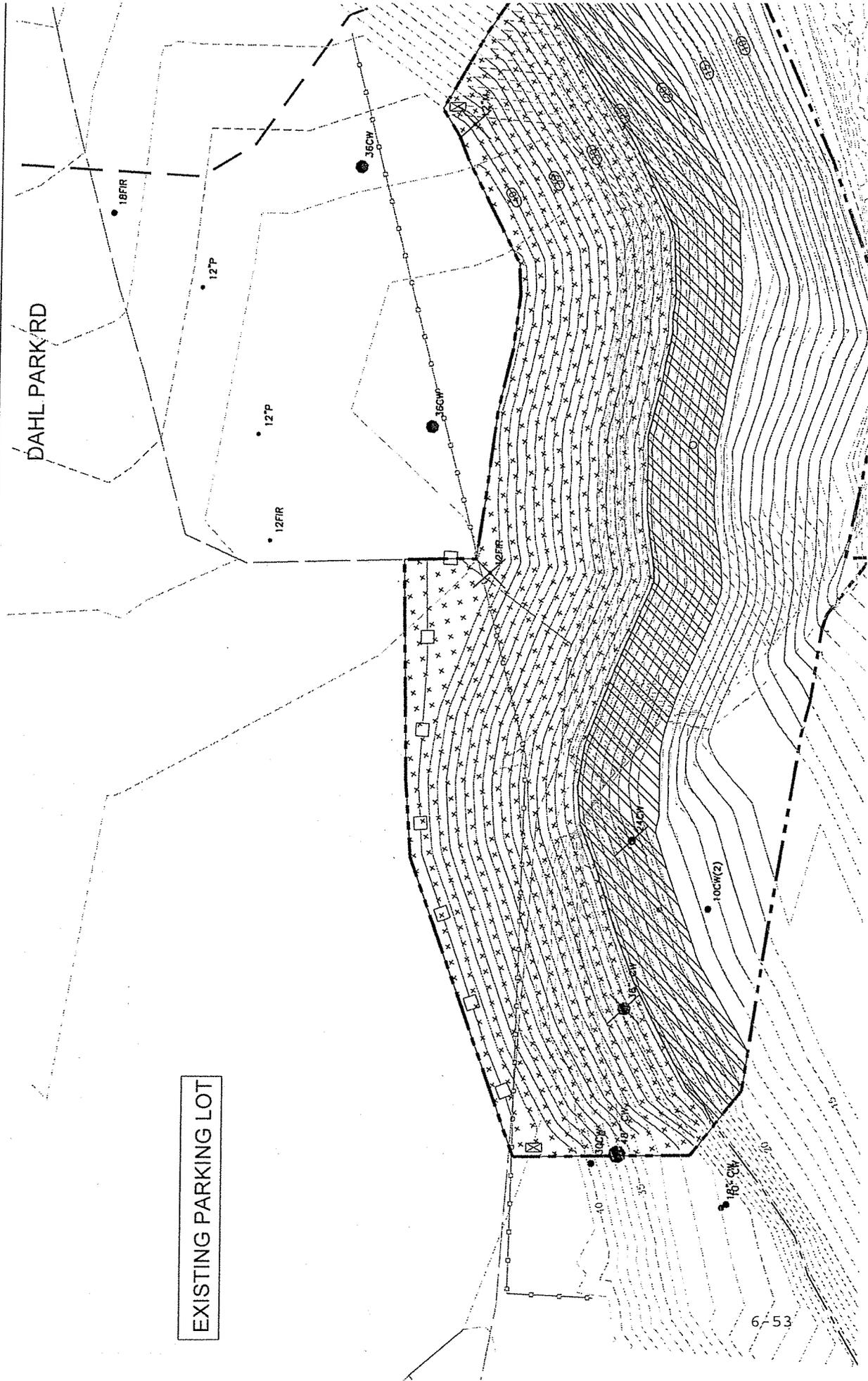
Nodika Rose
Common Snowberry

Rosa nutkana
Symphoricarpos albus



DAHL PARK RD

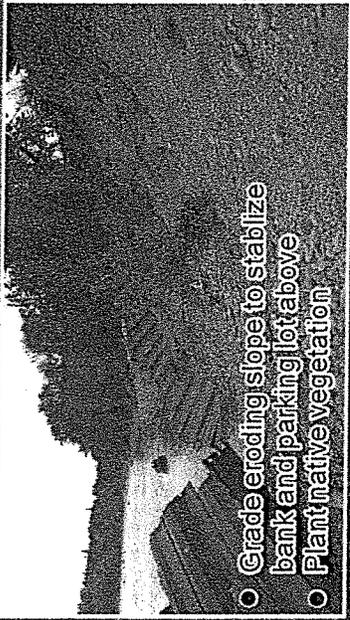
EXISTING PARKING LOT



Legend

 Bulkhead Removal
Area - 0.47 acres



 ○ Grade eroding slope to stabilize bank and parking lot above
○ Plant native vegetation

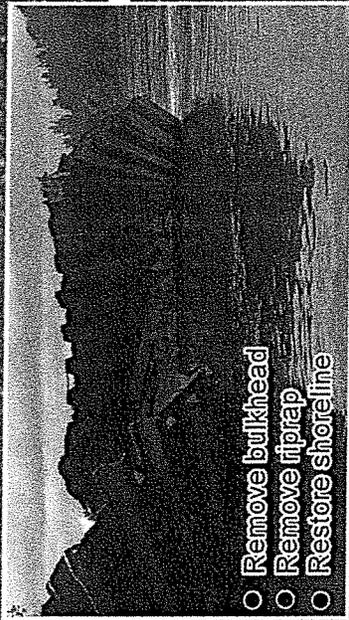
 ○ Remove bulkhead
○ Remove riprap
○ Restore shoreline



Figure 2. Bulkhead Removal

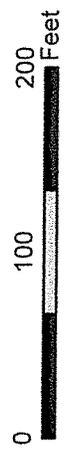
Dahl Beach Mitigation Site

Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_Fig2_BulkheadRemovalArea.mxd

Date: 10/12/2015

Data Source: ESRI, 2015

Scale: 1 inch = 100 feet





Date: 10/12/2015

Data Source: ESRI, 2015

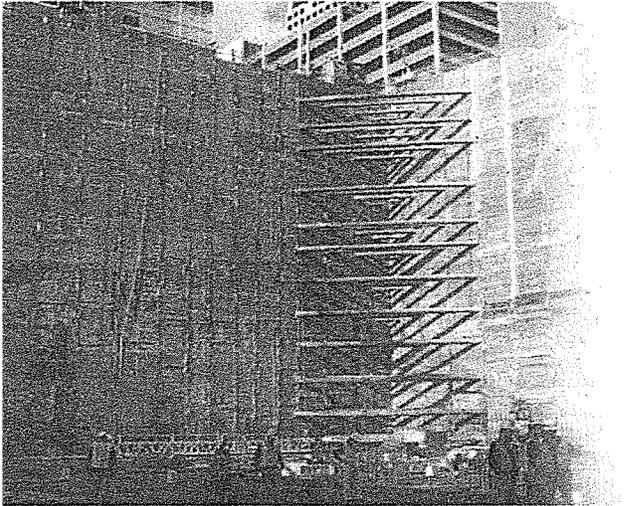
Scale: 1 inch = 100 feet



Figure 3. Parking Lot Removal

Dahl Beach Mitigation Site

Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_Fig3_ParkingLotRemovalArea.mxd



DRAFT

Report of Geotechnical
Engineering Services

**Dahl Beach Rehabilitation
Gladstone, Oregon**

Prepared for
Cascade Environmental Group

October 12, 2015
15984-03

DRAFT

APPENDIX B
REPORT OF GEOTECHNICAL
ENGINEERING SERVICES



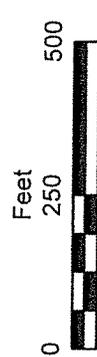
NOTES:
 Land use in the surrounding area is transitioning from agricultural to recreational and urban development. Dahl Beach, Meldrum Bar, and Clackamette Parks appear to have been established and there is some use of the Parking Lot Area.

LEGEND
 [White outline] Mitigation Work Areas

Date: 10/29/2015

Scale: 1 inch = 300 feet

Aerial Source: University of Oregon Map & Aerial Photography Library.

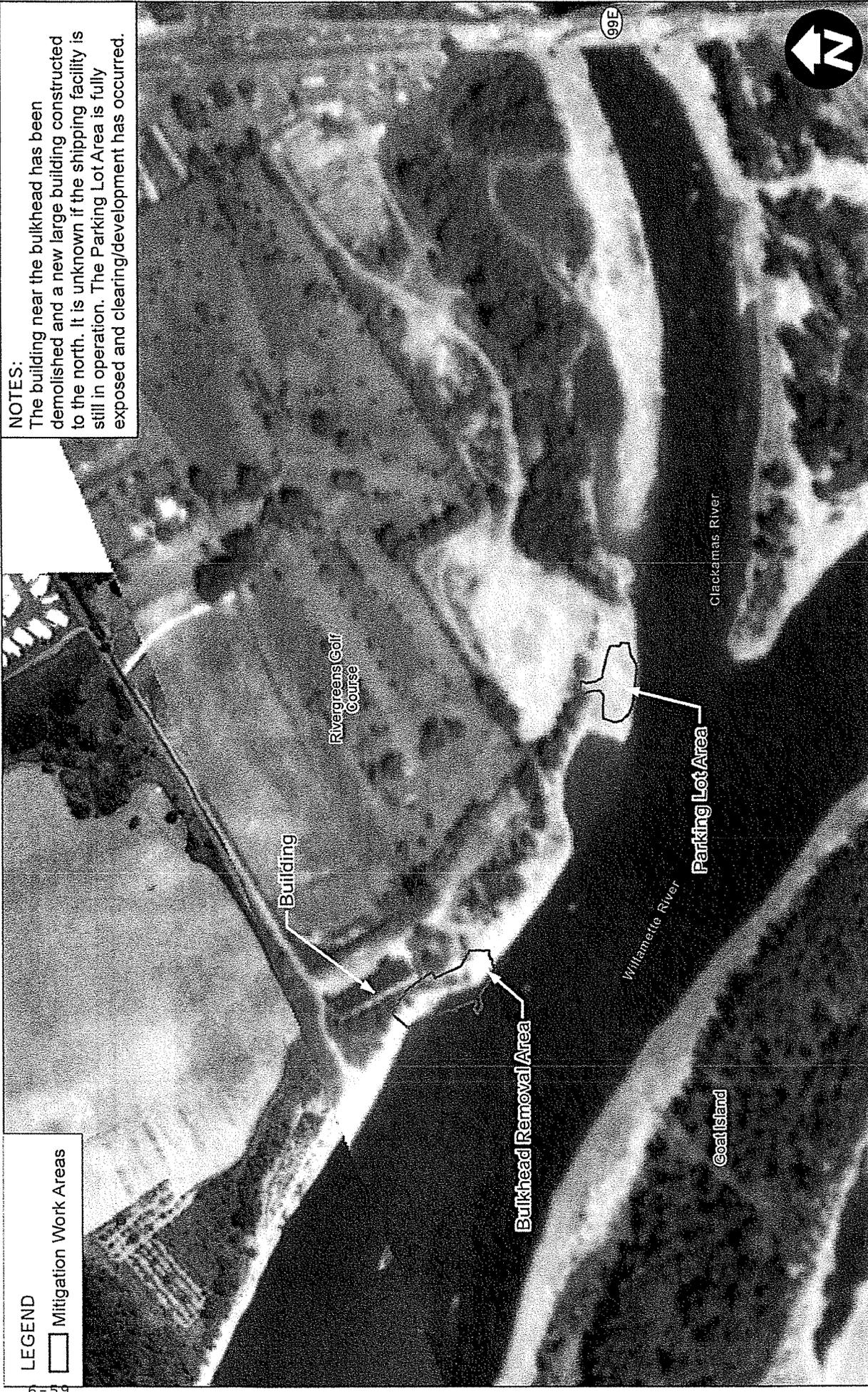


Terminal 4 Phase I Removal Action Draft Mitigation Work Plan
 Port of Portland, Portland, Oregon



Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd

Appendix A. Dahl Beach Mitigation
 Project Historical Aerials - 1980



NOTES:
 The building near the bulkhead has been demolished and a new large building constructed to the north. It is unknown if the shipping facility is still in operation. The Parking Lot Area is fully exposed and clearing/development has occurred.

LEGEND
 [] Mitigation Work Areas

Date: 10/29/2015

Scale: 1 inch = 300 feet

Aerial Source: University of Oregon Map & Aerial Photography Library.



Appendix A. Dahl Beach Mitigation Project Historical Aerials - 1973

Terminal 4 Phase I Removal Action Draft Mitigation Work Plan

Port of Portland, Portland, Oregon

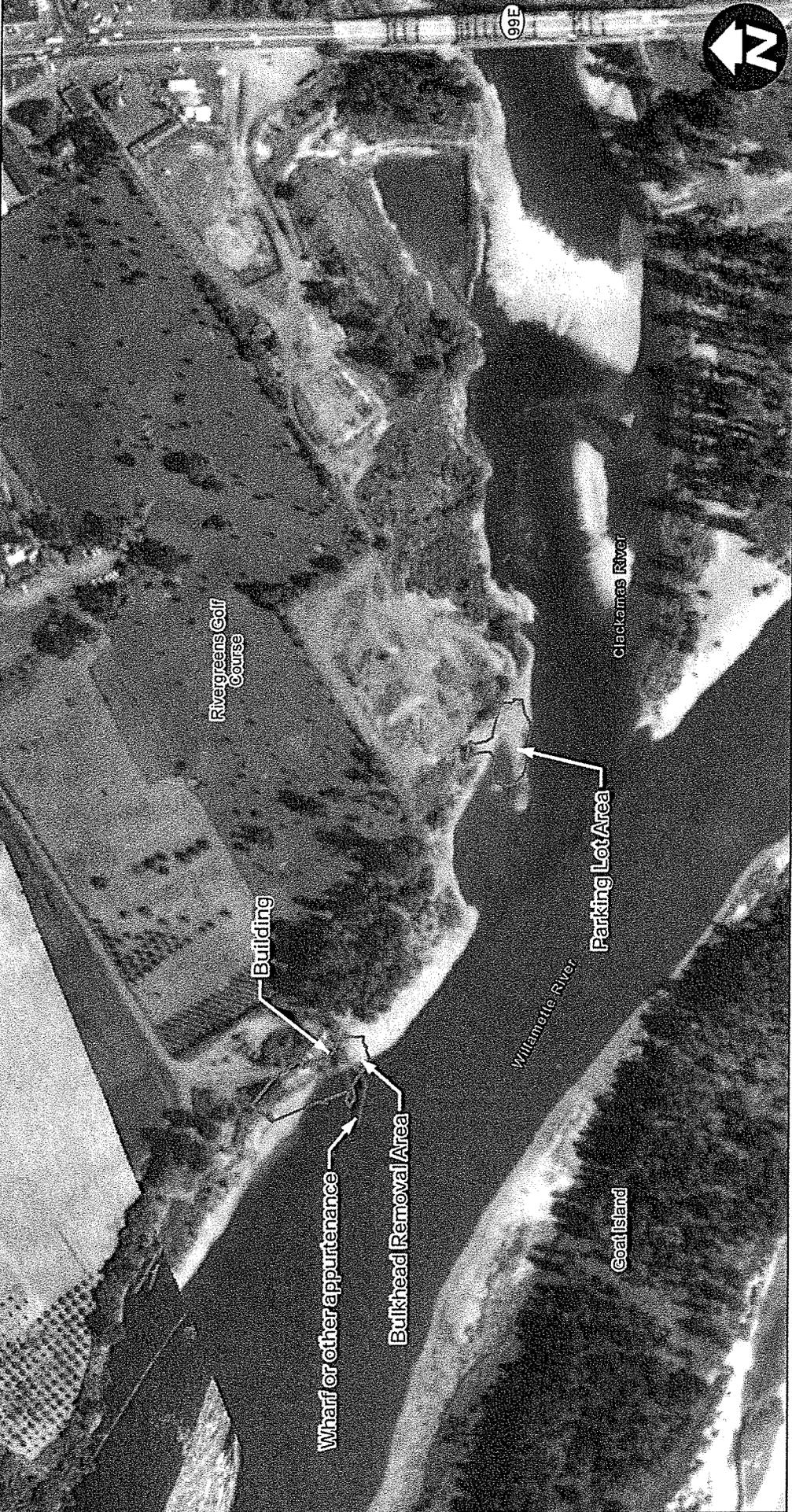
Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd

LEGEND

☐ Mitigation Work Areas

NOTES:

Lower water levels have exposed most of the Parking Lot Area and clearing/grading work is evident to the north. The Children's Course golf course has been opened as the Rivergreens Golf Course. Urbanization of the area around 99E is increasing.



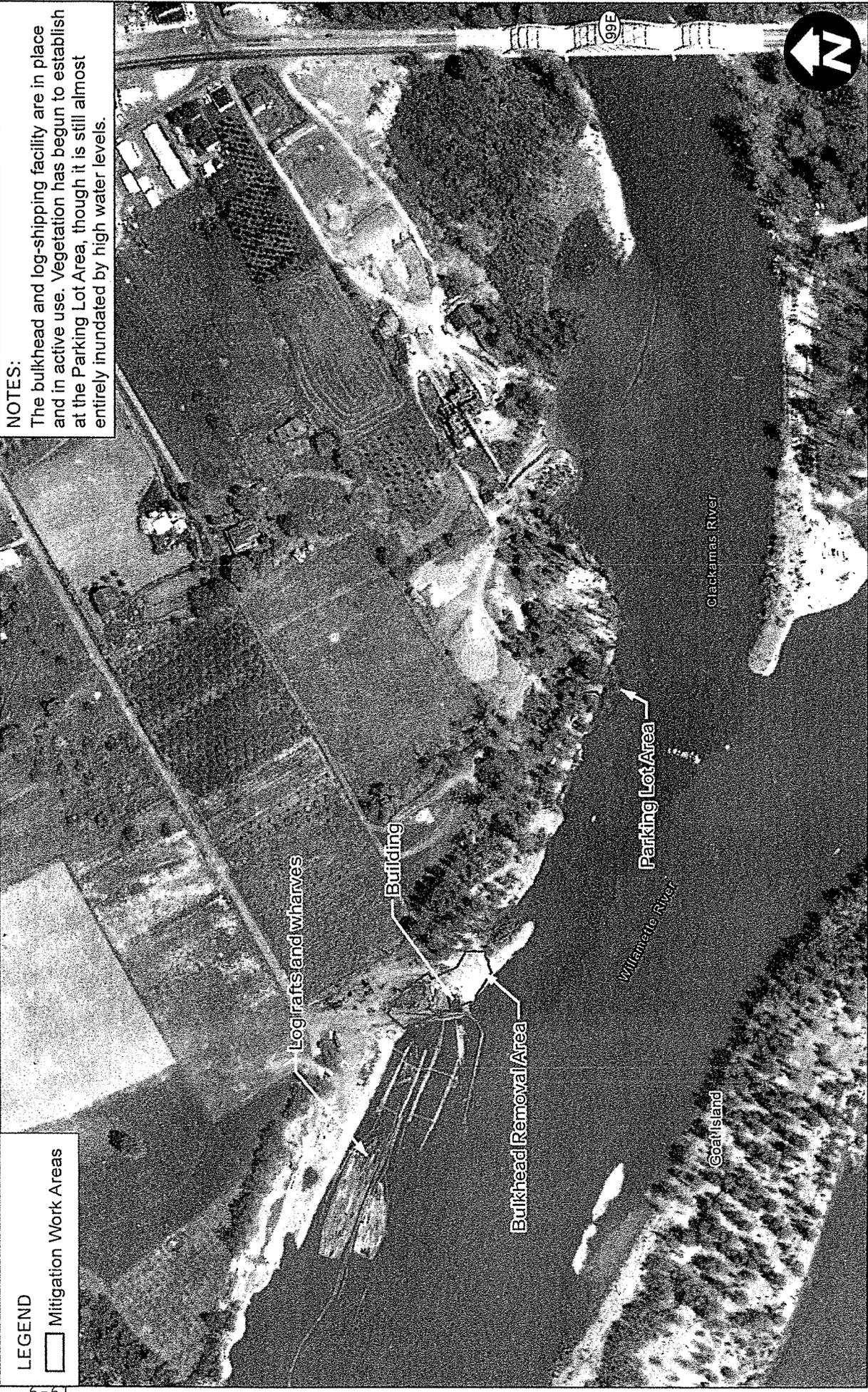
Date: 10/29/2015
 Scale: 1 inch = 300 feet
 Aerial Source: University of Oregon Map & Aerial Photography Library

CASCADE ENVIRONMENTAL GROUP

Terminal 4 Phase I Removal Action Draft Mitigation Work Plan
 Port of Portland, Portland, Oregon

Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd

0 250 500 Feet



NOTES:
 The bulkhead and log-shipping facility are in place and in active use. Vegetation has begun to establish at the Parking Lot Area, though it is still almost entirely inundated by high water levels.

LEGEND
 [White Box] Mitigation Work Areas

Date: 10/29/2015

Scale: 1 inch = 300 feet

Aerial Source: University of Oregon Map & Aerial Photography Library.



**Appendix A. Dahl Beach Mitigation
 Project Historical Aerials - 1956**

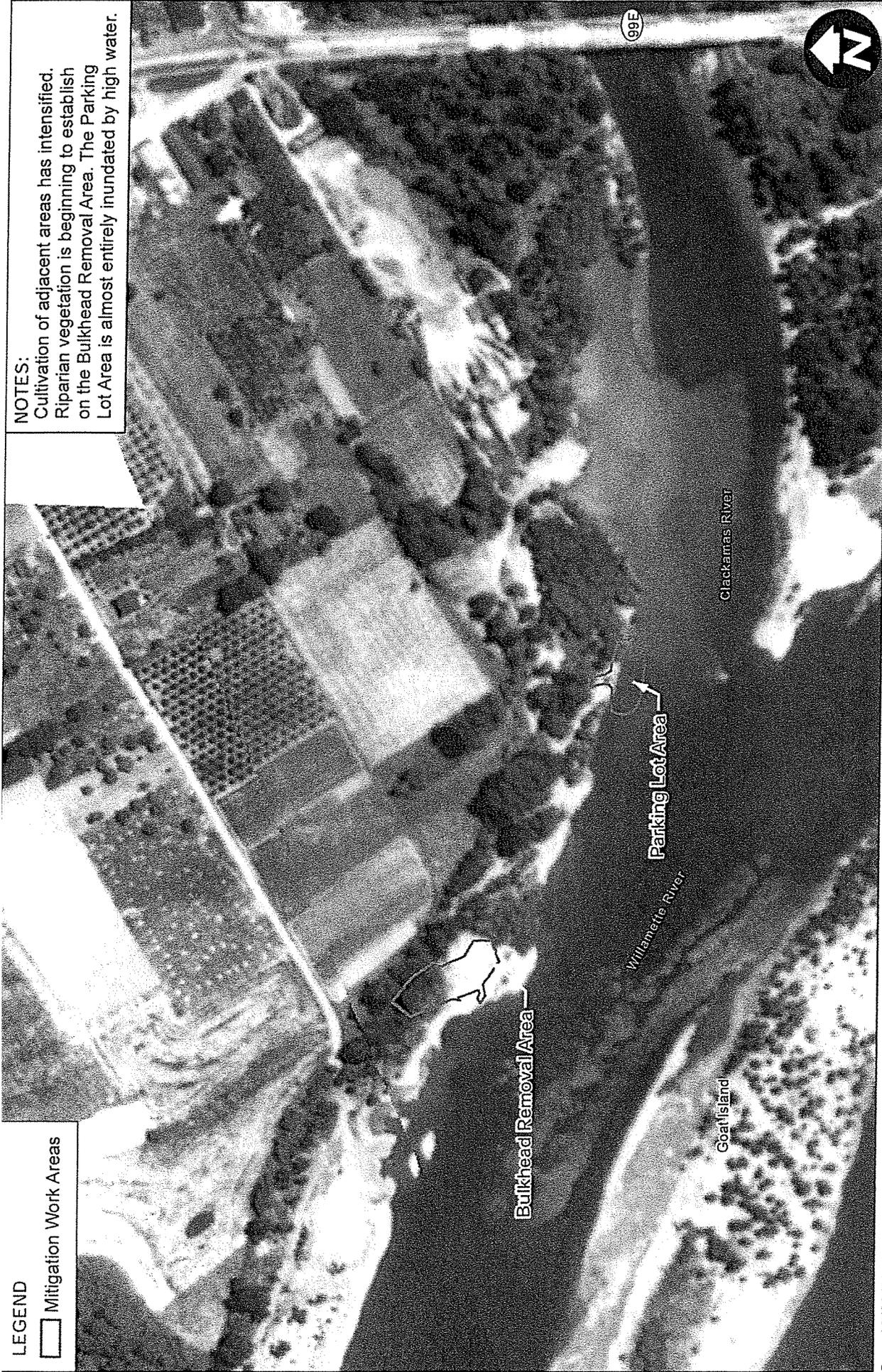
Terminal 4 Phase I Removal Action Draft Mitigation Work Plan
 Port of Portland, Portland, Oregon
 Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd

LEGEND

☐ Mitigation Work Areas

NOTES:

Cultivation of adjacent areas has intensified. Riparian vegetation is beginning to establish on the Bulkhead Removal Area. The Parking Lot Area is almost entirely inundated by high water.



Date: 10/29/2015

Scale: 1 inch = 300 feet

Aerial Source: University of Oregon Map & Aerial Photography Library.



CASCADE ENVIRONMENTAL GROUP



Appendix A. Dahl Beach Mitigation Project Historical Aerials - 1948

Terminal 4 Phase I Removal Action Draft Mitigation Work Plan Port of Portland, Portland, Oregon

Z:\GIS\89_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd



NOTES:
 The Project site is surrounded by agriculture and features little riparian vegetation. Very low water levels reveal a beach that appears flatter and much broader than its current condition.

LEGEND
 [Outline] Mitigation Work Areas

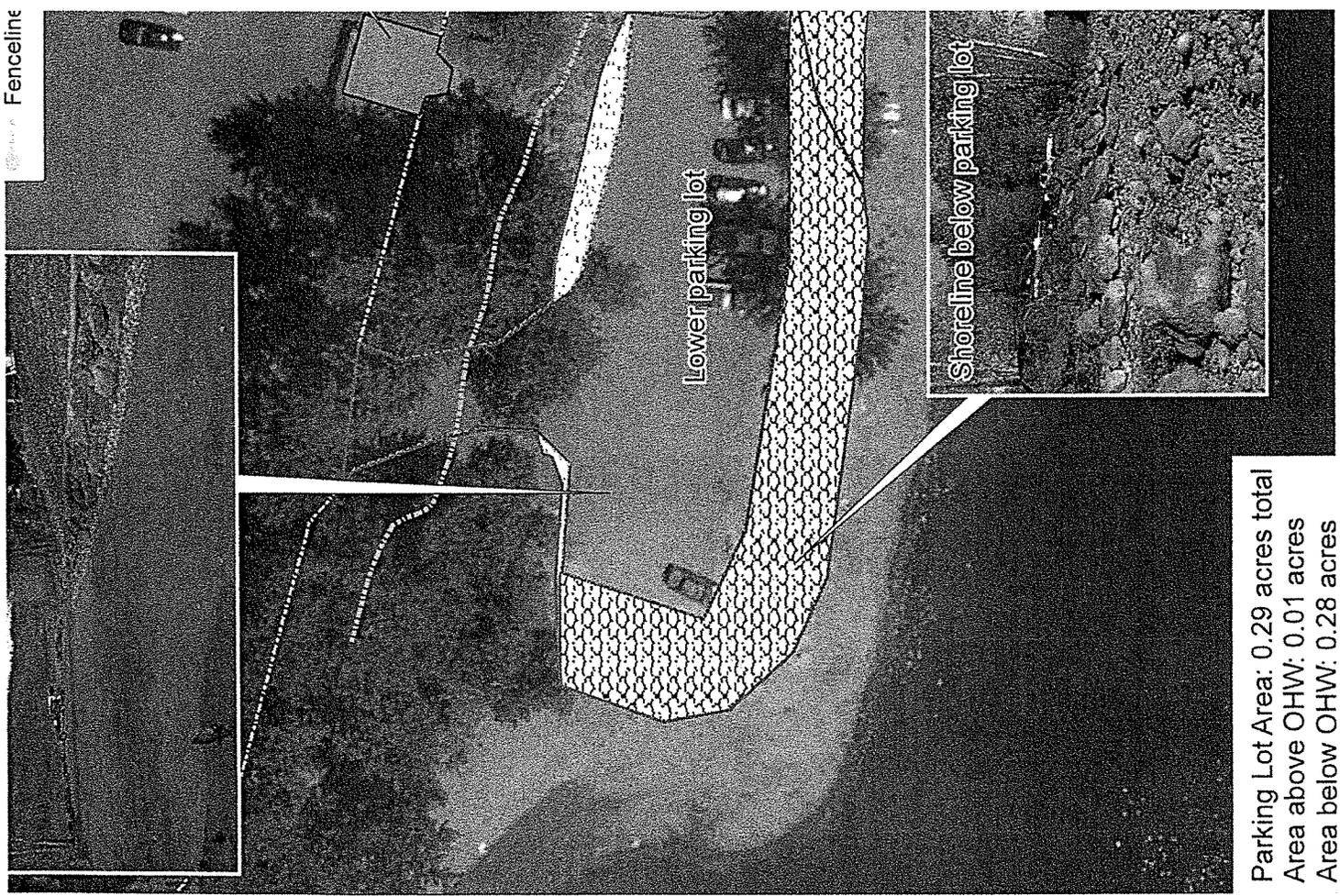
Date: 10/29/2015
 Scale: 1 inch = 300 feet
 Aerial Source: University of Oregon Map & Aerial Photography Library.

CASCADE ENVIRONMENTAL GROUP

Terminal 4 Phase I Removal Action Draft Mitigation Work Plan
 Port of Portland, Portland, Oregon
 Z:\GIS\189_DahlBeach\Mapfiles\DahlBeach_City_AppA_HistoricAerials.mxd

Appendix A. Dahl Beach Mitigation
 Project Historical Aerials - 1936

APPENDIX A
DAHL BEACH MITIGATION PROJECT
HISTORIC AERIALS

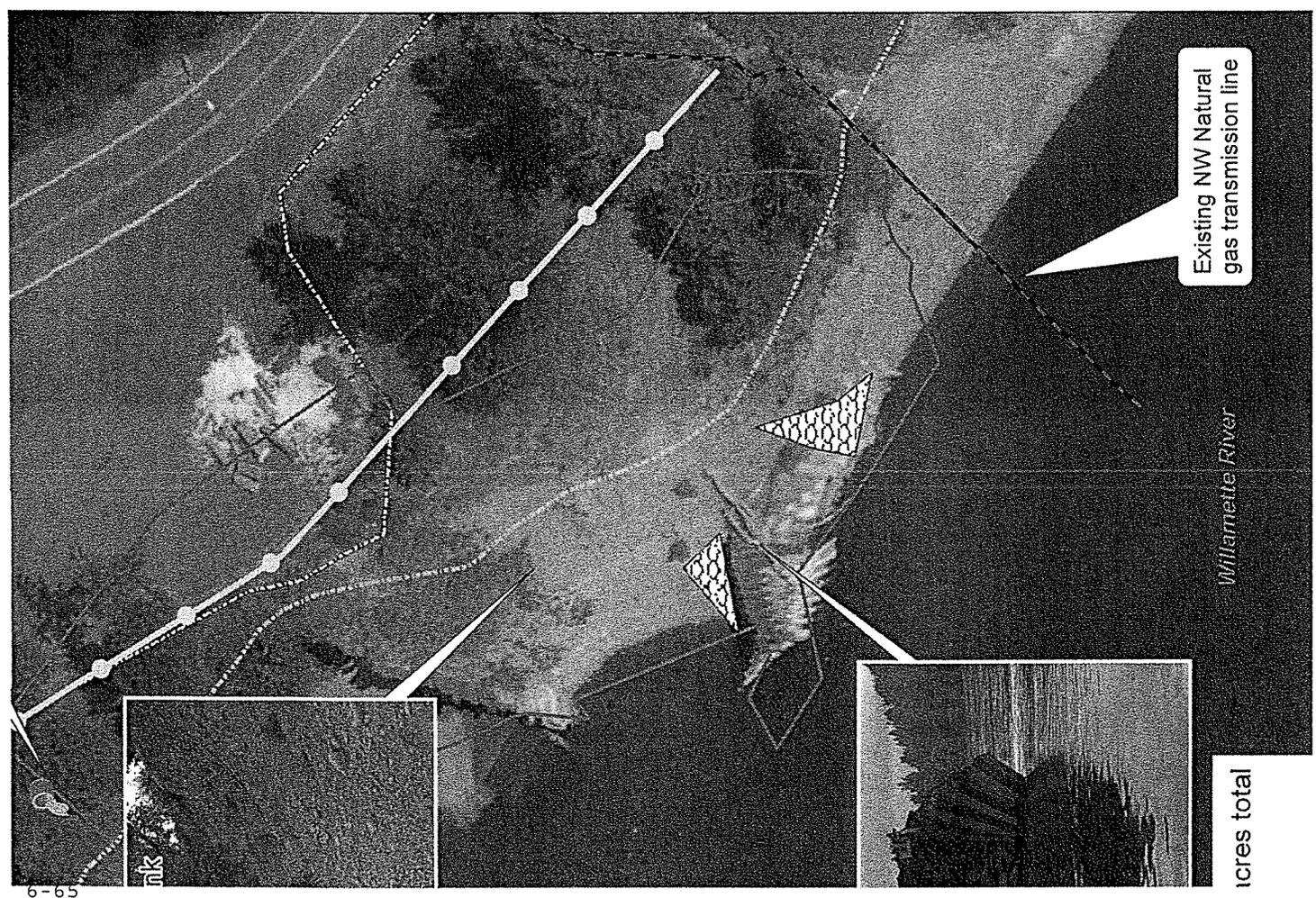


Fence line

Lower parking lot

Shoreline below parking lot

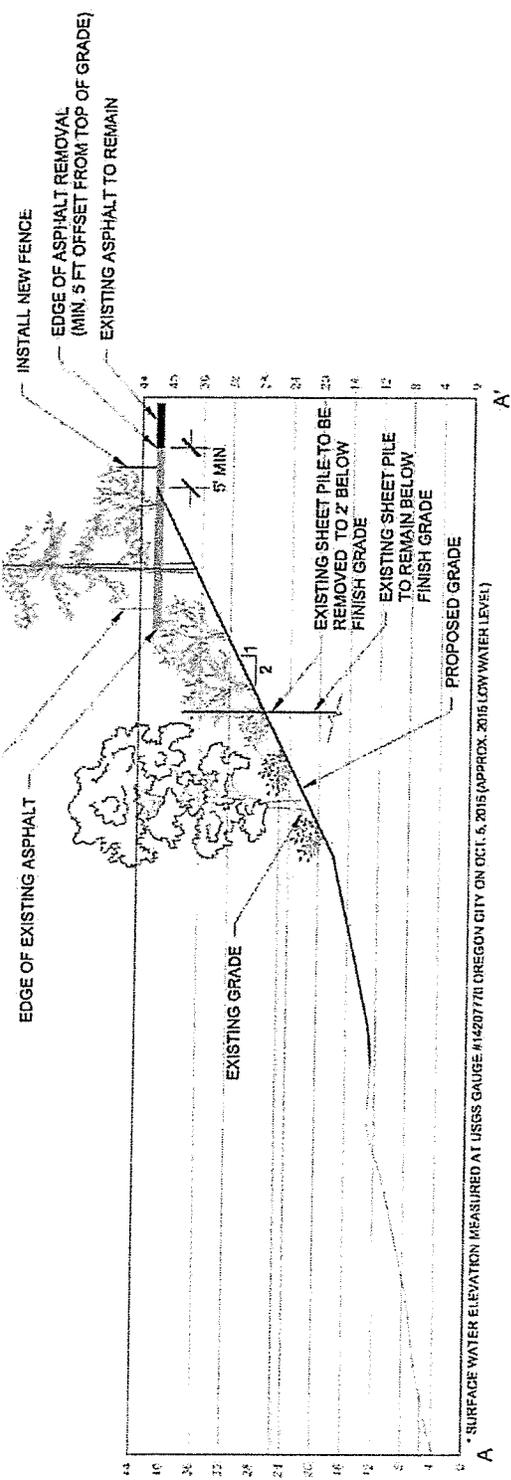
Parking Lot Area: 0.29 acres total
 Area above OHW: 0.01 acres
 Area below OHW: 0.28 acres



Existing NW Natural gas transmission line

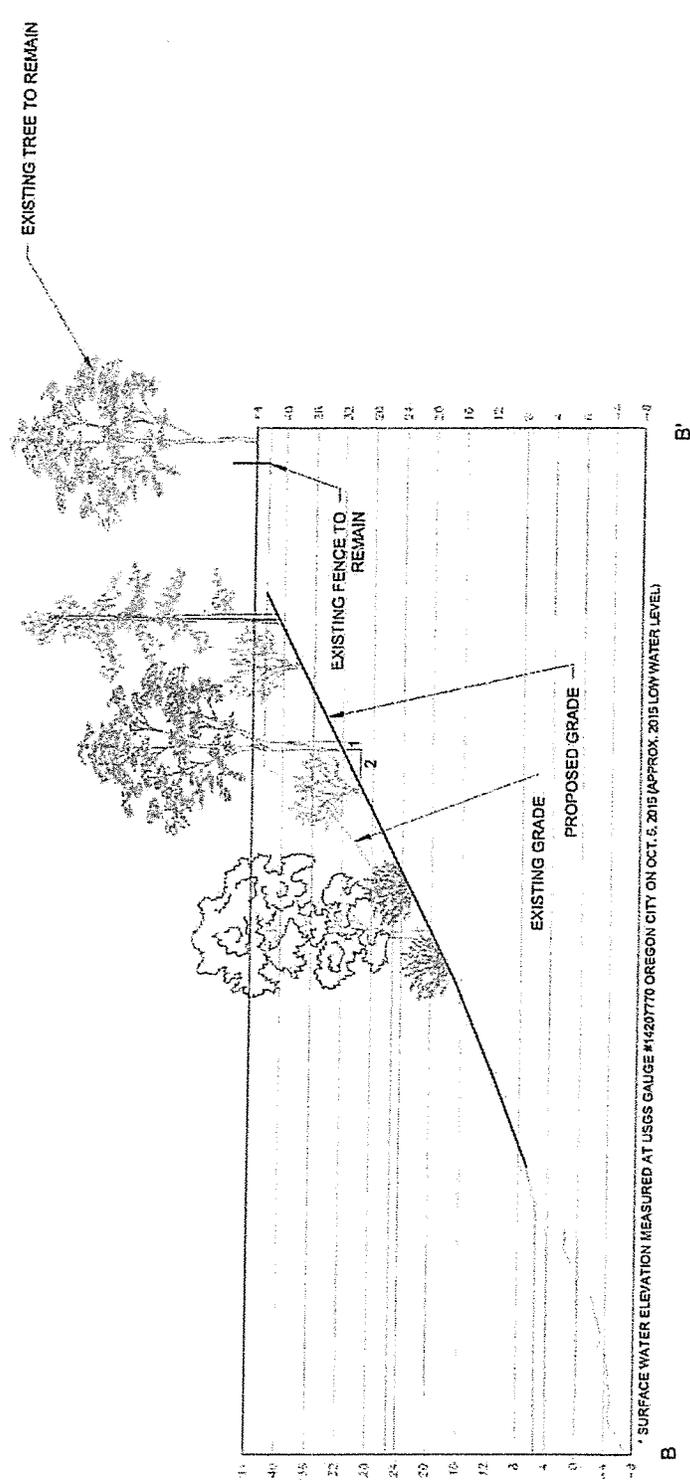
Willamette River

acres total



SECTION A-A': BULKHEAD REMOVAL AREA
 SCALE: VERT. 1"=10' HORIZ. 1"=10'

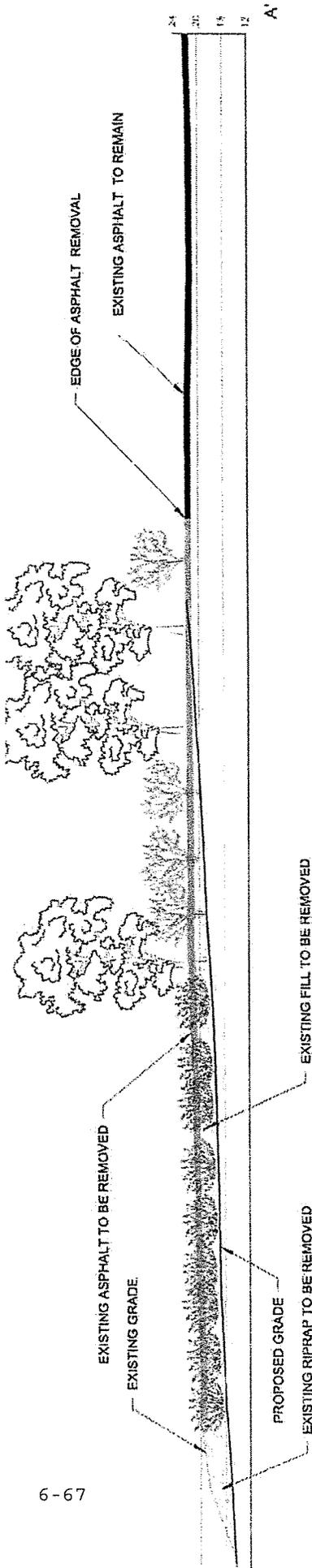
OHW: 25.4
 EL. 5.7'



SECTION B-B': BULKHEAD REMOVAL AREA
 SCALE: VERT. 1"=10' HORIZ. 1"=10'

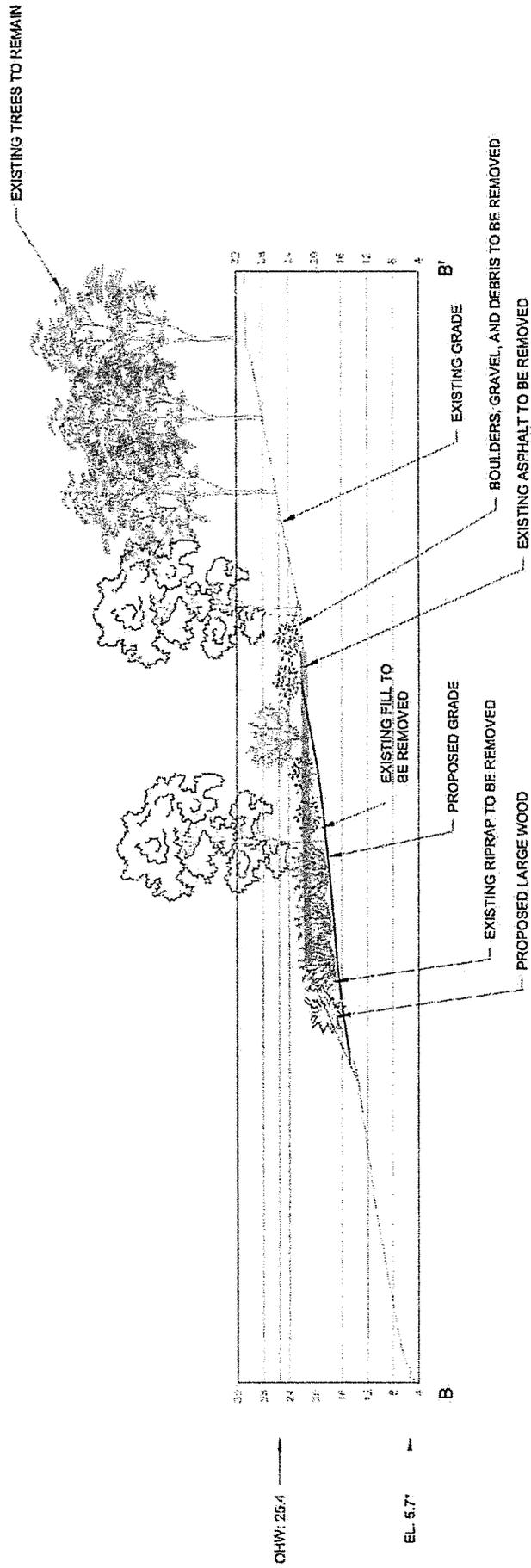
OHW: 25.4
 EL. 5.7'

6-67



SECTION A-A': PARKING LOT AREA

E: VERT. 1"=20' HORIZ. 1"=20'



SECTION B-B': PARKING LOT AREA

E: VERT. 1"=20' HORIZ. 1"=20'

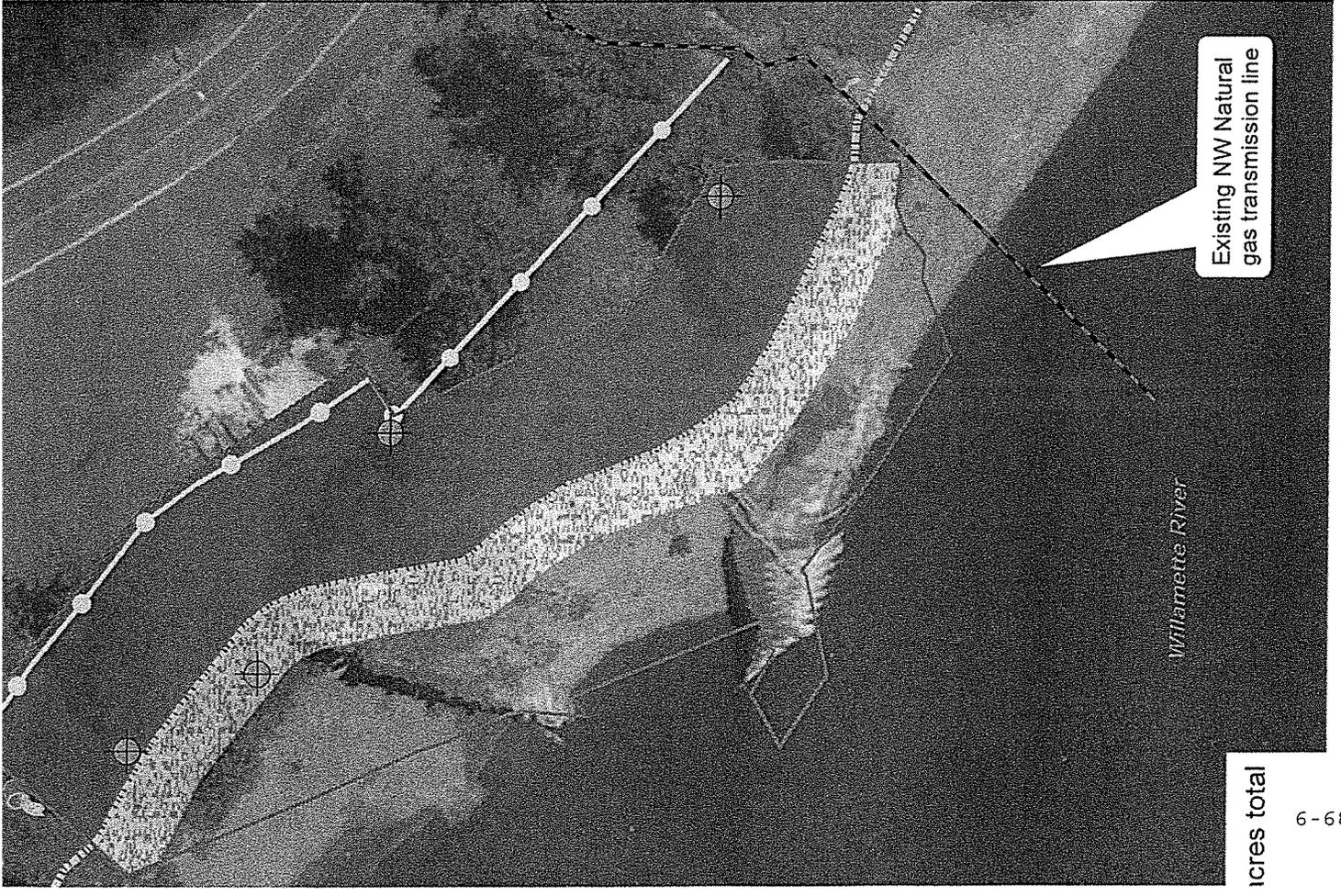
* SURFACE WATER ELEVATION MEASURED AT USGS GAUGE #14207770 OREGON CITY ON OCT. 5, 2015 (APPROX. 2015 LOW WATER LEVEL)

-  Post-Construction Fenceline
-  Trees Removed



Por
for

Parking Lot Area: 0.29 acres total
 Area above OHW: 0.01 acres
 Area below OHW: 0.28 acres



Existing NW Natural
 gas transmission line

Millamette River

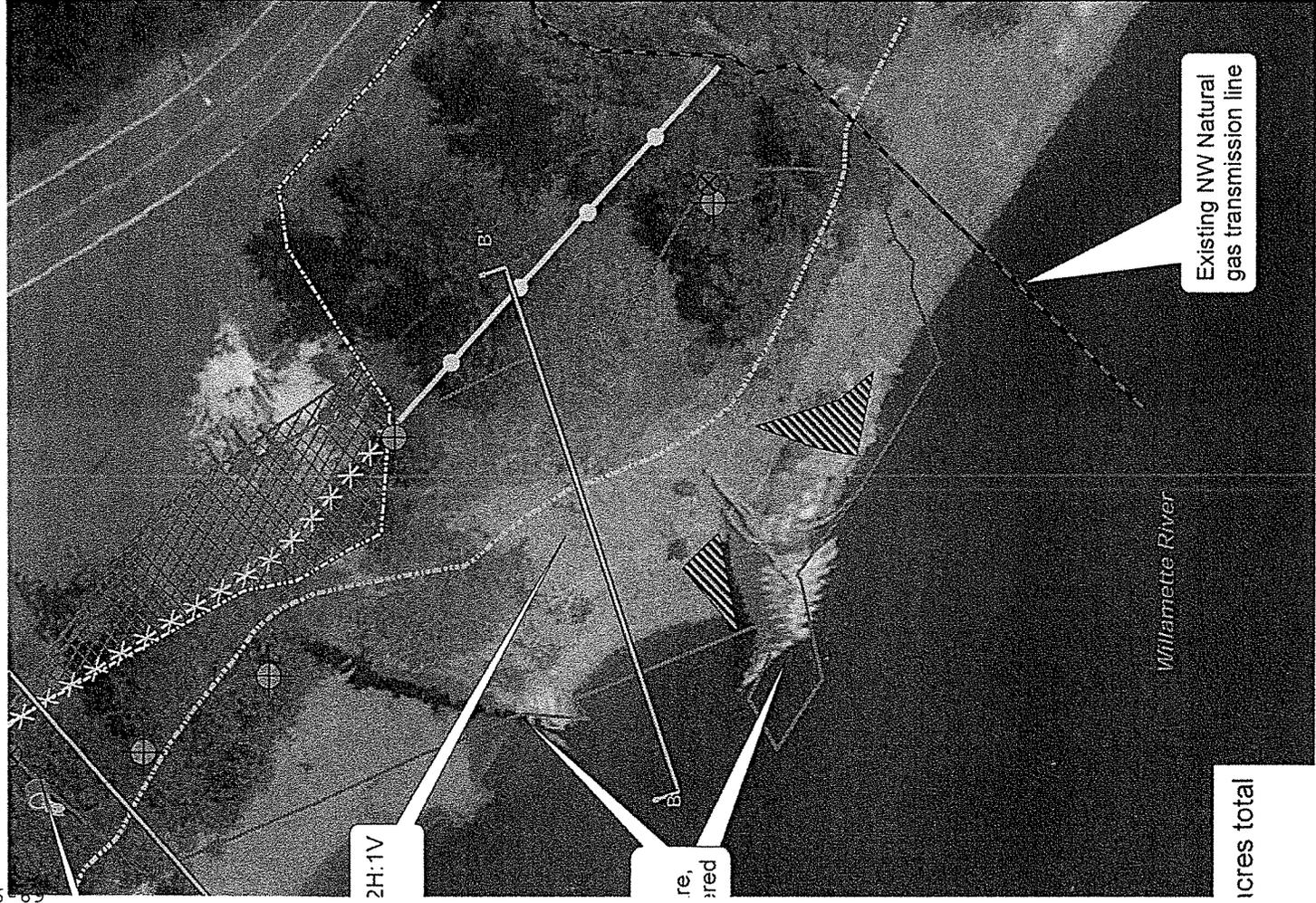
acres total

-  Edge of Pavement
-  Cross-Section Locations
-  Riprap to Remain
-  Existing Fence to Remain
-  (Representational)
-  Boulders, Gravel, D to be Removed
-  Riprap to be Removed
-  Pavement to be Removed



Por
for

Parking Lot Area: 0.29 acres total
 Area above OHW: 0.01 acres
 Area below OHW: 0.28 acres



2H:1V

re,
are

Existing NW Natural
gas transmission line

Williamette River

acres total



DRAFT

Report of Geotechnical Engineering Services

Dahl Beach Rehabilitation

Gladstone, Oregon

Prepared for

Cascade Environmental Group

October 12, 2015

15984-03

Prepared by

Hart Crowser, Inc.

DRAFT

DRAFT

Timothy W. Blackwood, PE, GE, CEG
Principal, Geotechnical Engineer

DRAFT

James S. Alders, PE
Project Geotechnical Engineer

Contents

1.0 INTRODUCTION	1
2.0 SCOPE OF SERVICES	1
3.0 SITE CONDITIONS	2
3.1 Surface Conditions	2
3.2 Geologic and Soil Mapping	3
3.3 Subsurface Conditions	3
3.3.1 General	3
3.3.2 Soil Conditions	4
3.3.3 Groundwater	4
4.0 SLOPE STABILITY ANALYSIS FOR RETAINING WALL SITE	4
4.1 General	4
5.0 CONCLUSIONS	6
6.0 EARTHWORK RECOMMENDATIONS	6
6.1 Demolition	7
6.2 Stripping and Subgrade Preparation	7
6.3 Excavation	8
6.4 Structural Fill Placement	8
7.0 CONSTRUCTION OBSERVATION	10
8.0 LIMITATIONS	10
9.0 REFERENCES	11

TABLES

1	Soil Properties Used in Stability Analyses	4
2	Stability Analysis Results for Existing and Regraded Geometry Section A-A'	5
3	Guidelines for Uncompacted Lift Thickness	9

FIGURES

1	Vicinity Map
2	Retaining Wall Site Plan
3	Parking Lot Site Plan

APPENDIX A

Field Explorations Methods and Analysis

APPENDIX B

Slope Stability Analysis

DRAFT

Dahl Beach Rehabilitation

Gladstone, Oregon

1.0 INTRODUCTION

Hart Crowser, Inc., is pleased to submit our report of geotechnical engineering services for the Dahl Beach Rehabilitation project in Gladstone, Oregon. Our work was completed in general accordance with our July 10, 2015 proposal, which detailed our scope and fee.

The project will consist of rehabilitation of the shoreline at two locations along the Willamette River and Clackamas River waterfronts, referred to as the Retaining Wall and Parking Lot Sites in this report. The Retaining Wall Site consists of a derelict sheet pile retaining wall on the east shore of the Willamette River approximately 900 feet downriver from its confluence with the Clackamas River. Based on our review of available aerial photography, it appears the wall experienced a catastrophic failure during the winter of 2005/2006. We understand the sheet piles will be removed and the site will be regraded to better reflect a more natural river shore. We understand the regrading will consist mainly of cuts; however, one small fill is planned near the toe of the wall. The Parking Wall Site consists of an existing asphalt paved parking lot located on the northeast shore of the Willamette/Clackamas River confluence. We understand the approximate western half of the parking lot will be demolished and the site will be regraded to better reflect a more natural river shore landscape.

This report contains the results of our analysis and provides recommendations for geotechnical design and construction for the two sites. The report is organized into several sections. The first section provides an overview of the project information discussed in the text. The main body of the report presents our geotechnical engineering findings and recommendations in detail. Figures are presented at the end of the text. The locations of the project sites are shown on Figure 1, the layout showing existing conditions at the Retaining Wall Site is shown on Figure 2, and the layout showing existing conditions at the Parking Lot Site is shown on Figure 3. Supporting information is included in the appendices. Appendix A contains subsurface exploration logs, and Appendix B contains the results of our slope stability modeling.

2.0 SCOPE OF SERVICES

The purpose of our work was to evaluate soils at both sites and provide earthwork recommendations for the sites, with an emphasis on final slope conditions. Our specific scope of work was detailed in our proposal and generally included the following tasks.

- Reviewed existing published geotechnical information and geologic maps that covered the site and vicinity.
- Advanced three borings to depths ranging from 11.5 to 31.0 feet below ground surface (bgs).

2 | Dahl Beach Rehabilitation

- Conducted a program of laboratory testing on select soil samples.
- Completed engineering analysis to evaluate the effects of removing the sheet piles at the wall site and to develop earthwork recommendations.
- Prepared this draft report outlining our findings and recommendations, including information related to the following:
 - Subsurface soil and groundwater conditions,
 - Site preparation and grading,
 - The results of our slope stability modeling at the retaining wall site, and
 - Retaining wall removal recommendations.
- Provided project management and support services, including coordinating staff and subcontractors and conducting telephone consultations and email communications with the design team.

3.0 SITE CONDITIONS

3.1 Surface Conditions

Ground surface elevations are referenced to the NAVD 88 vertical datum.

Retaining Wall Site: The Retaining Wall Site is bound by the Willamette River on the southwest, beaches on the northwest and southeast, and Dahl Park Road on the northeast. A derelict ruptured sheet pile wall is present in two pieces extending into the river. The wall was originally oriented approximately northwest-southeast prior to failure. Several steel-braided cables extend from the original wall location into the slope behind the wall. An abandoned concrete wall is present at the crest of the slope on the west border of the parking lot behind the wall. It appears the wall was a part of a demolished structure. The natural slopes surrounding the site are vegetated with large shrubs, tall grasses, and several mature trees.

The site varies significantly in elevation moving from east at the crest of the slope to west at the toe of the wall. The ground surface varies from elevation -7 feet at the mudline in the river to elevation 42 feet at the crest of the slope. A bathymetry survey completed for the project indicates a scour hole approximately 50 feet in diameter and approximately 6 feet deeper than the surrounding mudline near the toe of the wall. The ground surface behind the crest of the slope is generally flat at approximate average elevation 42 feet. The ground surface immediately behind the wall has sloughed back to an approximate 1.5 horizontal to 1 vertical (1.5H:1V) slope in apparent backfill material. An approximately 10-foot-tall, near-vertical terrace is present behind the wall just below the slope crest. Natural and submerged slopes surrounding the site slope at up to a 1.5H:1V grade.

Parking Lot Site: The Parking Lot Site is bound by the rivers on south and west, and parking lots on the east and north. A riprap-protected slope lies below the parking lot. The natural slopes surrounding the site are vegetated with large shrubs, tall grasses, and several mature trees.

The ground surface is relatively level in the parking area, with an average elevation of 21 feet. An approximately 15-foot-wide driveway, lying at an approximately 5H:1V slope, connects the parking lot to another parking lot north of the site. The ground surface at the top of the driveway is at elevation 30 feet. The riprap-protected slope below the parking lot and natural slopes northwest of it lie at an approximate 2H:1V grade. Submerged slopes below the riprap slope are relatively shallow lying at about 6H:1V.

3.2 Geologic and Soil Mapping

The geology of the site was mapped by the Oregon Department of Geology and Mineral Industries Geological Map of the Oregon City 7.5' Quadrangle, Clackamas County, Oregon (Madin 2009). The map indicates the site is underlain by Quaternary alluvial and terrace gravel, sand, silt, and clay deposits overlying Tertiary Columbia River Basalt (CRB). Site explorations encountered materials consistent with the geologic mapping, with the exception that CRB was not encountered.

The near-surface soils at the site are mapped by the U.S. Department of Agriculture (USDA) as found on the Web Soil Survey website (USDA 2006). The Web Soil Survey indicates that Camas Gravelly Sandy Loam is mapped at the Retaining Wall Site and Riverwash is mapped at the Parking Lot Site. Camas soil is described as excessively drained alluvium formed on stream floodplains. Permeability of the soil is listed as high (2 to 6 inches/hour). Riverwash soil is described as well-drained alluvium formed on stream floodplains. Permeability of the Riverwash soil is not provided. The Web Soil Survey indicates the Riverwash unit is frequently flooded.

3.3 Subsurface Conditions

3.3.1 General

Soil conditions interpreted from geologic maps and our explorations, in conjunction with soil properties inferred from field observations and laboratory tests, formed the basis for the conclusions and recommendations in this report. Appendix A describes our field exploration procedures and presents field data and logs.

We completed explorations at the site by advancing three borings, designated B-1A, B-1B, and B-2, to depths between 11.5 and 31.0 feet bgs on July 30, 2015. Borings B-1A and B-1B were completed at the Retaining Wall Site, while boring B-2 was completed at the Parking Lot Site. It should be noted that boring B-1B was completed when the drilling subcontractor accidentally dropped a steel sampler into boring B-1A at a depth of 20 feet, above the intended boring depth, blocking completion of boring B-1A. Therefore, boring B-1B was completed approximately 10 feet north of boring B-1A to the intended depth of 31.0 feet. The boring locations are shown on Figures 2 and 3.

Descriptions of the subsurface conditions encountered at the two sites are provided below.

3.3.2 Soil Conditions

Retaining Wall Site

Approximately 3.5 inches of asphalt pavement was encountered at the ground surface in borings B-1A and B-1B. Gravel, cobbles, and boulders were encountered underlying the asphalt in borings B-1A and B-1B, extending to the maximum depth explored. The gravel, cobbles, and boulders contain varying sand content ranging from approximately 20 to 30 percent and varying silt content from 5 to 10 percent. Based on Standard Penetration Test (SPT) blow counts, the relative density of the gravel, cobbles, and boulders ranges from medium dense to very dense, but is more typically dense to very dense. An approximately 3-foot-thick silty sand lens was encountered in the gravel, cobbles, and boulders soil unit at a depth of approximately 14 feet bgs. Based on SPT blow counts, the relative density of the silty sand is medium dense.

Parking Lot Site

Approximately 3 inches of asphalt pavement was encountered at the ground surface in boring B-2 underlain by approximately 4 inches of crushed aggregate base fill. Gravel, cobbles, and boulders were encountered underlying the asphalt and aggregate base in Boring B-2, extending to the maximum depth explored. The gravel, cobbles, and boulders are sandy with fine to coarse sand and contain a trace silt. Based on SPT blow counts, the relative density of the gravel, cobbles, and boulders ranges from loose to dense.

Limitations

The subsurface information used for this study represents conditions at discrete locations across the project sites. Actual conditions in other areas could vary. The nature and extent of any variations in subsurface conditions may not become evident until construction begins. If significant variations are observed at that time, we may need to modify our conclusions and recommendations accordingly to reflect actual site conditions.

3.3.3 Groundwater

Groundwater was not encountered in the borings completed at the site. We anticipate groundwater will closely follow the nearby Willamette River and Clackamas River levels and could approach the ground surface during flooding events.

4.0 SLOPE STABILITY ANALYSIS FOR RETAINING WALL SITE

4.1 General

We completed slope stability analyses at the retaining wall site in the approximate location of Cross Section A-A' as shown on Figure 2. Soil properties used in the analyses were estimated from testing of similar soils from other projects we have completed and from our experience with similar soils. The cross sectional surface geometry was based on a topographic survey completed by Waterways Consulting, Inc. Subsurface stratigraphy was interpreted from our borings and our observations of soils exposed in the site slopes. We evaluated the stability of the existing slopes in their current

geometry with varying water levels from elevation 42 feet to elevation 15 feet. We re-evaluated the slopes with new geometry to develop a recommendation for final gradients that would achieve a satisfactorily stable slope and prevent excessive cuts and fill. The soil parameters used in our analysis are shown in Table 1.

Table 1 – Soil Properties Used in Stability Analyses

Soil Unit	Friction Angle (Degrees)	Cohesion (psf)	Moist Unit Weight (pcf)
Sand	32	0	115
Gravel, Cobbles, and Boulders	36	15	130

Notes: psf = pounds per square foot • pcf = pounds per cubic foot

The soil parameters and subsurface stratigraphy were determined as noted above. However, the parameters were modified within a reasonable range of expected values to achieve a temporary stability for the slope in its current geometry.

Our analysis used the computer program SlopeW, which models the stability of the slope in terms of a factor of safety (FS) against sliding for a series of potential failure surfaces with different geometries. Potential failure surfaces were modeled as a rotational failure using the Spencer's Method of Slices, a derivation of the original method of slices. The Spencer method satisfies both moment and force equilibrium and accounts for both normal and shear forces acting between the slices. An FS value of 1.0 reflects a condition in which the resisting and driving forces along the failure surface are equal and a failure could occur if the resisting forces are reduced or the driving forces are increased. An increasing FS value presents a more stable slope and a decreasing FS a less stable slope. An FS value below 1.0 means the slope will theoretically fail, as the forces resisting failure are less than those driving it. For any given slope geometry, subsurface stratigraphy, and soil parameters modeled in the program, the lowest FS value calculated among all the failure surfaces is considered the *critical failure surface*.

Analysis figures are provided in Appendix B. The calculated FS values are shown in Table 2 for the critical failure surface in each condition prior to ("Existing") and after finish grading is complete ("Regraded"). Changes in FS due to the proposed cut would reflect changes in stability of the slope due to the grading. The results of our analyses show that the slopes in their current configurations are marginally stable. Therefore, if an external destabilizing influence occurs, such as a large surcharge load placed near the crest of the slope or scour at the toe of the slope, a slope failure would be likely. Our analyses have determined that a final slope angle of 2H:1V will be relatively stable under varying water levels of the adjacent rivers. It should be noted that regardless of final slope configuration, erosion will continue to act as a destabilizing influence. Some maintenance may be required to maintain the stability of the slope beyond this project. The level of maintenance will depend on the extent and severity of future erosion.

Table 2 –Stability Analysis Results for Existing and Regraded Geometry, Section A-A'

Condition	FS Value	Notes
Case 1: High Water Existing	1.07	Water at Elevation 42 feet
Case 2: High Water Regraded	1.53	Water at Elevation 42 feet
Case 3: Low Water Existing	1.03	Water at Elevation 15 feet
Case 4: Low Water Regraded	1.46	Water at Elevation 15 feet
Case 5: Ordinary High Water Existing	0.98	Water at Elevation 25 feet
Case 6: Ordinary High Water Regraded	1.37	Water at Elevation 25 feet

5.0 CONCLUSIONS

Our evaluations indicate the site is suitable for the proposed grading, provided the recommendations in this report are included in design and construction. Considerations for the design and construction of the fill include the following items.

- The results of our stability analyses indicate final cut and fill slope angles should not exceed 2H:1V.
- The small fill planned at the toe of the existing wall should be constructed as structural fill to provide sufficient slope stability. Based on our conversations with Cascade Environmental, we understand the fill material will consist of the gravel, cobbles, and boulders excavated from the cuts on site. Recommendations for the placement of site soils as structural fill are provided in following sections.
- One of the main objectives for the project at the retaining wall site is to remove the existing steel sheet pile wall. It has been our experience that old sheet piles can be difficult to remove. Some construction delays and field modifications should be anticipated for this work.

We did not encounter evidence of fill during our reconnaissance or subsurface explorations on site; however, we anticipate some man-made fill will be present. Construction planning should anticipate the presence of fill within the zone of excavation.

The following sections of the report present our conclusions and recommendations for geotechnical aspects of the project. We developed our recommendations using our current understanding of the project and the subsurface conditions encountered during our site explorations. If the nature or location of the work is different than we have assumed, we should be notified so we can change or confirm our recommendations.

6.0 EARTHWORK RECOMMENDATIONS

Based on available information, we estimate mass grading for the site will be moderate, with the majority of earthwork devoted to cuts.

All earthwork should be conducted in accordance with City of Gladstone Municipal Code Title 15.06 – Earthwork and Erosion Control Standards (City of Gladstone 2015) and the Oregon Standard Specifications for Construction (OSSC) (ODOT 2015). Specific recommendations for earthworks are provided in the following sections.

6.1 Demolition

Removal of the existing sheet pile walls may encounter difficulties, as the sheet may have become stuck together and the steel may have degraded over the years. Construction delays should be anticipated with regards to this. We understand that removal of the piles will be first attempted. However, if some sections of pile are not easily pulled free, the piles will be cut below finish grade and covered with on-site soils.

Based on the original wall configuration and our observations of steel cables protruding from the existing slope, we believe the wall was originally anchored by the cables to a buried deadman. It is unknown what type of deadman may be present; however, in our experience, deadmen typically consist of a set of steel sheet piles or large concrete block(s). The planned cut may daylight the deadman. We understand that if the deadman daylights in the cut, it will be cut back or broken up below final grade and covered with on-site soils.

Permanent construction debris, such as stuck sheet piles or the deadman, that are cut or broken up below final grade and covered with on-site soils should not pose a risk to the long-term stability of the slope, provided they are covered with structural fill as recommended later in this report. We recommend sheet piles be cut off and existing debris be removed to approximately 3 feet below final grade, and then backfilled with structural fill.

We understand recent reconnaissance of the site has revealed that the sheet pile wall extends along the crest of the slope approximately 30 feet northwest of the intersection of the crest and the sheets. Cuts are planned along this section of the slope to accommodate the recommended slope angle. We recommend the sheet piles along this section of wall be left in place, since they will increase the stability of the final slope configuration. The piles should be cut below final grade and covered with on-site soils as recommended above.

Materials generated during demolition of existing improvements should be transported off site for disposal or stockpiled in areas designated by the owner. In general, these materials will be suitable for reuse as engineered fill, provided they meet the specifications provided in *Section 6.4 - Structural Fill and Backfill* of this report.

6.2 Stripping and Subgrade Preparation

We understand one small fill is planned near the toe of the existing wall. We recommend the fill be placed as structural fill so the soil provides the same level of shear resistance we assumed in our slope stability analysis. Prior to any filling, the fill area should be stripped of surficial organic material. No explorations were completed in the area of the fill; however, we anticipate the depth of stripping will be 8 to 12 inches. Actual stripping depths should be evaluated and modified as appropriate based on observations during stripping operations.

The suitability of the subgrade should be evaluated by a representative of Hart Crowser by probing with a foundation probe to identify any loose or unsuitable areas after stripping is complete. The evaluation should be conducted prior to placing fill. We anticipate that the subgrade will be loose

granular material. If this is found to be the case, that subgrade will need to be compacted with several passes of a vibratory pneumatic smooth drum roller or heavy vibratory plate compactor, provided the material is near its optimum moisture. If soft silty subgrade is identified during subgrade excavation, these areas should be overexcavated to the extent indicated by Hart Crowser and replaced with structural fill as described in *Section 6.4 - Structural Fill and Backfill* of this report.

6.3 Excavation

Site soils within expected excavation depths generally consist of sandy gravel, cobbles, and boulders and silty sand. It is our opinion that conventional earthmoving equipment in proper working condition should be capable of making necessary general excavations for earthwork. The earthwork contractor should be responsible for providing equipment and following procedures as needed to excavate the site soils, as described in this report, while protecting the subgrade.

Temporary excavations are expected to be minimal for this project, including only those necessary for filling at the toe of the sheetpile wall and demolition of existing elements as noted previously in this report. Soils at the site are granular in nature and generally classify as Occupational Safety and Health Administration (OSHA) class C for purposes of excavation. The contractor should be responsible to ensure that all temporary excavations are completed in accordance with OSHA requirements, including maximum slope gradients, shoring or other measures to meet the requirements and provide for worker safety.

We recommend that permanent slopes not exceed 2H:1V to maintain the levels of stability as noted previously in this report. We recommend a setback from the top of the slope to the edge of any improvements, such as the parking lot, of 2 to 5 feet to provide some buffer for raveling and surface disturbance of the granular site soils.

6.4 Structural Fill Placement

All permanent fill placed on the site should be constructed as structural fill. Fill should only be placed over a subgrade that has been prepared in accordance with *Section 6.2 - Stripping and Subgrade Preparation* of this report. We understand that on-site soils from other portions of the project will be used as fill for the project. We recommend that the on-site sandy gravel soils be used as structural fill, provided they are free of debris, clay balls, roots, organic matter, frozen soil, man-made contaminants, and other deleterious materials. The material should be generally well-graded and individual particles exceeding half the uncompacted lift thickness in size should be removed from the fill before placing it. In our opinion, structural fill constructed from this material should provide a comparable magnitude of shear resistance to the native soils encountered in our explorations, provided the recommendations below are used during construction.

- If the fill is placed on a slope steeper than 5H:1V, benches should be cut into the slope. An initial bench should be excavated at the toe of the existing slope with a minimum width of 5 feet and large enough to accommodate the compaction equipment to be used. The bench should be leveled flat prior to installation of the fill. The bench should extend into the existing slope a minimum of 3 feet. Additional benches should be cut into the hillslope every 3 vertical feet of fill placement that are a minimum of 3 feet wide.

- Place the fill in uniform horizontal lifts with a thickness appropriate for the material type and compaction equipment. Table 3 provides general guidance for uncompacted lift thicknesses. Boulders and cobbles were observed at the ground surface throughout the project site. In order to achieve proper compaction of the native materials, we recommend that oversized materials greater than half of the lift thickness be removed prior to placement of each lift. Lifts are typically 12 inches thick; therefore, we anticipate material larger than 6 inches will need to be removed.
- Do not place fill and backfill until the required tests and evaluation of the underlying materials have been made and the appropriate approvals have been obtained.
- Control the moisture content of the fill to ensure it can be compacted to a dense, well-keyed state. This will require that the fill is visibly moist, but not saturated. Hart Crowser shall confirm suitability of the moisture content during construction.
- Compact fill soils to a well-keyed dense state. Compaction should be verified by Hart Crowser staff through performance testing, such as a probing and or other measures during construction of the fill.
- Perform a representative number of in-place density tests on structural fill in the field, to verify adequate compaction.
- Fill slopes should be overbuilt by at least 12 inches and then trimmed back to the required slope to maintain a firm face.

Table 3 – Guidelines for Uncompacted Lift Thickness

Compaction Equipment	Guidelines for Uncompacted Lift Thickness (inches)		
	Fine-Grained Soil	Granular Soil and Crushed Rock (Maximum Size ≤ 1½ inch)	Crushed Rock (Maximum Size > 1½ inch)
Plate Compactors and Jumping Jacks	4 – 8	4 – 8	Not Recommended
Rubber-Tire Equipment	6 – 8	10 – 12	6 – 8
Light Roller	8 – 10	10 – 12	8 – 10
Heavy Roller	10 – 12	12 – 18	12 – 16
Hoe Pack Equipment	12 – 16	18 – 24	12 – 16

Note: The above table is based on our experience and is intended to serve as a guideline. The information provided in this table should not be included in the project specifications.

7.0 CONSTRUCTION OBSERVATION

Satisfactory earthwork performance depends to a large degree on quality of construction. Sufficient monitoring of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during subsurface explorations. Recognition of changed conditions often requires experience; therefore, Hart Crowser or its representative should visit the site often enough to detect whether subsurface conditions change significantly from those anticipated.

We recommend retaining Hart Crowser to monitor construction at the site to confirm that subsurface conditions are consistent with those identified by the site explorations and that the intent of project plans and specifications relating to earthwork construction is being met. In particular, we recommend that Hart Crowser evaluate subgrade preparation and observe/test the placement/compaction of structural fill.

8.0 LIMITATIONS

We have prepared this report for the exclusive use of Cascade Environmental Group and its authorized agents for the Dahl Beach Rehabilitation Project in Gladstone, Oregon, in accordance with our July 10, 2015 proposal detailing our scope and fee. Our report is intended to provide our opinion of geotechnical parameters for preliminary design of the proposed project based on exploration locations that are believed to be representative of site conditions. However, conditions can vary significantly between exploration locations, and our conclusions should not be construed as a warranty or guarantee of subsurface conditions or future site performance.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty, express or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments, are only a copy of the original document. The original document is stored by Hart Crowser and will serve as the official document of record.

9.0 REFERENCES

City of Gladstone 2015. Gladstone Municipal Code, Gladstone, Oregon. Accessed October 8, 2015 <http://gcode.us/codes/gladstone/>

Madin, Ian P., 2009. Geologic Map of the Oregon City 7.5' Quadrangle, Clackamas County, Oregon.

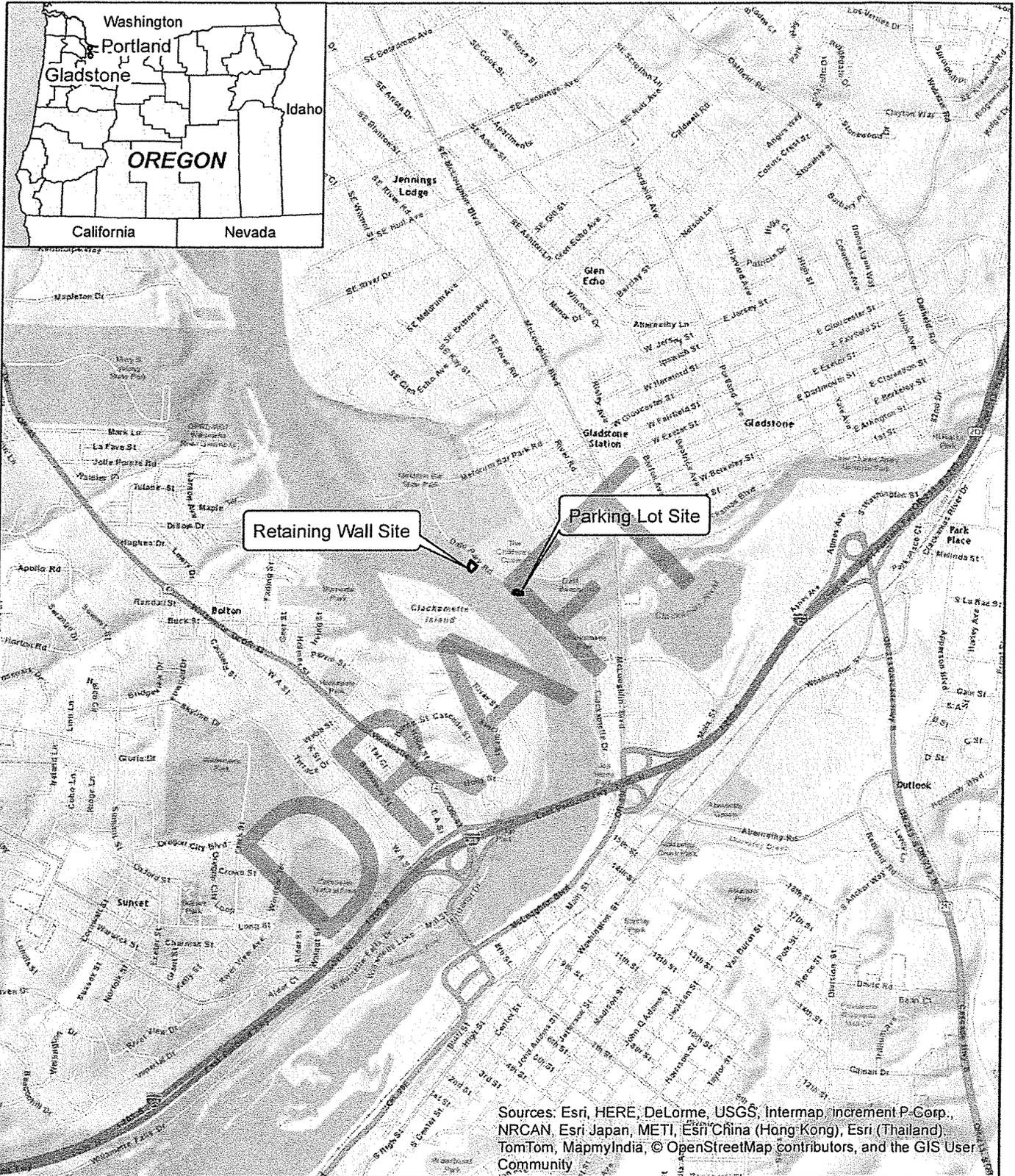
Oregon Department of Transportation (ODOT) 2015. Oregon Department of Transportation. Oregon Standard Specifications for Construction.

ODOT 2014. Oregon Department of Transportation, Geotechnical Design Manual, Volume 1. November 2014.

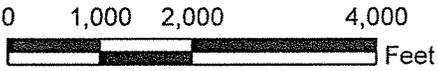
U.S. Department of Agriculture (USDA) 2006. National Resources Conservation Service. Web Soil Survey. Accessed August 6, 2015 <http://websoilsurvey.nrcs.usda.gov/>.

F:\Notebooks\1598403_Dahl Beach Rehabilitation\Deliverables\Report-DRAFT 10-12-15\Dahl Beach Rehabilitation Report-DRAFT.docx

DRAFT



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P-Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



Dahl Beach Rehabilitation
Gladstone, Oregon

Vicinity Map

15984-03

10/15

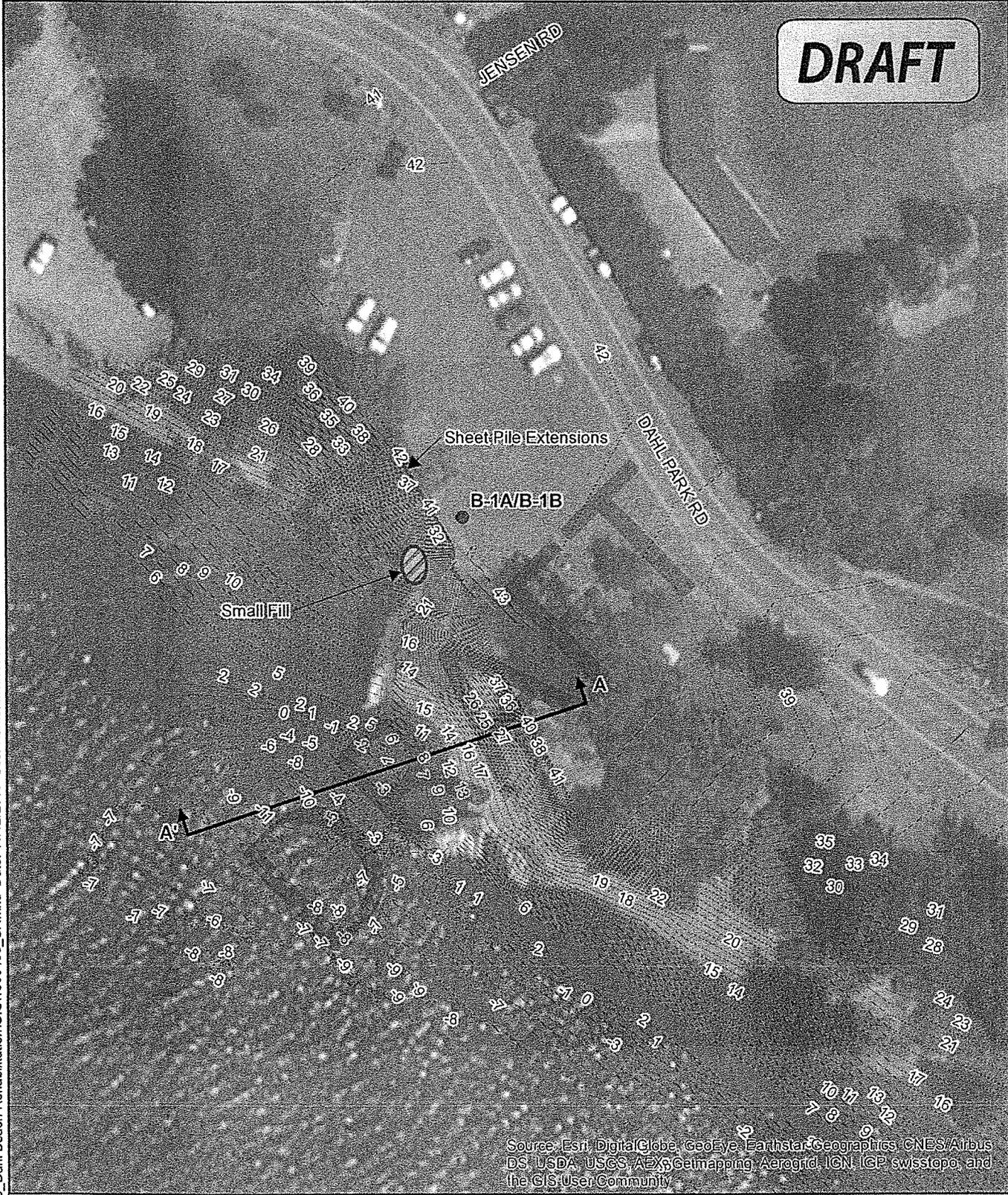


Figure

1

DRAFT

Document Path: F:\Notebooks\1598403_Dahl Beach Rehabilitation\GIS\1598403_SF.mxd Date: 10/12/2015 User Name: melissaschweitzer



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- Boring
 - Cross Section
 - Surveyed Elevation Contours (NAVD 88) Provided by Cascade Environmental Group 8/12/2015
- 0 30 60 120
 Feet
 Note: Locations of features are approximate.



Dahl Beach Rehabilitation
 Gladstone, Oregon

Retaining Wall Site Plan

15984-03

10/15



Figure

2

DRAFT

DAHL PARK RD

26 23
23 25 27 29
17 21 22
13 14
12 15

33
35
34
36

31

32

30

B-2

20 18 19

7

10

11

2

8

9

5

6

4

2

1

-1

0

6

2

2

1

2

6

5

5

5

6

-3

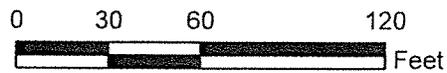
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geomatics, Aerogrid, IGN, ICP, swisstopo, and the GIS User Community

Document Path: F:\Notebooks\1598403_Dahl Beach Rehabilitation\GIS\1598403_SP2.mxd Date: 10/12/2015 User Name: melissaschweitzer

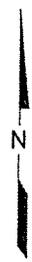
LEGEND

● Boring

--- Surveyed Elevation Contours (NAVD 88) Provided by Cascade Environmental Group 8/12/2015



Note: Locations of features are approximate.



Dahl Beach Rehabilitation
Gladstone, Oregon

Parking Lot Site Plan

15984-03

10/15



Figure

3

APPENDIX A
Field Explorations Methods and Analysis

DRAFT

APPENDIX A

Field Explorations Methods and Analysis

This appendix documents the processes Hart Crowser used to determine the nature and quality of the soil and groundwater underlying the project site addressed by this report. The following sections are included:

- Explorations and Their Locations,
- Drilled Borings, and
- Sampling Procedures.

Explorations and Their Locations

Explorations at the site included three borings, B-1A, B-1B, and B-2. The exploration logs in this appendix show our interpretation of the explorations and sampling data. The logs indicate the depths where the soils change. Note that soil changes may be gradual. In the field, we classified the samples taken from the explorations according to the methods presented on the Key to Exploration Logs. This key also provides a legend explaining the symbols and abbreviations used in the logs.

Figures 2 and 3 of the report show the locations of explorations. Exploration locations were estimated in the field based on existing landmarks.

Drilled Borings

One mud rotary boring (B-1A) and two hollow-stem auger borings (B-1B and B-2) were completed at the site using a truck-mounted drill rig subcontracted by Hart Crowser. The borings were completed on July 30, 2015. The drilling was continuously observed by geotechnical staff members from Hart Crowser and detailed field logs of the borings were prepared. The logs are presented at the end of this appendix.

Sampling Procedures

Samples were obtained from the borings using a split-spoon sampler (SPT sampler) with an inner diameter of 1-1/2 inches and a split-spoon sampler (D&M sampler) with an inner diameter of 3.0 inches in general accordance with guidelines presented in ASTM D 1586. The split-barrel samplers were driven into the soil with a 140-pound hammer free falling 30 inches. The samplers were driven a total distance of 18 inches. The number of blows required to drive the samplers the final 12 inches is recorded on the boring logs, unless otherwise noted. Due to the larger D&M sampler size, the blow count field values were reduced by 50 percent on the logs to approximately correlate with the SPT blow counts shown.

Soil samples were recovered from the split-barrel sampler, field classified, and placed into watertight bags. They were then taken to Hart Crowser's laboratory for further classification.

KEY TO EXPLORATION LOGS



SOIL CLASSIFICATION CHART

MATERIAL TYPES	MAJOR DIVISIONS		GROUP SYMBOL	SOIL GROUP NAMES & LEGEND		OTHER MATERIAL SYMBOLS						
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	GW	WELL-GRADED GRAVEL		<table border="1"> <tr><td></td><td>Concrete</td></tr> <tr><td></td><td>Asphalt</td></tr> <tr><td></td><td>Topsoil</td></tr> </table>		Concrete		Asphalt		Topsoil
			Concrete									
			Asphalt									
			Topsoil									
	GRAVELS WITH FINES, >12% FINES	GP	POORLY-GRADED GRAVEL									
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	SW	WELL-GRADED SAND								
SANDS AND FINES >12% FINES		SP	POORLY-GRADED SAND									
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	CL	LEAN CLAY								
		ORGANIC	ML	SILT								
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	CH	FAT CLAY								
		ORGANIC	MH	ELASTIC SILT								
		ORGANIC	OH	ORGANIC CLAY OR SILT								
	HIGHLY ORGANIC SOILS			PT	PEAT							

Note: Multiple symbols are used to indicate borderline or dual classifications

MOISTURE MODIFIERS

- Dry - Absence of moisture, dusty, dry to the touch
- Moist - Damp, but no visible water
- Wet - Visible free water or saturated, usually soil is obtained from below the water table

SEEPAGE MODIFIERS

- None -
- Slow - < 1 gpm
- Moderate - 1-3 gpm
- Heavy - > 3 gpm

CAVING MODIFIERS

- None -
- Minor - isolated
- Moderate - frequent
- Severe - general

MINOR CONSTITUENTS

- Trace - < 5% (silt/clay)
- Occasional - < 15% (sand/gravel)
- With - 5-15% (silt/clay) in sand or gravel
15-30% (sand/gravel) in silt or clay

SAMPLE TYPES

- Dames & Moore
- Standard Penetration Test (SPT)
- Shelby Tube
- Bulk or Grab

LABORATORY/ FIELD TESTS

- ATT - Atterberg Limits
- CP - Laboratory Compaction Test
- CA - Chemical Analysis (Corrosivity)
- CN - Consolidation
- DD - Dry Density
- DS - Direct Shear
- HA - Hydrometer Analysis
- OC - Organic Content
- PP - Pocket Penetrometer (TSF)
- P200 - Percent Passing No. 200 Sieve
- SA - Sieve Analysis
- SW - Swell Test
- TV - Torvane Shear
- UC - Unconfined Compression

GROUNDWATER SYMBOLS

- Water Level (at time of drilling)
- Water Level (at end of drilling)
- Water Level (after drilling)

STRATIGRAPHIC CONTACT

- Distinct contact between soil strata or geologic units
- Gradual or approximate change between soil strata or geologic units

Notes:

Blowcount (N) is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted) per ASTM D-1586. See exploration log for hammer weight and drop.

When the Dames & Moore (D&M) sampler was driven with a 140-pound hammer (denoted on logs as D+M 140), the field blow counts (N-value) shown on the logs have been reduced by 50% to approximate SPT N-values.

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

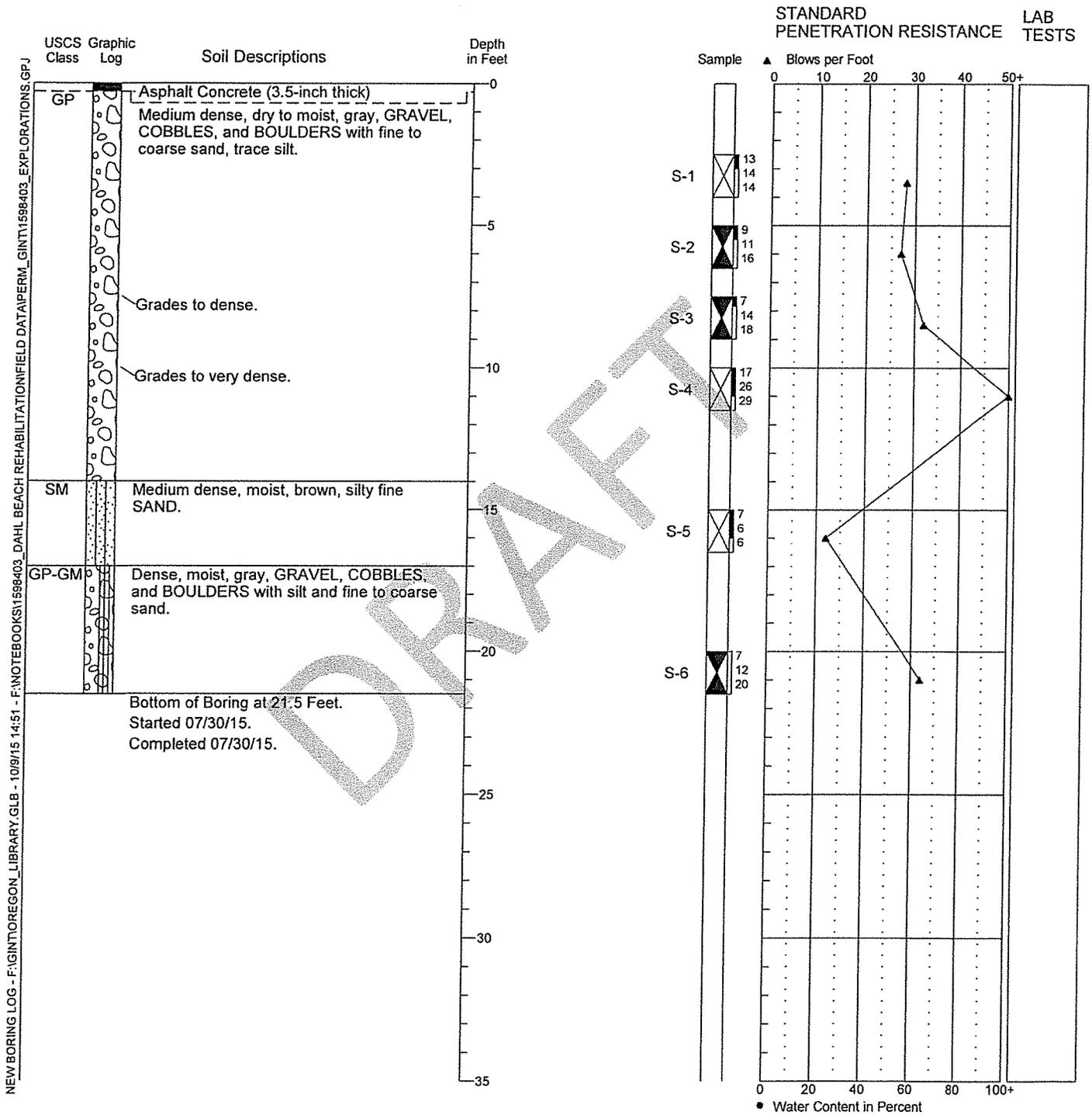
Refer to the report text and exploration logs for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the exploration locations at the time the explorations were made. The logs are not warranted to be representative of the subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS - F:\GINTI\OREGON LIBRARY.GLB - 8/3/15 11:06 - F:\NOTEBOOKS\1598403 DAHL BEACH REHABILITATION\FIELD DATA\PERM_GINTI\1598403_EXPLORATIONS.GPJ

Boring Log B-1A

Location: N 629625.75 E 7659906.5
 Approximate Ground Surface Elevation: 42 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Mud Rotary
 Hammer Type: Auto Hammer
 Hole Diameter: 4 7/8 inches
 Logged By: J. Alders Reviewed By: J. Alders



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.



HARTCROWSER

15984-03

10/15

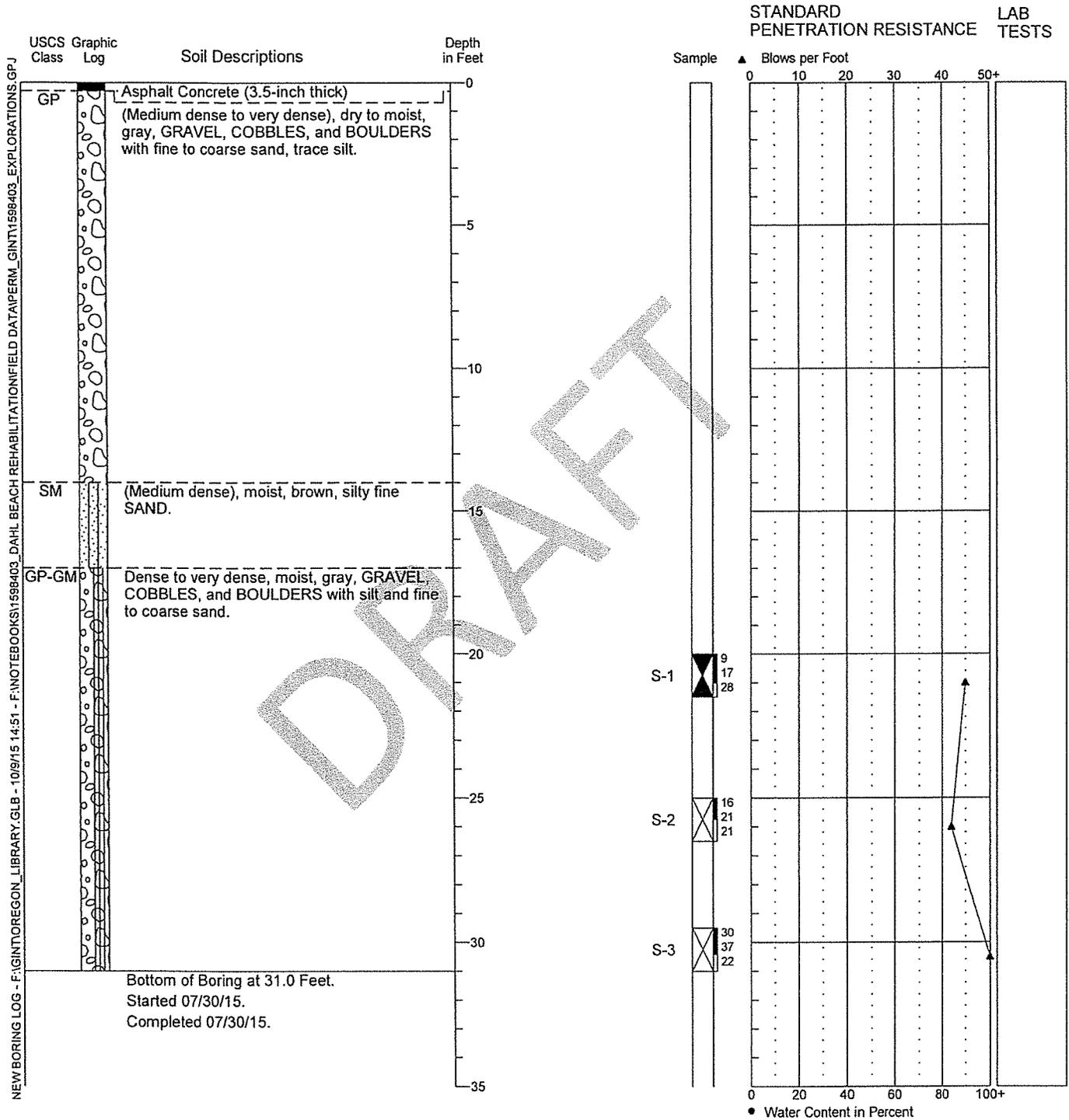
Figure A-2

6-90

Boring Log B-1B

Location: N 629625.75 E 7659906.5
 Approximate Ground Surface Elevation: 42 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Hollow Stem Auger
 Hammer Type: Auto Hammer
 Hole Diameter: 8 inches
 Logged By: J. Alders Reviewed By: J. Alders



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.



HARTCROWSER

15984-03

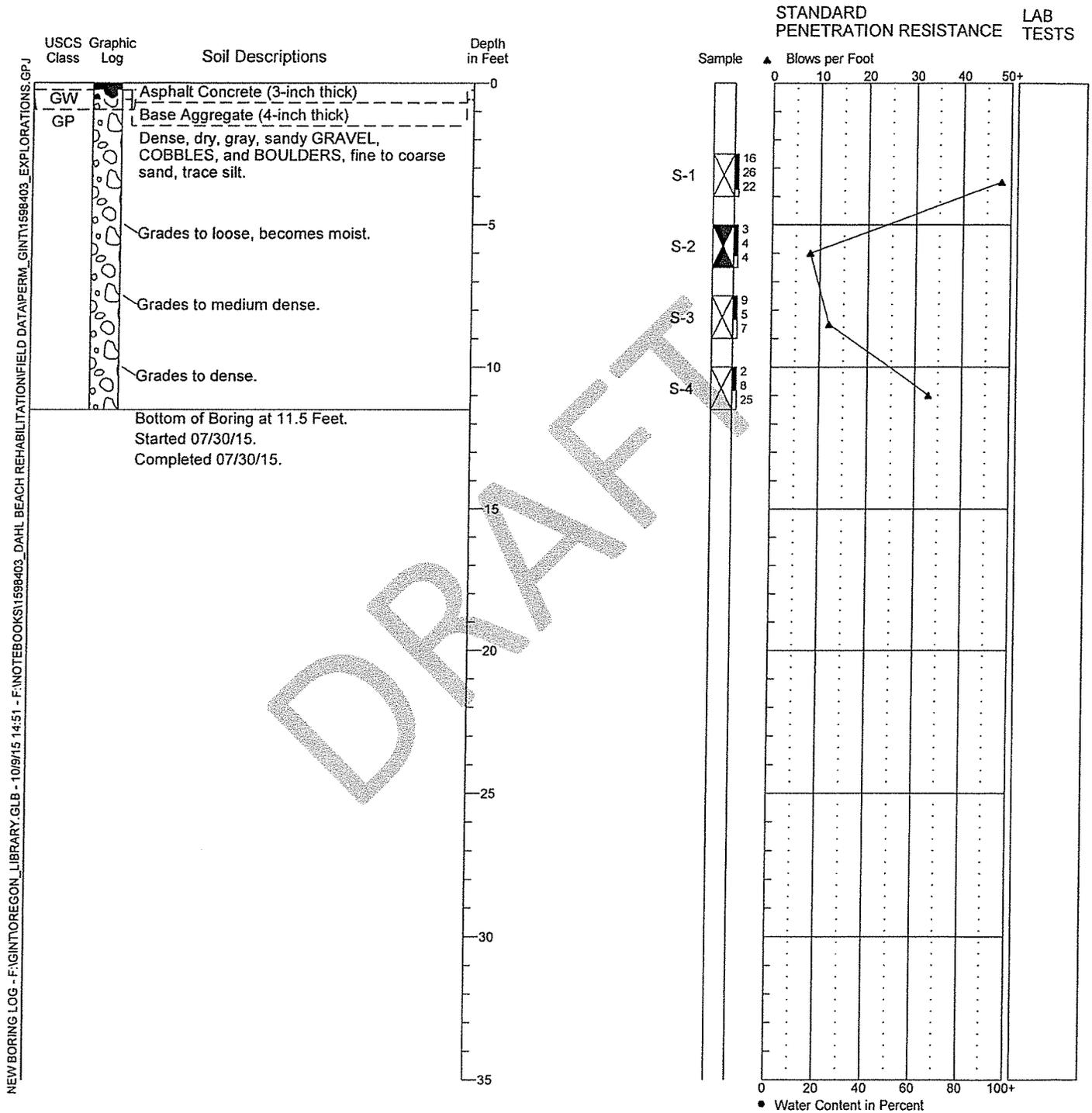
10/15

Figure A-3

Boring Log B-2

Location: N 629175.375 E 7660574
 Approximate Ground Surface Elevation: 20 Feet
 Horizontal Datum: NAD 83 Oregon State Plane North (Feet)
 Vertical Datum: NAVD 88

Drill Equipment: Hollow Stem Auger
 Hammer Type: Auto Hammer
 Hole Diameter: 8 inches
 Logged By: J. Alders Reviewed By: J. Alders



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

APPENDIX B
Slope Stability Analysis

DRAFT

APPENDIX B

Slope Stability Analysis

General

This appendix contains the results of our slope stability analysis.

Our analysis was completed using the program Slope/W by Geo-Slope International, Ltd. The Slope/W program performs two dimensional limit equilibrium analysis to compute slope stability and determine a FS value against global failure.

The FS against global failure is simplistically defined as the ratio of the forces resisting slope movement (e.g., soil strength, soil mass, etc.) to the forces driving slope movement (e.g., gravity, earth pressure). The program predicts the location and geometry of "critical failure planes." Critical failure planes are the zones with the lowest factors of safety. A FS value less than 1.0 infers that the model is not in equilibrium and slope movement is likely to occur.

Evaluation Criteria

We used a FS value equal to 1.3 for static stability of slopes not supporting structures as our guideline for finalizing our recommended slope angle. This value was selected based on the ODOT Geotechnical Design Manual (ODOT 2014), which indicates the FS for a stable slope underlying unimproved or non-critical areas should be considered 1.3.

Table 2 in the report text summarizes the FS values we obtained from our analyses. All of the FS values met or exceeded the criteria spelled out above.

Output from our slope stability modeling follows in this appendix.

Title: Dahl Beach Stability Analysis
Created By: Jim Alders
Date: 10/8/2015
Case 1: High Water Existing
Method: Spencer

