AGENDA
ASTORIA CITY COUNCIL MEETING

August 19, 2013

****** 6:30 p.m. ******

2nd Floor Council Chambers
1095 Duane Street
Astoria OR 97103

1. CALL TO ORDER
2. ROLL CALL
3. SISTER CITY TRIP TO WALLDORF, GERMANY

THIS MEETING IS ACCESSIBLE TO THE DISABLED. AN INTERPRETER FOR THE HEARING IMPAIRED MAY BE REQUESTED UNDER THE TERMS OF ORS 192.630 BY CONTACTING JULIE LAMPI, CITY MANAGER'S OFFICE, 503-325-5824.

AGENDA
ASTORIA CITY COUNCIL MEETING

August 19, 2013
7:00p.m.
2nd Floor Council Chambers
1095 Duane Street
Astoria OR 97103

4. REPORTS OF COUNCILORS

5. CHANGES TO AGENDA

6. PRESENTATIONS
(a) Introduction of the New ADHDA Executive Director Alana Garner
(b) CSO Program: Review of Completed Project Performance and Overview of Future Projects
(c) Ghadar Party Celebration (October 4-5, 2013)

7. CONSENT CALENDAR
The items on the Consent Calendar are considered routine and will be adopted by one motion unless a member of the City Council requests to have any item considered separately. Members of the Community may have an item removed if they contact the City Manager by 5:00 p.m. the day of the meeting.
(a) City Council Minutes of 8/5/13

8. REGULAR AGENDA ITEMS
(a) Public Hearing and Ordinance Vacating a Portion of the 1st Street Right-of-Way Adjacent to 2044 Southeast D Street (emergency adoption – 1st & 2nd readings) (Public Works)
(b) Historic Properties Ordinance Amendment A13-03 (2nd reading & adoption) (Community Development)
(c) Liquor License Application from David Kroening, Andrew Bornstein, Jerry Kasinger, Luke Colvin, Jack Berka, David Snodgrass, Pamela Snodgrass, Joe Haggren and Mark Rose, dba River Barrel Brewing Inc., located at the foot of 7th Street, for a New Outlet – Full On-Premises Sales – Brewery License (Finance)
(d) Liquor License Application from Todd Shelton and Lawrence Cary, dba North Coast Distillery LLC located at 1270 Duane Street, for a New Outlet – Distillery License (Finance)
(e) Liquor License Application from Stephen C. and Karen Allen, dba Andrew & Steve's Chartroom/Astoria Brewing Company located at 1196 Marine Drive, for an Additional Privilege – Brewery License (Finance)
(f) Wastewater Treatment Plant Effluent Treatment Upgrades – Pay Adjustment No. 1 (Public Works)
(g) Proposal to Allocate City Funds to Assist Citizens Experiencing Financial Hardship with Utility Bills (Councilor Herzig)
(h) Astoria Landfill Closure Plan (Public Works)
(i) Sale of Excess City Property – Procedures (Public Works)
(j) Heritage Square – Grant Application to Support Design Work (Community Development)
(k) 11th Street CSO Project – Intersection and Street Improvements (Public Works)

9. EXECUTIVE SESSION
(a) ORS 192.660(2)(d) – Labor Negotiation Consultations
(b) ORS 192.660(2)(e) – Real Property Transactions

THIS MEETING IS ACCESSIBLE TO THE DISABLED. AN INTERPRETER FOR THE HEARING IMPAIRED MAY BE REQUESTED UNDER THE TERMS OF ORS 192.630 BY CONTACTING JULIE LAMPI, CITY MANAGER'S OFFICE, 503-325-5824.

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 15, 2013

MEMORANDUM

TO: ASTORIA CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: ASTORIA CITY COUNCIL MEETING OF AUGUST 5, 2013

6:30 P.M. – SISTER CITY TRIP TO WALLDORF, GERMANY MEETING

Item 3(a): The City Council will discuss their recent trip to Astoria's Sister City, Walldorf, Germany.

7:00 P.M. – REGULAR MEETING

PRESENTATIONS

Item 6(a): **Introduction of the New Astoria Downtown Historic District Association Executive Director Alana Garner**

Astoria Downtown Historic District Association President Dulcye Taylor will introduce Alana Garner, the new Executive Director.

Item 6(b): **CSO Program: Review of Completed Project Performance and Overview of Future Projects**

Since April 2012, HDR Engineering has been managing the hydrologic and hydraulic model that is used to delineate and scope each CSO project. This model contains important information regarding the storm and sewer infrastructure, geographic areas that flow to each pipe segment, rainfall information, and historic flows that are used to predict the system response after CSO project completion. There is ongoing maintenance and calibration that must occur to the model so that it most closely mimics actual conditions in the field and gives the City the most accurate data for the design of future CSO projects. The Council presentation by HDR Engineering and City staff will include a brief history of the CSO Program, CSO projects that have been completed to date, scope of the next CSO project and anticipated strategy for the future of the CSO Program. The goal of the presentation will be to provide

the Council with an updated look at the current status and future direction of the CSO Program.

Item 6(c): **Ghadar Party Celebration (October 4-5, 2013)**

Councilor Mellin will give a status report regarding the Centenary of the founding of the Ghaddar Party in Astoria, Oregon scheduled to be held on October 4th and 5th.

CONSENT CALENDAR

Item 7(a): **City Council Minutes**

The minutes of the City Council meeting of August 5, 2013 are enclosed for review. Unless there are any corrections, it is recommended that Council approve these minutes.

REGULAR AGENDA ITEMS

Item 8(a): **Public Hearing and Ordinance Vacating a Portion of the 1st Street Right-of-Way Adjacent to 2044 Southeast D Street (emergency adoption – 1st & 2nd readings) (Public Works)**

The City received a request from Tamara Stanley, property owner of 2044 SE D Street, for the vacation of a 16' by 50' portion of the unimproved 1st Street right-of-way to accommodate a portion of the existing house and associated improvements that were built over the property line many years ago. Ms. Stanley is in the process of selling her property and the sale cannot be completed until the encroachment issue is resolved. She has requested that the City Council finds that an emergency exists and, if approved by the Council, the ordinance become effective immediately. At their August 5, 2013 meeting, the Astoria City Council acted to schedule a public hearing on the proposed street vacation on August 19, 2013 at 7:00 p.m. It is recommended that the Astoria City Council conduct the public hearing, declare that an emergency exists, and hold the 1st and 2nd readings of the ordinance to vacate a 16' by 50' portion of the unimproved 1st Street right-of-way adjacent to 2044 SE D Street.

Item 8(b): **Historic Properties Ordinance Amendment A13-03 (2nd reading & adoption) (Community Development)**

This proposed ordinance received its first reading at the August 5, 2013 Council meeting. The ordinance establishes how historic properties are designated, the process for review of exterior alterations, new construction, demolition, appeals, and lists exceptions to the review process. In January 2008, the City Council adopted a Historic Preservation Plan which identified suggested amendments to the ordinance and proposed projects to support historic preservation. Within the last few years, the State and National terms used for historic properties has changed and, therefore, the City Historic Properties Ordinance needs to be

amended to reflect the new terminology. At its July 16, 2013 meeting, the Historic Landmarks Commission held a public hearing and unanimously recommended that the City Council adopt the proposed amendment. It is recommended that Council conduct the second reading and adopt the ordinance.

Item 8(c): **Liquor License Application from David Kroening, Andrew Bornstein, Jerry Kasinger, Luke Colvin, Jack Berka, David Snodgrass, Pamela Snodgrass, Joe Haggren and Mark Rose, dba River Barrel Brewing Inc., located at the foot of 7th Street, for a New Outlet – Full On-Premises Sales – Brewery License (Finance)**

A liquor license application has been filed by David Kroening, Andrew Bornstein, Jerry Kasinger, Luke Colvin, Jack Berka, David Snodgrass, Pamela Snodgrass, Joe Haggren and Mark Rose doing business as River Barrel Brewing Inc., located at the foot of 7th Street, Astoria. The application is a New Outlet – Full On-Premises Sales – Brewery License. The appropriate departments have reviewed the application and it is recommended that Council consider approval.

Item 8(d): **Liquor License Application from Todd Shelton and Lawrence Cary, dba North Coast Distillery LLC located at 1270 Duane Street, for a New Outlet – Distillery License (Finance)**

A liquor license application has been filed by Todd Shelton and Lawrence Cary doing business as North Coast Distillery LLC, located at 1270 Duane Street, Astoria. The application is a New Outlet – Distillery License. The appropriate departments have reviewed the application and it is recommended that Council consider approval.

Item 8(e): **Liquor License Application from Stephen C. and Karen Allen, dba Andrew & Steve's Chartroom/Astoria Brewing Company located at 1196 Marine Drive, for an Additional Privilege – Brewery License (Finance)**

A liquor license application has been filed by Stephen C. and Karen Allen doing business as Andrew & Steve's Chartroom/Astoria Brewing Company, located at 1196 Marine Drive, Astoria. The application is an Additional Privilege – Brewery License. The appropriate departments have reviewed the application and it is recommended that Council consider approval.

Item 8(f): **Wastewater Treatment Plant Effluent Treatment Upgrades – Pay Adjustment No. 1 (Public Works)**

In November 2012, the construction contract was awarded to R&G Excavating (R&G). Since that time R&G has been working through submittals, procuring long-lead time equipment and has mobilized to the site. Due to the nature of the improvements, primary construction activity needs to occur during the drier summer months when the flows to the treatment plant are at their lowest point.

The major construction effort began the last week of June. Pay adjustment No. 1 for $25,223.97 includes several changes that are itemized below:

A. Concrete leveling base in chlorine contact basin	$20,966.36
B. Installation of new conductors to chemical feed building	$9,513.70
C. Upgrade main electrical distribution panel	$250.00
D. Contraction contribution (credit)	($5,506.09)

It is recommended that the City Council authorize Pay Adjustment #1 for the Wastewater Treatment Plant Effluent Treatment Upgrades project for $25,223.97. Funds are available for this project through IFA funding.

Item 8(g): **Proposal to Allocate City Funds to Assist Citizens Experiencing Financial Hardship with Utility Bills (Councilor Herzig)**

Councilor Drew Herzig has proposed setting aside $10,000 to create a water/sewer assistance fund, for Astoria residents who are dealing with significant financial hardship. At Councilor Herzig's request, the Astoria City Council agreed to discuss establishment of such an assistance program at their regular meeting of August 19th. In preparation for the Council meeting, Councilor Herzig, City Manager Paul Benoit, and Finance Director Mark Carlson met with George Sabol and Cheryl Waite of Clatsop Community Action, to discuss the possibility of partnering to implement such a fund. Guidelines for eligibility could include, among other criteria, federally-determined income limits and city residency (no support for commercial operations). Councilor Herzig will present his proposal to the Council in greater detail. If Council chooses to move forward with such a program, City staff will meet again with Mr. Sabol of Clatsop Community Action to determine the formal structure needed for managing this fund.

Item 8(h): **Astoria Landfill Closure Plan (Public Works)**

The City has been in the process of obtaining Oregon Department of Environmental Quality (DEQ) approval of a Landfill Closure Plan for the inactive landfill located along Williamsport Road. The City hired Maul Foster Alongi (MFA) in November of 2012 and they have been working with the City and DEQ to prepare a Landfill Closure Plan that meets all state requirements. MFA' s report was submitted to the City and DEQ for a preliminary review and all comments have been addressed. The report has now been submitted to the City Council for approval before going to DEQ for final approval. The complete 100+ page plan has been electronically forwarded to the Mayor and Council for their review and is included in this agenda packet. The landfill closure requirements will include:

1) Capping of old garbage areas
2) Post closure monitoring
3) Financial assurance

It is recommended that Council approve the Landfill Closure Report and authorize MFA to submit the plan to DEQ on the City's behalf for final acceptance.

Item 8(i): **Sale of Excess City Property – Procedures (Public Works)**

At its August 5, 2013 meeting, the City Council authorized a contract with Area Properties to market excess City property. Area Properties will begin marketing the properties immediately, as directed by Council. Sale of any property will be brought before the Council as required by the City's Real Property Sale Procedures, Section 1.500 through Section 1.510. City Code requires the City Manager to submit a report to Council of any proposed sale. After considering the sale at a regular meeting, a public hearing shall be scheduled, and a notice advertised and sent to all property owners who reside within 250 feet of the property. Council can, after hearing public testimony, approve or reject the sale. If the Council approves the sale, it will be conducted by the Public Works Director with specific instructions by the Council. It is recommended that the City Council approve marketing excess City property with the understanding that the procedures outlined above will be followed for any individual properties that are brought to the City by Area Properties.

Item 8(j): **Heritage Square – Grant Application to Support Design Work (Community Development)**

The City has an opportunity to apply for a grant from the Ford Family Foundation to fund architectural and structural engineering work on Phase 2 of Heritage Square to include the amphitheater and plaza area east of the Garden of Surging Waves. The Ford grant would provide detailed architectural and structural engineering plans to allow for construction at such time that the City Council chooses to move forward. No City match would be proposed with this application. It is recommended that the City Council authorize the preparation of a Ford Family Foundation application not to exceed $250,000 for the design of Heritage Square, Phase 2.

Item 8(k): **11th Street CSO Project – Intersection and Street Improvements (Public Works)**

At the start of the Combined Sewer Overflow (CSO) Project, City Council direction to staff was to ensure that streets in poor condition that were being impacted by CSO work be repaired and/or reconstructed and brought to City standards. Following that direction, the construction plans for the 11th Street CSO project incorporated details for the reconstruction of impacted intersections and substandard road sections. Intersection and street section reconstruction was included in the contractor's work and is shown in the construction plans; however, due to a staff technical error, the bid form and list of contract unit prices inadvertently did not incorporate provisions for bidding and payment of the reconstruction work. Although the reconstruction work is included as part of the contractor's scope and was always fully expected to be

performed, an adjustment to the contract is required for payment purposes. The reconstruction work is anticipated to cost within a range of $275,000 to $350,000 and would be funded from the budgeted project contingency. It is recommended that Council authorize a payment allocation for the 11th Street CSO project in an amount not to exceed $350,000 for the planned reconstruction of failing intersections and street sections.

EXECUTIVE SESSION

Item 9(a): **ORS 192.660(2)(d) – Labor Negotiation Consultations**

The City Council will recess to executive session to consult with members of its labor contract negotiating team.

Item 9(b): **ORS 192.660(2)(e) – Real Property Transactions**

The City Council will recess to executive session to discuss a real property transaction issue.

MANAGER\AGENDA\AGENDA MEMO 8-19-13.DOC

CITY OF ASTORIA
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August 9, 2013

MEMORANDUM

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: **CSO PROGRAM – PRESENTATION**

DISCUSSION/ANALYSIS

Since April 2012, HDR Engineering has been managing the hydrologic and hydraulic model that is used to delineate and scope each CSO project. This model contains important information regarding the storm and sewer infrastructure (e.g. pipe size, length, and material), geographic areas that flow to each pipe segment, rainfall information, and historic flows that are used to predict the system response after CSO project completion. There is ongoing maintenance and calibration that must occur to the model so that it most closely duplicates actual conditions in the field and gives the City the most accurate data for the design of future CSO projects.

As the City's CSO modeling expert, HDR Engineering has analyzed the data generated by the model and developed a scope for the next CSO project and strategy for approaching the remaining future projects. Their recommendations take into consideration cost effective alternatives, existing conditions of City infrastructure, and other scheduled City projects to develop an approach that meets the criteria established by the Department of Environmental Quality (DEQ). The scope of the project is then given to a design engineering consultant to produce plans and specifications for bidding the construction of the project.

The Council presentation by HDR Engineering and City staff will include a brief history of the CSO Program, CSO projects that have been completed to date, scope of the next CSO project, and anticipated strategy for the future of the CSO Program. The intent of the presentation will be to provide the Council with an updated look at the current status and future direction of the CSO Program.

Submitted By: Ken P. Cook
Ken P. Cook, Public Works Director

Prepared By: Cindy D. Moore
Cindy D. Moore, City Support Engineer

CITY OF ASTORIA
City Council Chambers
August 5, 2013

CITY COUNCIL JOURNAL OF PROCEEDINGS

A regular meeting of the Astoria Common Council was held at the above place at the hour of 7:00 p.m.

Councilors Present: LaMear, Herzig, Warr, Mellin, Mayor Van Dusen.

Councilors Excused: None

Staff Present: City Manager Benoit, Community Development Director Estes, Public Works Director Cook, Fire Chief Ames, Police Chief Curzon, Library Director Tucker, Parks and Recreation Director Cosby, Finance Director Carlson, Planner Johnson and City Support Engineer Moore. The meeting is recorded and will be transcribed by ABC Transcription Services, Inc.

REPORTS OF COUNCILORS:

Item 3(a): Councilor Herzig reported that the next City Council meeting, on Monday, August 19, 2013, would begin at 6:30 p.m. to hold a 30-minute question and answer session about the trip to Walldorf, Germany prior to the regular City Council meeting. Council members will show photographs and share stories of their trip.

Item 3(b): Councilor LaMear reported that the trip to Germany was wonderful and amazing, adding that the residents of Walldorf appreciated City Council's presence. Council members were representing the citizens of Astoria. The experience was remarkable.

Item 3(c): Councilor Mellin stated that upon her arrival in Walldorf, she began thinking about Harry and Mary Steinbach and the other City Council members who voted to approve the Sister City relationship during a time when there was much grief over World War II. The Sister City relationship was almost an insurmountable gesture. She was honored to be in Walldorf fifty years later. She believed the trip honored Mr. Steinbach. Councilor Mellin has received several phone calls about burning trash within the city limits. She asked Chief Ames to explain the City's burning policy.

Chief Ames explained that the burn permit process allows residents to burn certain items in their yard when correct procedures are conducted. The burn permit is valid for two years and costs $50.00. The permit can be renewed for one extra year for $35.00. Currently, guidelines are provided with the burn permits, so he created a list of guidelines to explain what should and should not be burned. The guidelines also include a statement that encourages permit holders to contact the Fire Department when a neighbor becomes disturbed by burning. The Fire Department will respond to the complaint. Fire season restrictions occur throughout the State every year in July that limit burning above and beyond the City's burn permit process; for example, burning is only allowed from daylight until 10:00 a.m. by permit only and trash must be burned in a barrel with an adequate screen. Diapers, plastic and other similar items are never allowed to be burned. Only items that do not cause problems, like paper and unpainted wood, should be burned. Campfires are allowed in back yards as long as certain restrictions are met: fires can be no larger than three feet; the fire must be used for cooking, warming, or ceremonial purposes only; tended at all times; and extinguished prior to going back inside the home. The Fire Department will respond to complaints regarding campfires as well. When complaint calls are made to the Fire Department's business line and no one is available to answer the call, he suggests calling 9-1-1. If a fire is serious enough that it is causing a problem, the Fire Department wants the opportunity to respond to the issue. Residents can call or stop by the Fire Department anytime to learn more about the burn permit process, which is slowly evolving over time.

Item 3(d): Councilor Warr reported that he was thrilled about the opportunity to go to Walldorf to participate in the Sister City celebration. He and his wife spent some extra time visiting other parts of Europe. He announced that on Tuesday, August 6, 2013, the Northwest Area Commission on Transportation will be holding its third video conference to review applications for the Enhanced Funding for 2015 to 2018. He hopes the committee can make recommendations for the projects that would receive funding in early September 2013.

Item 3(e): Mayor Van Dusen asked City Manager Benoit for an update on the Garden of Surging Waves. City Manager Benoit stated that a lot of work is currently underway. Marble dragon columns will be

upright by Friday, August 9th in time for the Regatta parade on Saturday. Two weeks after the columns are set, artists will begin fabricating the mosaics and wood beams. He also reported that recently the Garden's project designer, Suenn Ho, is no longer with Mulvaney G2, which made staff reductions due to a slowdown in business. The firm's project architect will continue to work with Ms. Ho to ensure that the Garden of Surging Waves project continues as planned. Ms. Ho had informed him a week ago that she and her husband were both let go from Mulvaney G2.

Director Estes added that he contacted Mulvaney G2 after receiving an email from Ms. Ho. He spoke with Project Architect Brandon Soens, who assured Director Estes that the City's contract with Mulvaney G2 will continue with the same structural engineering consultant team. Director Estes told Mr. Soens that Ms. Ho has been an integral part of the project from the beginning and some key decisions are currently being made with regard to the artisans. Staff has been working hand in hand with the artisans to make sure that the design intent is being met. Mr. Soens said he would be working with Ms. Ho on a contractual basis so she can continue working on this project. Director Estes told Mulvaney G2 that the City felt she needed to be involved in the project, specifically for some of the design intent issues.

Mayor Van Dusen suggested the agenda packets be downloaded to the iPads sooner as the packet was not downloaded until late last night.

CHANGES TO AGENDA:

Councilor Herzig added Item 6(h): Proposal to Set Up Funding to Assist Residents Experiencing a Hardship Paying Water and Sewer Bills for discussion.

CONSENT CALENDAR:

The following items were presented on the Consent Calendar:

5(a) City Council Minutes of 7/1/13
5(b) Boards and Commission Minutes
  (1) Design Review Committee Minutes of 6/6/13
  (2) Historic Landmarks Commission Minutes of 6/18/13
  (3) Planning Commission Minutes of 6/25/13
  (4) Traffic Safety Committee Minutes of 6/25/13
5(c) Libraries ROCC! LSTA Grant 2013-2014, Extending Service to the Unserved (Library)
5(d) Resolution Amending Liquor License Application Process (Community Development)
5(e) Resolution Amending Volunteer Employees' Workers Compensation Coverage (Finance)
5(f) 2013-2014 Coastal Zone Management Planning Assistance Grant (Community Development)
5(g) **Ready to Read Grant Application 2013-2014 (Library)**
5(h) Adair-Uppertown Historic Properties Inventory/State Historic Preservation Office Certified Local Government Grant Close-out Report (Community Development)
5(i) Approval of Arlene Schnitzer Capital Gift Agreement for Garden of Surging Waves (Community Development)
5(j) 11th Street CSO Separation Project - Construction Update (Public Works)
5(k) Resolution Scheduling Public Hearing for Vacation of a Portion of 1st Street Right-of-Way (Public Works)

Mayor Van Dusen asked if any member of the community requested the removal of an item on the Consent Calendar. There were none. Mayor Van Dusen asked if any member of City Council would like an item on the Consent Calendar removed for further discussion.

Councilor Herzig requested Items 5(c) and 5(g) be removed. Mayor Van Dusen requested Items 5(i) and 5(j) be removed for further discussion.

City Council Action: Motion made by Councilor LaMear, seconded by Councilor Mellin, to approve the Items 5(a), (b), (d), (e), (f), (h), and (k) of the Consent Calendar. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 5(c): Libraries ROCC! LSTA Grant 2013-2014, Extending Service to the Unserved (Library)
Item 5(g): Ready to Read Grant Application 2013-2014 (Library)

Councilor Herzig noted that Items 5(c) and 5(g) were both in regards to the library. The Libraries ROCC! Grant provided $95,000 to ensure that no child in Clatsop County is without a library card, which is a remarkable achievement. The library is also applying for a grant for $1280 for a reading program for young children, from birth through age five years. He wanted to recognize how much the library brings to the community. On Tuesday, August 6, 2013, a public meeting will be held to discuss the library renovations. The meeting will begin at 5:30 p.m. at the Liberty Theatre. He reiterated that he pulled these items off the Consent Calendar because the library is often not recognized for all it does to make Astoria and Clatsop County a good place for children to grow up.

City Council Action: Motion made by Councilor Herzig, seconded by Councilor Mellin, to approve the Items 5(c) and (g) of the Consent Calendar. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 5(a): Approval of Arlene Schnitzer Capital Gift Agreement for Garden of Surging Waves (Community Development)

Mayor Van Dusen explained that Item 5(i) regarded an agreement made with Arlene Schnitzer, who made a generous donation of $250,000 to the Garden of Surging Waves. He did not have the words to express the appreciation that the City Council and the community have for the donation. Mayor Van Dusen wanted to take this opportunity to thank Ms. Schnitzer publicly for her contribution to such an important project.

City Council Action: Motion made by Mayor Van Dusen, seconded by Councilor Warr, to approve the Item 5(i) of the Consent Calendar. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Mayor Van Dusen added that when the Walldorf, Germany community visited Astoria in the early 1990s, they nominated Jordan Schnitzer, a prominent Jew in Oregon, for the Freedom Award in Germany, the highest award that any non-German can receive from Germany. Astoria has quite a relationship with Walldorf, especially with Jewish Mayor Steinbach and the Schnitzer family, which is remarkable and important.

Item 5(j): 11th Street CSO Separation Project - Construction Update (Public Works)

Mayor Van Dusen requested an update on the 11th Street CSO Separation Project. Director Cook stated that the project is going well despite many challenges. The project is about 50% complete. All of the materials at the staging area will be installed on the upper part of 8th Street. Mayor Van Dusen asked Director Cook to clarify what he meant by 50% complete. Director Cook replied that Irving Street was just closed at 8th Street, so the section of 8th Street between Harrison Avenue and Irving Avenue is currently under construction. A sign has been installed at the intersection of 8th Street and Niagara Street, which only allows local traffic on 8th Street. Detours direct traffic to 15th Street, turn left and proceed to 16th Street or 14th Street. Paving will be done along 8th Street and Franklin Avenue on August 7th.

Cindy Moore, City Support Engineer, stated that the installation of pipe has been completed on 10th Street, 11th Street, and 12th Street, so only 8th Street and 9th Street remained. On August 6th, 10th Street will be paved in preparation for the parade on Saturday, August 10, 2013. After this is complete, 8th Street will be paved from Duane Street to Franklin Avenue, possibly to Grand Avenue. 8th Street will be open past the Exchange Street parade route to Franklin Ave so traffic can be routed up and over the hill. Staff has been working closely with the Police Department and the Regatta Committee to ensure accessibility.

Councilor Herzig said he was glad to see the water trucks out more frequently. The summer has been dry and a lot of dust has been kicked up on the streets. He told the Public Works Department to keep up the good work. He noticed that some of the newly installed curb cuts have temporary asphalt. He asked if that would be fixed when the streets are paved. Engineer Moore explained that the Public Works Department would like to do an overlay; however, the curbs and ramps must be installed first. Temporary asphalt ramps have been installed in some areas to ensure safety. The overlay will be an inch and a half thick

Councilor Herzig said the signage is a nightmare and acknowledged that the department is doing all they can. There are some significant bumps on 11th Street, from Irving Ave down, and there are no signs to warn drivers about the bumps. He suggested the addition of a sign if 11th Street will not be paved soon. Mayor Van Dusen added that the manhole covers are also a hazard. Councilor Herzig noted that more than a month ago, a driver drove into a ditch in an attempt to avoid a manhole cover on 10th Street. The Public Works Department has now put up better traffic cones. He thanked the department noting that keeping up with signage can be difficult.

Mayor Van Dusen reminded that this project was mandated.

REGULAR AGENDA ITEMS

Item 6(a): Intergovernmental Agreement with Oregon Department of Transportation for Riverfront Vision Plan Implementation (Community Development)

In 2008-2009, the City of Astoria worked on a Riverfront Vision Plan to address issues dealing with open space, land use, and transportation issues along the Columbia River. Significant public involvement opportunities were designed to gain public input. This process was initiated to plan for these issues in a comprehensive manner and to set a framework for the future of the study area. The City's north Riverfront was divided into four Plan areas of development: Bridge Vista, Urban Core, Civic Greenway, and Neighborhood Greenway. On December 7, 2009, after holding a final public hearing, the City Council accepted the Riverfront Vision Plan. For Fiscal Years 2012-2013 and 2013- 2014, the City Council set goals to "Implement Riverfront Vision Plan on a Zone by Zone Basis."

At its August 2, 2012 meeting, the City Council approved submittal of a funding application to the Department of Land Conservation and Development (DLCD) to fund code-writing activities for up to two areas of the Riverfront Vision Plan. The funding would be a Transportation Growth Management (TGM) grant through the Oregon Department of Transportation (ODOT). On October 22, 2012, the City was notified that the project had been approved for funding of $92,000 with no required cash match by the City. Under the TGM program, no cash is provided to the City and ODOT uses the services of planning firms already under contract with ODOT. The proposed Code Assistance Project is for the implementation phase of the Astoria Riverfront Vision Plan. Phase 1 of the project would develop land use codes and/or new zones for the Civic Greenway Plan Area. Phase 2 of the project would develop land use codes and/or new zones for the Bridge Vista Plan Area, contingent upon available funds. The consultant team identified by ODOT to work on this project is Angelo Planning Group. The draft Intergovernmental Agreement with ODOT, including the proposed Scope of Work, is attached for Council consideration. It is recommended that the City Council authorize the Mayor to sign the Inter- governmental Agreement with ODOT for the Riverfront Vision Implementation code assistance project.

Mayor Van Dusen stated that the Community Development Department should be applauded for their work on this project. This team effort included every City department, City Council, and the community; however, the Community Development Department served as the team captain. Work began in 2007, and it can be easy to lose momentum, but the City is following through with the project.

City Council Action: Motion made by Councilor Warr, seconded by Councilor Herzig to authorize the Mayor to sign the Inter-governmental Agreement with ODOT for the Riverfront Vision Implementation code assistance project. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(b): Purchase of Vactor Truck (Public Works)

The City's sewer cleaner vacuum truck was purchased in 1999 and has the hour equivalent of over 500,000 miles on the main engine. Over the last two years, $31,000 has been spent for major repairs and there are indicators that additional major repairs will be needed very soon. Vac-Con and Vactor are the only combination sewer cleaner vacuum trucks that are offered by the Nation Joint Power Alliance (NJPA). The NJPA is a public agency that serves as a municipal contracting agency. Astoria has been a member of NJPA since April 2012. The Public Works Department investigated both the Vac-con and the Vactor trucks and determined that the Vactor performed better and it appeared that critical wear parts would be easier to acquire when repairs are needed. It is recommended Council approve the lease/purchase of a Vactor combination sewer cleaner vacuum truck from Owen Equipment, through the NJPA, not to exceed $390,000 in five payments of approximately

$80,000 per year and to authorize the disposal of our current Vactor at auction. There are funds budgeted in the Public Works Improvement Fund for the first payment.

Mayor Van Dusen reminded that the purchase of this vehicle was discussed at length during budget planning meetings. The decision to purchase the truck was not made lightly.

City Council Action: Motion made by Councilor LaMear, seconded by Councilor Mellin to approve the lease/purchase of a Vactor combination sewer cleaner vacuum truck from Owen Equipment, through the NJPA, not to exceed $390,000 in five payments of approximately $80,000 per year and to authorize the disposal of the City's current Vactor at auction. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(c): Authorization to Award Contract – Sale of Excess City Property (Public Works)

At the April 15, 2013 meeting, the City Council authorized staff to solicit Request for Proposals (RFP) from local real estate firms to market excess City property. Staff issued the RFP in May and the only response received was from Area Properties. Area Properties has proposed a commission of 6% of the sale price. There would be no commission paid until the property closed. All advertising, web presence and signage would be paid by Area Properties. Note that prior to any marketing of City-owned property by Area Properties, selected properties would first be presented to the City Council for review and approval. It is recommended that Council award a contract to Area Properties for the sale of excess City Property.

Councilor Warr requested a map that identified the properties, so City Council could review the properties since each one will need to be approved prior to putting them up for sale. City Manager Benoit said he would prepare a map. A list of properties that staff believes are appropriate for selling is included in the agenda packet. Prior to listing any property through Area Properties, City Council will receive a detailed description of each property. Staff is not requesting approval of a master list.

Councilor Herzig requested that staff arrange a tour of the properties, which belong to the citizens of Astoria and he would like to visit the properties. He understood this will be a lot of work, however, it is important for him to see the properties prior to selling them. City Manager Benoit stated this is a great suggestion, but there are more than 100 properties and some are very small. He suggested several tours be arranged as properties are grouped together for potential sale.

Mayor Van Dusen agreed visiting the properties is a great suggestion. He explained that he originally thought these properties were buildable vacant lots, but confirmed with City Manager Benoit that the Yacht Club would fall under this agreement.

Councilor Herzig added that public input is an essential part of this process. He requested a public hearing be held at the City Council meeting immediately following the meeting that staff recommends a property be sold. This gives the public two weeks to prepare for expressing their concerns about the properties. He did not want to short change the public input process.

Mayor Van Dusen agreed with Councilor Herzig. Councilor Warr noted that conducting a separate hearing for each piece of property would be cumbersome. Councilor Herzig clarified his suggestion was that a single public hearing would be conducted for each package of properties presented to Council, depending on the size of the package presented. Mayor Van Dusen and Councilor Herzig agreed more public input on this issue is necessary.

City Council Action: Motion made by Councilor Mellin, seconded by Councilor LaMear to award a contract to Area Properties for the sale of excess City Property. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(d): 17th Street Dock Replacement Project – Pay Adjustment (Public Works)

On June 25, 2012, the Astoria City Council awarded a construction contract to Bergerson Construction in the amount of $4,266,137.00 for the 17th Street Dock Replacement Project. The project construction commenced on September 1, 2012 and is complete. Following is a list of pay of adjustments:

Pay Adjustment	Amount	Contract Amount	Contingency Balance	Contingency Balance %
		$4,266,137.00	$400,000.00	100%
1	($23,297.00)	$4,242,840.00	$423,297.00	106%
2	$11,934.84	$4,254,774.84	$411,362.16	103%
3	$50,053.18	$4,304,828.02	$361,308.98	90%
4	$62,820.78	$4,367,648.80	$298,488.20	75%
5	$93,818.99	$4,461,467.79	$204,669.21	51%
6	$29,745.90	$4,491,213.69	$174,923.31	44%

( ) = credit

Pay Adjustment #6 (Current) - Queen of the West landing revisions, unanticipated electrical power repair work off-site and various guardrail modifications and other miscellaneous items. It is recommended that Council authorize Pay Adjustment #6, which will result in a contract increase of $29,745.90.

Mayor Van Dusen asked if the project has been completed. Director Cook said the items listed in the agenda packet are the only tasks that still need to be completed. He believed this was one of the best projects for Astoria. The dock will last a long time and require minimal maintenance.

Councilor Warr noted that two cutters and a smaller vessel are tied up at the dock, which looks wonderful.

City Council Action: Motion made by Councilor Warr, seconded by Councilor Mellin to authorize Pay Adjustment #6, which will result in a contract increase of $29,745.90. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(e): Public Hearing and Ordinance Regarding Historic Properties Ordinance Amendment A13-03 (1st Reading) (Community Development)

The Historic Properties Ordinance, Article 6 of the Astoria Development Code, was last updated in 1992. This ordinance establishes how historic properties are designated, the process for review of exterior alterations, new construction, demolition, appeals, and lists exceptions to the review process. In January 2008, the City Council adopted a Historic Preservation Plan, which identified suggested amendments to the ordinance and proposed projects to support historic preservation. Within the last few years, the State and National terms used for historic properties has changed and, therefore, the City Historic Properties Ordinance needs to be amended to reflect the new terminology. Staff took the opportunity to improve and clarify the Code at the same time. The proposed Code amendments would add the new State historic property classifications and references and would provide code provisions to improve the review process as outlined in the memo. The proposed amendments would provide for three levels of review for historic properties (Types I, II, and III) rather than all requests being reviewed by the Historic Landmarks Commission. The intent of these amendments is to allow simple reviews and to ease the burden of reviewing simple projects at the Historic Landmarks Commission level. This would result in an easier, quicker permit review for applicants making historic preservation less burdensome to property owners and contractors.

At its July 16, 2013 meeting, the Historic Landmarks Commission held a public hearing and unanimously recommended that the City Council adopt the proposed amendment. A copy of the Staff Report and Findings of Fact as adopted by the Historic Landmarks Commission is attached. Also attached to this memo is the proposed ordinance. A public hearing on the Amendment has been advertised and is scheduled for the August 5, 2013 City Council meeting. It is recommended that the Council hold a public hearing and adopt the ordinance as recommended by the Historic Landmarks Commission. If the Council is in agreement with the recommendation of the Historic Landmarks Commission, it would be in order for Council to conduct the public hearing and hold a first reading of the Ordinance.

Mayor Van Dusen called for questions from City Council. There were none. He asked if anyone had any objections to the jurisdiction of the City Council to hear this matter at this time. Hearing none, Mayor Van Dusen asked if any member of the City Council had a conflict of interest or ex parte contact to declare. There were none. He explained the procedures governing the conduct of public hearings to the audience and advised that the substantive review criteria were listed in the Staff report, which is available from staff.

Mayor Van Dusen opened the public hearing at 7:35 p.m. and called for a presentation by the Applicant.

Brett Estes, Community Development Director/Assistant City Manager, 1095 Duane St, Astoria, explained that the code amendments would update the City's code to match the State Historic Preservation Office (SHPO) classifications of historic buildings. Terminology in the amended code reflects current terminology used by the state. Code amendments also make the permitting process easier for property owners. Routine permits can be obtained over the counter. Other permits would still receive public review, but would be reviewed by staff. The Historic Landmarks Commission (HLC) discussed these amendments when developing the Historic Preservation Plan in 2008. The proposed code amendments streamline the process for citizens who own historic properties while still providing the historic review process for the community.

Mayor Van Dusen stated that City Council has always tried to be respectful to the other committees and commissions and that Council values their opinions. He asked if the HLC voted to recommend these amendments to City Council. Director Estes explained that the HLC reviewed the code amendments last month and voted unanimously to recommend the code amendments to City Council. He noted the HLC Chair was in the audience. Mayor Van Dusen asked if the Chair wanted to comment.

LJ Gunderson, President, Historic Landmarks Commission, 413 Franklin Ave, stated that the HLC fully supported the code amendments. Making the permitting process as easy as possible encourages property owners to continue improving and restoring their properties. Property owners will be able to obtain permits and receive approval of projects faster at the staff level since they will not have to wait for a HLC meeting, which occurs only once a month.

Councilor Herzig said that Council has a copy of the technical language involved with the code amendments. He thanked the HLC for doing all of the detailed work. It was a laborious process and he appreciated the time and energy that has gone into creating these amendments.

Mayor Van Dusen called for anyone wanting to speak in favor of, impartial to or against the Historic Properties Ordinance amendments to come forward. Hearing none, Mayor Van Dusen closed the public hearing at 7:39 p.m.

City Council Action: Motion made by Councilor Warr, seconded by Councilor Mellin, to conduct the first reading of the Historic Properties Ordinance Amendment A13-03. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Fire Chief Ames conducted the first reading of the Historic Properties Ordinance Amendment A13-03.

Item 6(f): 11th Street CSO Separation Project – Pay Adjustment #2 (Public Works)

In March, Council awarded the construction contract to Tapani, Inc., for the bid amount of $5,717,177. Staff recommended and incorporated a 15% contingency on this project due to the scope, scale, and potential for encountering unknown conditions during construction. The construction contingency of 15% is $857,577. Only one pay adjustment of $4,391.37 has been processed to date on this project that began construction on April 1st.

Pay Adjustment No. 2 for $35,877.10 is extra costs incurred by the City due to Centurylink underground telephone wiring conflicts on the 11th Street CSO Separation project. There are a number of reasons for these conflicts including uncharacterized conduits, duct banks, and vaults during design and unmarked or inaccurately marked utilities during design and construction. The costs include extra work to confirm location of utilities by potholing, standby costs, re-coring manholes to adjust grades, and adjustments to water, storm and sanitary sewer line locations and grades.

City staff is working with the City Attorney to prepare the necessary documentation to submit a claim to Centurylink for these additional costs. It is possible that more costs could be incurred as construction will be ongoing through the end of the year. It is recommended that the City Council authorize Pay Adjustment #2 for the 11th Street CSO Separation project for $35,877.10. Funds are available for this project through IFA funding to be reimbursed by Centurylink.

City Manager Benoit noted that Items 6(f) and 6(g) were both related to change orders on the CSO Separation Project. Item 6(f) was separated out as its own item because staff would like to track the pay adjustment separately.

Engineer Moore explained the City has remained in contact with Centurylink to update them on plans and make them aware of potential conflicts since October 2012, the beginning of the CSO project. The City does not have specific information about Centurylink's utilities and relies on the franchise utilities to tell the City how deep the utilities are. Typical depths can be assumed; however in Astoria, things are not typical. No correspondence has been received from Centurylink. Centurylink has made no effort to move their utilities where there are conflicts. Franchise utilities are required to move utilities when a City project is being completed. During construction, the City found several locations where Centurylink's utilities were not marked. A vault containing telephone lines from the 1900s at 8th Street and Exchange Street has created the biggest conflict. Centurylink has been working with the City since the vault was discovered; however, these conflicts increased the cost of the project. The vault will be abandoned by Centurylink as it contains a tangled mess of spliced cables. The cables are lined with paper and are vulnerable to moisture. A bypass line is being installed at 7th Street and Exchange Street so Centurylink will be outside of the project area while they are splicing.

Councilor Mellin asked if this issue occurred in other areas. Engineer Moore said that other issues did occur, but the vault was the biggest conflict. Working around the vault and dealing with the delays cost about $20,000. When franchise utilities fail to give the City accurate information, conflicts are found as digging occurs. Centurylink did not give the City of Astoria any information on their utilities.

Mayor Van Dusen asked if the City should send Centurylink a bill for $35,877.10. City Attorney Henningsgaard stated that staff has done everything they are obligated to do under the City's rules and regulations. The Franchise Agreement, which needs to be updated, clearly requires utility companies to relocate their wires. The City recently adopted an ordinance that includes the same requirement and also requires utility companies to provide the City with digital information about the location of the utilities. Centurylink has not complied with either requirement. He hoped to use this opportunity to receive the reimbursement and obtain an accurate map of Centurylink's utility locations.

City Council Action: Motion made by Councilor LaMear, seconded by Councilor Mellin to authorize Pay Adjustment #2 for the 11th Street CSO Separation project for $35,877.10 and pursue reimbursement by Centurylink. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(g): 11th Street CSO Separation Project – Pay Adjustment #3 (Public Works)

In March, Council awarded the construction contract to Tapani, Inc., for the bid amount of $5,717,177. Staff recommended and incorporated a 15% contingency on this project due to the scope, scale, and potential for encountering unknown conditions during construction. The construction contingency of 15% is $857,577. Pay adjustment No. 3 for $69,521.82 includes a variety of changes that are itemized in the enclosed memorandum. It is recommended that the City Council authorize Pay Adjustment #3 for the 11th Street CSO Separation project for $69,521.82. Funds are available for this project through IFA funding.

City Manager Benoit noted that upon approval of this pay adjustment, 91% of the project contingency, which totals $747,000, will remain in the contingency fund. The project is about 50% complete.

Councilor Herzig referred to Page 172 of the agenda packet and noted that $48,853.41, the largest part of the pay adjustment, was for disposal of contaminated materials. The contractor was cleaning a pipe at the 9th Street outfall and the debris deposited at an approved disposal site, where an oily substance was discovered. Testing revealed it was a non-hazardous petroleum product that had to be disposed of and the City is being billed for the disposal. He believed the contractor should be responsible for paying this bill. City Manager Benoit responded that staff has had some intense internal conversations about the bill.

Engineer Moore explained that in this case, there was no way to know the contaminated material was in the pipe, which was an isolated piece of the 9th Street outfall, which is unique in that the overflow did not go to the outfall, but back into the interceptor. The City did its best to investigate the outfall and the condition of the pipe during design. The isolated section could not be accessed during the investigation. The pipe had to be busted open in order to repair the portion that the City knew was damaged. While cleaning the outfall, in preparation for

the slip linings, the oily substance was sucked up. No one knew the substance existed and there was no way to know it was in the pipe. The substance did not give off an odor, so the crew was unaware that the substance had been sucked up. The debris was dumped according to standard protocol, which unfortunately then contaminated the dumpsite. Staff's position is that this could not have been prevented. Because the contamination came from Astoria's infrastructure, it is the City's responsibility to pay the bill. City Manager Benoit added that the contractor cleaned up the material immediately upon finding it. If cleanup had been delayed, the cost would be much greater. This is a bad situation, but the contractor was very professional and efficient in cleaning up the substance.

Councilor Herzig asked if the contractor carries insurance that might cover the cost of this bill. Engineer Moore did not believe the contractor's insurance would cover this incident. Councilor Herzig stated that when a job goes wrong, it is the contractor's job to take responsibility. He understood there was no way to know in advance about the substance in the pipe and that the City feels responsible, but it is a shame to see an almost $50,000 bill, even though the contingency fund is still well funded. Engineer Moore understood Councilor Herzig's concerns and said the issue was difficult for staff to accept as well. All of the proper procedures were followed and it was Astoria's utility that was contaminated. The City would have had to deal with the substance one way or another.

Mayor Van Dusen said there were several ways to approach this situation, but he appreciates how the City has decided to handle the issue. Astoria is particularly unique, especially since downtown used to be a river. An unknown situation occurs on almost every project. If the unknown situation has not been budgeted, the costs must be paid. Making a habit of holding the contractor responsible for unknown situations will result in higher bids on future projects. Contractors will want to bid high enough that the costs of unforeseen issues will be covered. He believes the City is doing a better job for the citizens when it agrees to pay for these issues out of the contingency fund.

City Council Action: Motion made by Councilor Mellin, seconded by Councilor Warr to authorize Pay Adjustment #3 for the 11th Street CSO Separation project for $69,521.82. Motion carried unanimously. Ayes: Councilors LaMear, Warr, Herzig, Mellin, and Mayor Van Dusen; Nays: None.

Item 6(h): Proposal to Set Up Funding to Assist Residents Experiencing a Hardship Paying Water and Sewer Bills (Councilor Herzig)

This item was added to the agenda during Changes to the Agenda.

Councilor Herzig thanked City Council for allowing him to add the item to the agenda. He proposed that the City create a fund, starting with a minimum of $10,000, to assist people who are experiencing hardships in paying their water and sewer rates. The rates are increasing and many Astorians are low income, are on a fixed income, or live at poverty level. He has spoken with George Sable at Clatsop Community Action, who agreed to administer the program which would save staff from having to do a lot of administrative work. Qualifying for assistance would be similar to the energy assistance programs that Clatsop Community Action already administers. He added this to the agenda so that the issue can be more formally discussed at the next City Council meeting.

Mayor Van Dusen said discussing the fund was a great idea. He called for anyone in the audience wanting to speak on this issue to come forward.

Laurie Caplan, 766 Lexington Ave, Astoria, said she has spoken with Councilor Herzig about creating the fund because she has been in gatherings where people are panicked and upset. She recalled that City Manager Benoit had stated at the City Council meeting on July 1, 2013 that the water and sewer rates would continue to increase. The audience verbally reacted negatively. Even if a resident can afford to pay the bill, it is still a chunk of money that you would want to spend on fun or other bills, clothes, restaurants or other things. The higher rates are taking up so much of residents' incomes. She has noticed an increase in dead lawns in Astoria and believed this was because people are not watering the lawns as a means of reducing their water bills. This is a rational decision for individuals, but some of the blocks in town look dingy and uncared for. This is not good for the overall effect of residence and visitors. If people continue to neglect their yards, property values will be affected. She encouraged City Council to follow through with creating a fund with a minimum of $10,000 and work with Clatsop County Community Action to recalibrate the funds needed as the program continues.

City Council agreed to add this item to the agenda and conduct a public hearing at the next City Council meeting on August 19, 2013.

NEW BUSINESS & MISCELLANEOUS, PUBLIC COMMENTS

Laurie Caplan, 766 Lexington Ave, Astoria, asked if it would be a good time to reexamine the City's contract with Centurylink and see if another vendor would be more responsive and follow through on the contract to keep the City from having to deal with a company that does not care very much. City Manager Benoit stated he was unaware of the City's options. Changing telecommunications vendors would be similar to switching gas companies, as a lot of infrastructure would be affected. City Attorney Henningsgaard stated the problem is that the utility owns the power lines and distribution system. The only way to change vendors would be to condemn their system, which would be expensive.

Mayor Van Dusen said there are other ways to get Centurylink to respond, such as through the state legislature.

Bill Tosslen, 101 South Harbor, Aberdeen, Washington, stated that he has spoken with some City Councilors and understood the law regarding personal property. No one would like the City to tell him or her what they can do with their personal property. Two and a half years ago, his son, daughter-in-law, and their two children moved to Astoria. His son brought a business to Astoria and has started two more businesses in the last six months. Raw sewage continues to leak across his basement floor, which is a landlord/tenant issue. The landlord was unresponsive for so long that the sewage has caused a toxic, weapons grade mold to develop. Raw sewage has leaked out of the basement on to other private property owned by other people on the block. A claim has been made with the Department of Environmental Quality (DEQ). He has done everything he can do to bring this issue to someone's attention. He does not want the City to tell him what to do with his property, but the issue is so egregious. The paradox is that his son and family are low income, and tax money has been paying for the ridiculous medical expenses they have had over the last year, not knowing specifically what the medical problems were. He paid a lab to test the mold. The pediatrician and doctors are writing letters. He has been on the phone for about two week and he is angry about the situation.

Mayor Van Dusen clarified that the raw sewage leak was in the residence, not the businesses. Mr. Tosslen stated the family has moved out of the house with the raw sewage leak. His concern is that there are no laws to prevent the homeowner from improperly cleaning the mold and renting the house to another family.

City Manager Benoit stated he has spoken with Mr. Tosslen about the issue and did not have any suggestions. Mr. Tosslen has characterized the situation appropriately and it is a difficult civil matter. He is aware that Mr. Tosslen has been in contact with the City, County, State, and anyone else who may be able to get involved, but there is no such law.

Mr. Tosslen added that Senator Merkley alluded to the fact that indoor air quality is being discussed in Washington D.C. The Senator's office is interested in this issue. He is concerned about the health of his family. There is no guarantee that his family will recover. His granddaughter has lost 70% of her hearing and must undergo speech therapy. His daughter-in-law has been treated for ruptured eardrums over the last six months. The mold is a serious mold. Other people in the community have had the same problem and have moved out of Astoria. His son still loves Astoria. He asked City Council to find out if something can be done to stop issues like this. The mold should be cleaned up by a hazmat crew. He hired a haz-mat crew to help his family move out of the house.

Mayor Van Dusen suggested that City Council direct staff to write a letter to Senator Merkley, Senator Wyden and Congresswoman Bonamici requesting that the issue be investigated. Legislatures receive many requests and a letter from the City may draw more attention to the situation. City Council agreed. Mr. Tosslen believed that City Council had the authority to approve additions to the International Building Code. The City can create code that prohibits the flow of raw sewage outside.

City Attorney Henningsgaard believed that Astoria's enforcement code could deal with this issue. He suggested that Mr. Tosslen's son and daughter-in-law speak with Oregon Legal Services, a low or no cost legal service funded by State filing fees. The most competent landlord/tenant lawyers in Oregon work for Oregon Legal Services. He suggested Mr. Tosslen speak with Ellen Johnson at the office in Hillsboro, who is an excellent landlord/tenant attorney. His experience with DEQ has revealed that they do not have any enforcement abilities. DEQ is the only state agency that could get involved with this situation; however, they do not have adequate

staff. Civil litigation is a venue should begin as soon as possible. Mr. Tosslen said that civil litigation is completely separate from what he was speaking about. City Attorney Henningsgaard believed civil litigation could be an avenue for Mr. Tosslen to achieve his goals.

Councilor Herzig asked if raw sewage leaking across property lines creates a public health hazard. Mr. Tosslen responded the sewage is on private property. Director Cook stated that the City prohibits raw sewage in the open. Water service is shut off upon repeated violations. Mayor Van Dusen stated this would prevent another family from moving into the home with mold.

City Manager Benoit asked for the address to the property. Mr. Tosslen stated the house is at 762 5th Street, Astoria. The neighbors are upset about the smell of the sewage. A neighbor two houses away has complained of the smell of raw sewage since before Mr. Tosslen's family moved into the home.

Tamara Stanley, 2044 SE D St, Astoria, referred to Consent Calendar Item 5(k) and asked about the next step in the vacating of 1st Street. City Manager Benoit explained that City Council approved the scheduling of the public hearing, which will be held either on August 19th or the first meeting in September 2013. He confirmed Ms. Stanley would like to sell a house that is intruding upon the right-of-way. Ms. Stanley added the house has been in that location since the early 1950s and has been sold many times. The house is currently up for sale. The right-of-way issue was brought to her attention a few months earlier.

Councilor LaMear said the City is not making a lot of progress with the Flavel properties. Since the passing of the Derelict Building Ordinance, she was hopeful that some real action would be taken with the Flavel's. She asked for an update on the Flavel properties. City Attorney Henningsgaard confirmed that after a series of meetings with the enforcement officer, it was decided that a couple of citations would be issued. In May 2013, the enforcement officer asked City Attorney Henningsgaard to review two forms of citations, about which he commented and the last he heard was the officer's concerns were sent to Director Estes.

One issue is that the City adopted a code that sets high penalties for derelict buildings. Another code section states that except as otherwise provided in the section, a violation of a provision of the code may be punishable by only a $1,000 fine. In his opinion, this limits the City to fining no more than $1,000. This issue can easily be remedied, and he suggested amending the ordinance to accept the derelict building sections and the penalties that have already been adopted. Some of the penalties are as much as $7,500. He offered to present a proposed ordinance amendment at the next City Council meeting to do so.

Mayor Van Dusen asked if any part of the process allows the City to take control of the property. City Attorney Henningsgaard replied that one major problem is finances. The City could foreclose on some of its existing liens, but the City would be in the midst of an expensive legal procedure if the property owner attempted to stop the foreclosure. Foreclosures take time, the sale must be advertised to the public, and the sheriff would have to conduct the sale. This would only remove Mary Louise Flavel from the chain of title. Other claimants would still remain in the chain of title. Staff discussions went to the effect of keeping Ms. Flavel focused on doing something by issuing citations, though he did not have much faith that would happen. The idea was to see if the City could get her to act voluntarily.

Mayor Van Dusen asked City Council if a different approach should be used. Councilor LaMear said the City has been very patient so far as the issue has been ongoing for many years. When she ran for office in 2008, it was her goal to clean up the Flavel building, and she believed every Council had that hope.

Mayor Van Dusen asked City Manager Benoit to present a different approach and options regarding the issue at the next City Council meeting for Council to discuss.

ADJOURNMENT

There being no further business, the meeting was adjourned at 8:15 p.m.

ATTEST:

APPROVED:

Finance Director

City Manager

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 8, 2013

MEMORANDUM

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENIOT, CITY MANAGER

SUBJECT: **VACATION OF A PORTION OF 1ST STREET RIGHT-OF-WAY**

DISCUSSION/ANALYSIS

The City has received a request from Tamara Stanley property owner of 2044 SE D Street for the vacation of a 16' by 50' portion of the unimproved 1st Street Right-of-Way to accommodate a portion of the existing house and associated improvements that were built over the property line many years ago.

Based on County Assessor's records, staff has calculated the average real market land value of properties adjacent to the property as $12.51 per square foot. An assessment of $1,001.12 (10%) of the real land value ($10,011.16) has been paid by Ms. Stanley.

Ms. Stanley is in the process of selling her property and due to financing requirements the sale cannot be completed until the encroachment issue is resolved. She has requested that the City Council finds that an emergency exists and, if approved by the Council, the ordinance become effective immediately

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At their August 5, 2013 meeting, the Astoria City Council acted to schedule a public hearing on the proposed street vacation on August 19, 2013 at 7:00 p.m.

RECOMMENDATION

It is recommended that the Astoria City Council conduct the public hearing, declare that an emergency exists, and hold the 1st and 2nd readings of the ordinance to vacate a 16' by 50' portion of the unimproved 1st Street right-of-way adjacent to 2044 SE D Street.

Submitted By Ken P. Cook
Ken Cook, Public Works Director

Prepared By Cindy Maynard
Cindy Mayhard, PW Admin Assistant

ORDINANCE NO.13-____

AN ORDINANCE GRANTING THE PETITION FOR THE VACATION OF A PORTION OF THE 1ST STREET RIGHT-OF-WAY ADJACENT TO 2044 SOUTHEAST D STREET, ASTORIA, AND DECLARING AN EMERGENCY.

THE CITY OF ASTORIA DOES ORDAIN AS FOLLOWS:

Section 1. Vacation Allowed. That the petition for vacation of the right-of-way is described as follows, is hereby granted:

16 feet by 50 feet of 1st Street adjacent to 2044 SE D Street (Lots, 1, 2, a portion of lot 3, 4 and Lots 15 through 20, Block 25, Williamsport Subdivision), Astoria in the City of Astoria, County of Clatsop, State of Oregon

Section 2. Combining Lots. The above described vacated right-of-way and property is hereby combined into one lot and may not be separated except in compliance with Astoria Development Code and other applicable land use regulations.

Section 3. Other Provisions. An assessment to the applicant in the amount of $1,001.12 has been determined for the benefit received from the street vacation.

Section 4. Reservations. Nothing in this ordinance or in the action to vacate that portion of the right-of-way or alley described in Section 1 shall cause or require the removal or abandonment of any Franchise Utility of any kind, wire, pole, or object used or intended to be used for any public service, and the right hereby is reserved for the owner of any such utility or object to maintain, continue, repair, reconstruct, renew, replace, rebuild or enlarge all utilities and objects.

Section 5. Declaration of Emergency, Effective Date. As a portion of the house on this property encroaches on the 1st Street right- of-way and the property owner must rectify this prior to a pending sale of the property, the Astoria City Council finds that an emergency exists; therefore, this ordinance will become effective immediately upon approval by the express unanimous vote of the Council.

The vacation of that portion of the right-of-way as described in Section 1 of this ordinance is ordered and allowed, subject to the provisions and restrictions contained in Section 2.250 and 2.310 of the Astoria Code.

ADOPTED BY THE CITY COUNCIL THIS 19TH DAY OF AUGUST, 2013.

APPROVED BY THE MAYOR THIS 19TH DAY OF AUGUST, 2013.

_____
Mayor

ATTEST:

_____
City Manager

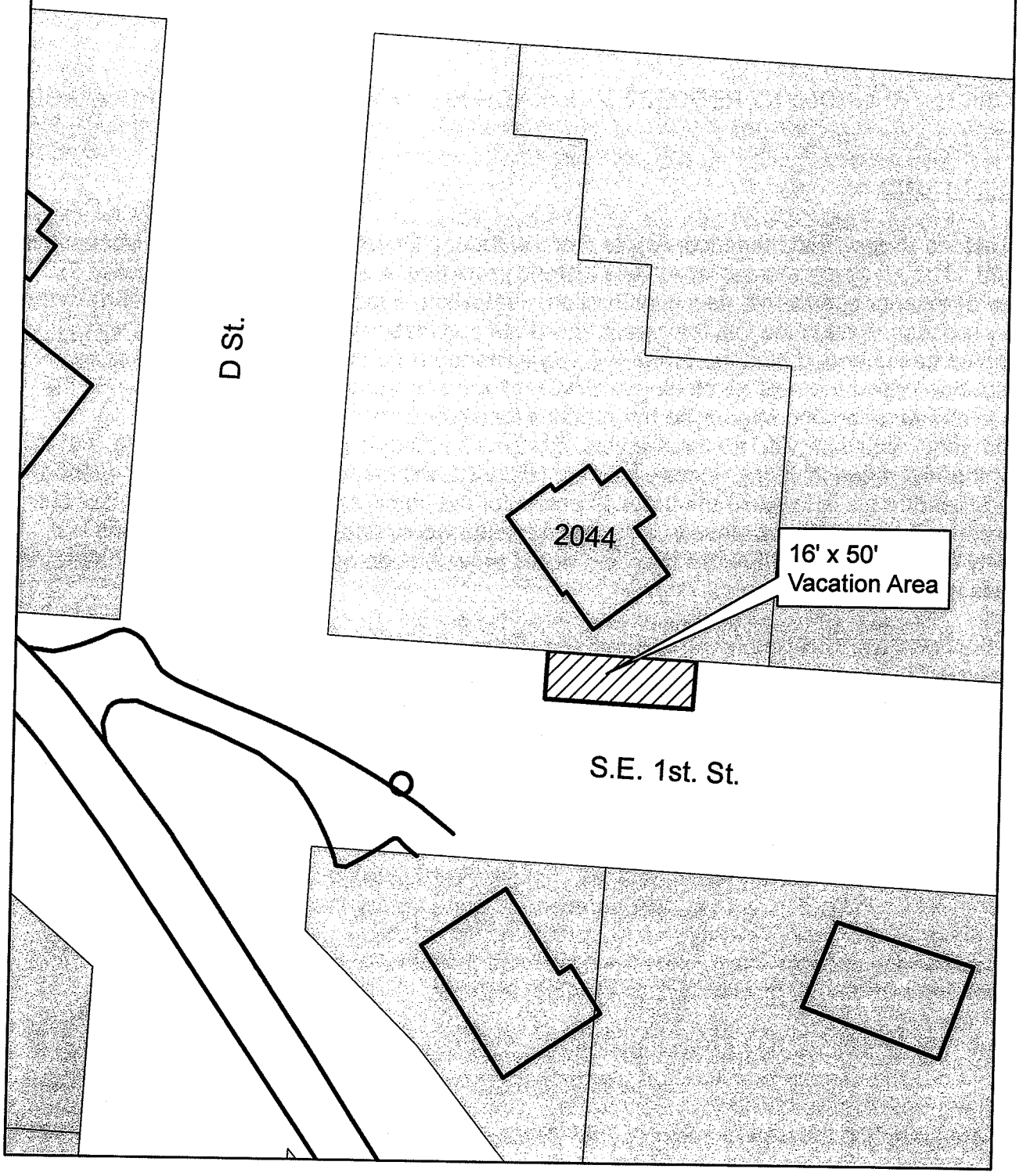
ROLL CALL ON ADOPTION	YEA	NAY	ABSENT
Councilor LaMear			
Herzig			
Mellin			
Warr			
Mayor Van Dusen			

Proposed Street Vacation
16' x 50' portion of the
unimproved S.E. 1st St R.O.W.
adjacent to Lot 17,Blk 25,
Williamsport Subd.

Date: 7-17-2013

N
W E
S

Scale: 1"=50'



CITY OF ASTORIA
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COMMUNITY DEVELOPMENT

August 6, 2013

TO: MAYOR AND ASTORIA CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: AMENDMENT REQUEST (A13-03) ON HISTORIC PROPERTIES ORDINANCE

BACKGROUND

The Historic Properties Ordinance, Article 6 of the Astoria Development Code, was last updated in 1992. This Ordinance establishes how historic properties are designated, the process for review of exterior alterations, new construction, demolition, appeals, and lists exceptions to the review process. Within the last few years, the State and National terms used for historic properties has changed, and therefore, the City Historic Properties Ordinance needs to be amended to reflect the new terminology. Staff took the opportunity to improve and clarify the code at the same time to streamline the process for historic reviews. The proposed amendments would provide for three levels of review for historic properties (Types I, II, and III) rather than all requests being reviewed by the Historic Landmarks Commission. The intent of these amendments is to make the process easier for the public and reduce the amount of time required for review. The proposed Code amendments would add the new State historic property classifications and references and would provide code provisions to improve the review process as outlined below.

Type I reviews would be approved by staff, the Historic Preservation Officer (HPO), as "over-the-counter" reviews and would be limited to minor alterations that do not impact the historic character of the building. These items would include reroofing, mechanical vents on non-primary elevations, foundation and skirting materials, roof and soffit vents, and placement of microwave receiving dishes on non-primary facades. These reviews would not require public notification or comment and would allow for a quick turnaround for routine building permit items.

Type II reviews would be approved by the Historic Preservation Officer after public notice and a Findings of Fact report has been completed. These would provide the public with opportunity for comment and would include minor alterations to non-primary facades such as construction of outbuildings of less than 200 square feet; reconstruction of decks, stairs, and balustrades; handicap ramps, awnings, skylights, and replacement of non-historic features with a design or material that is more compatible with the historic features.

All other requests would be reviewed by the Historic Landmarks Commission as a Type III review under the same procedures as currently used by the HLC. The intent of these changes is to allow simple reviews and to ease the burden of reviewing simple projects at the HLC level. This would result in an easier, quicker permit review for applicants making historic preservation

less burdensome to property owners and contractors. These Code amendments were identified in the Historic Preservation Plan adopted by the City Council in January 2008.

At its July 16, 2013 meeting, the Historic Landmarks Commission held a public hearing and unanimously recommended that the City Council adopt the proposed amendment. A copy of the Staff Report and Findings of Fact as adopted by the Historic Landmarks Commission is attached. Also attached to this memo is the proposed ordinance. A public hearing and first reading of the Amendment was held at the August 5, 2013 City Council meeting.

RECOMMENDATION

If the Council is in agreement, it would be in order for Council to hold a second reading and adoption of the Ordinance.

The following is sample language for a motion for adoption of the Findings of Fact and Ordinance:

"I move that the Astoria City Council adopt the findings and conclusions contained in the staff report, and adopt the Ordinance amending the Astoria Development Code."

By: _____

Rosemary Johnson, Planner

Through: _____

Brett Estes, Community Development Director

CITY OF ASTORIA
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COMMUNITY DEVELOPMENT

July 9, 2013

TO: HISTORIC LANDMARKS COMMISSION

FROM: ROSEMARY JOHNSON, PLANNER

SUBJECT: AMENDMENT REQUEST (A13-03) ON HISTORIC PROPERTIES ORDINANCE

I. BACKGROUND SUMMARY

A. Applicant: Brett Estes
Community Development Director
City of Astoria
1095 Duane Street
Astoria OR 97103

B. Request: Amend the Astoria Development Code Article 6, Historic Properties, to include new State classification terms for historic properties, establish Type I, II, and III permit levels of review to allow more administrative review

C. Location: City-wide

II. BACKGROUND

The Historic Properties Ordinance, Article 6 of the Astoria Development Code, was last updated in 1992. This Ordinance establishes how historic properties are designated, the process for review of exterior alterations, new construction, demolition, appeals, and lists exceptions to the review process. In January 2008, the City adopted a Historic Preservation Plan 2008-2012 which identified suggested amendments to the Ordinance and proposed projects to support historic preservation. The various elements of the Plan were prioritized as follows:

Priority 1: Improve and Clarify the Code
Priority 2: Survey and Inventory Program
Priority 3: Economic Incentive Program
Priority 4: Public Education Program

There were specific goals within each of these preservation programs, many of which have been completed. The Code amendments were a high priority but have not yet been completed. The proposed Code amendments would add the new State historic property classifications and references, and would provide for three levels of review for historic properties rather than all requests being reviewed by the Historic Landmarks Commission.

Type I reviews would be approved by staff, the Historic Preservation Officer (HPO), as "over-the-counter" reviews and would be limited to minor alterations that do not impact the historic character of the building. Most of these request are currently reviewed and approved by the HPO for items such as reroofing, mechanical vents on non-primary elevations, foundation and skirting materials, roof and soffit vents, and placement of microwave receiving dishes on non-primary facades. These reviews would not require public notification or comment. Type II reviews would be approved by the Historic Preservation Officer after public notice and a Findings of Fact report has been completed. These would provide the public with opportunity for comment and would include minor alterations to non-primary facades such as construction of outbuildings of less than 200 square feet; reconstruction of decks, stairs, and balustrades; handicap ramps, awnings, skylights, and replacement of non-historic features with a design or material that is more compatible with the historic features. All other requests would be reviewed by the Historic Landmarks Commission as a Type III review under the same procedures as currently used by the HLC. The intent of these changes is to codify some of the simple reviews that are already handled administratively and to ease the burden of reviewing simple projects at the HLC level. This would result in an easier, quicker permit review for applicants making historic preservation less burdensome to property owners and contractors.

The draft amendments were provided to the HLC for discussion and recommendations at the June 18, 2013 meeting. The final draft is scheduled for public hearing before the HLC at its July 16, 2013 meeting with the HLC's recommendation going to the City Council for a public hearing at their meeting on August 5, 2013 with second reading and potential adoption at their August 19, 2013 meeting.

Other code amendments suggested in the Historic Preservation Plan will be submitted separately. Staff is currently working on a list of historic preservation guidelines that would not be included in the code but would be in a document that would provide applicants with a clear understanding of what types of design and/or materials are expected when working on a historic property. It is hoped that these guidelines will be ready for review by the end of the year.

III. PUBLIC REVIEW AND COMMENT

A. Historic Landmarks Commission

A public notice was mailed to Neighborhood Associations and various agencies on June 21, 2013. In accordance with Section 9.020, a notice of public hearing was published in the Daily Astorian on July 9, 2013. The proposed amendment is legislative as it applies City-wide. Any comments received will be made available at the Historic Landmarks Commission meeting.

B. City Council

A public notice will be mailed to Neighborhood Associations and various agencies on July 12, 2013. In accordance with Section 9.020, a notice of public hearing will be published in the Daily Astorian on July 29, 2013. Any comments received will be made available at the City Council meeting.

IV. FINDINGS OF FACT

A. Development Code Section 10.020(A) states that *"an amendment to the text of the Development Code or the Comprehensive Plan may be initiated by the City Council, Planning Commission, the Community Development Director, a person owning property in the City, or a City resident."*

Finding: The proposed amendment to the Development Code is being initiated by the Community Development Director.

B. Section 10.050(A) states that *"The following amendment actions are considered legislative under this Code:*

1. An amendment to the text of the Development Code or Comprehensive Plan. . ."

Finding: The proposed amendment is to amend the text of the Astoria Development Code Article 6 concerning Historic Properties. The Code is applicable City-wide. Processing as a legislative action is appropriate.

C. Section 10.070(A)(1) requires that *"The amendment is consistent with the Comprehensive Plan."*

1. CP.005(5) concerning General Plan Philosophy and Policy Statement states that local comprehensive plans *"Shall be regularly reviewed, and, if necessary, revised to keep them consistent with the changing needs and desires of the public they are designed to serve."*

Finding: The Historic Properties Ordinance was last updated in 1992. The proposed amendments were included as action items in the Historic Preservation Plan 2008-2012 adopted in January 2008.

2. CP.250(1) concerning Historic Preservation Goals states that *"The City will Promote and encourage, by voluntary means whenever possible, the preservation, restoration and adaptive use of sites, areas, buildings, structures, appurtenances, places and elements that are indicative of Astoria's historical heritage."*

CP.250(3) concerning Historic Preservation Goals states that *"The City will Encourage the application of historical considerations in the beautification of Astoria's Columbia River waterfront.*

CP.250(4) concerning Historic Preservation Goals states that *"The City will Actively involve Astoria's citizens in Astoria's historic preservation effort, including the development of a public information and education program.*

CP.255(1) concerning Historic Preservation Policies states that *"The City will use its Historic Properties Section of the Zoning Ordinance, an educational and technical assistance program, the tax incentives available*

at the Federal, State, and local levels, and the cooperative efforts of local organizations as the means to protect identified historic buildings and sites."

CP.255(2) concerning Historic Preservation Policies states that *"The City will establish procedures for regular financing of historic projects through public and private sources of funds."*

CP.255(6) concerning Historic Preservation Policies states that *"The City will make available to property owners information and technical advice on ways of protecting and restoring historical values of private property."*

Finding: The proposed amendment will adopt changes recommended in the Historic Preservation Plan that supports the intention of the Comprehensive Plan (CP) to foster historic preservation through clear Code language, update of the Development Code to improve the historic review process, and provide education to citizens and historic property owners on the preservation program and its benefits. The proposed changes would also implement the new State classifications of historic properties that were recently used in the Adair-Uppertown Historic Inventory. The previous classifications would remain since there are several other adopted inventories that still use those classifications. The Historic Preservation Plan recommends amendments to the Development Code to implement the various aspects of the Plan. Additional recommended amendments in the Plan will be considered separately in the future.

3. CP.200(6) concerning Economic Development Goals states that the City will *"Encourage the preservation of Astoria's historic buildings, neighborhoods and sites and unique waterfront location in order to attract visitors and new industry."*

CP.205(5) concerning Economic Development Policies states that *"The City encourages the growth of tourism as a part of the economy. Zoning standards which improve the attractiveness of the city shall be considered including designation of historic districts, stronger landscaping requirements for new construction, and Design Review requirements."*

CP.020(6) concerning Community Growth - Plan Strategy states that *"The City encourages historic preservation generally, the restoration or reuse of existing buildings. However, these structures must be improved in a timely manner."*

Finding: The Plan recommends Code amendments to provide a simple, quicker process for historic review thereby encouraging historic preservation. It also recommends historic design review that helps maintain the character of Astoria. Design review standards are being drafted under a separate document to allow more flexibility in the future. The Code recognizes the importance of tourism and the impact of inappropriate development within the community.

Finding: The request is consistent with the Comprehensive Plan.

D. Section 10.070(A)(2) requires that *"The amendment will not adversely affect the ability of the City to satisfy land and water use needs."*

Finding: The proposed amendment will satisfy land use needs in that it will codify policies established through the Historic Preservation Plan for the preservation of historic properties that will be a benefit to the community's character and economy. The revised Code sections will allow for three levels of historic review providing more administrative permit review that will shorten the time of the review. The opportunity for public input would be preserved in Type II & Type III review with specific parameters for Type I administrative reviews. The proposed amendment will not adversely affect the ability of the City to satisfy land and water use needs.

V. CONCLUSION AND RECOMMENDATION

The request is consistent with the Comprehensive Plan and Development Code. Staff recommends that the Historic Landmarks Commission forward the proposed amendment to the City Council for adoption.

ORDINANCE NO. 13-____

AN ORDINANCE AMENDING THE ASTORIA DEVELOPMENT CODE ARTICLE 6 CONCERNING HISTORIC PROPERTIES, AND ARTICLE 1 CONCERNING DEFINITIONS

THE CITY OF ASTORIA DOES ORDAIN AS FOLLOWS:

Section 1. Astoria Development Code Article 6 pertaining to Historic Properties is hereby deleted and replaced to read as follows:

Complete Article 6, Historic Properties Ordinance attached to this document.

Section 2. Astoria Development Code Article 1, Section 1.400 pertaining to Definitions is amended with the addition to read as follows:

"BUILDING ENVELOPE: The outer bounds, both vertically and horizontally, of an enclosed structure.

BUILDING MASS: The height, width, and depth of a structure including non-enclosed features such as stairs and decks.

CONSISTENT: For the purpose of Article 6, Historic Properties Ordinance, consistent shall mean to be similar to the original historic feature in design, size, and/or material, or would meet the commonly acceptable intent of an original feature.

FOOTPRINT: The outer bounds, horizontally, of all features of a structure including decks, stairs, and other non-enclosed features that are attached to the structure and are constructed 12" or more above grade."

Section 3. Effective Date. This ordinance and its amendment will be effective 30 days following its adoption and enactment by the City Council.

ADOPTED BY THE COMMON COUNCIL THIS ____ DAY OF _____, 2013.

APPROVED BY THE MAYOR THIS _____ DAY OF _____, 2013.

ATTEST: _____ Mayor

_____
Paul Benoit, City Manager

ROLL CALL ON ADOPTION: YEA NAY ABSENT

Commissioner LaMear
Herzig
Mellin
Warr
Mayor Van Dusen

ARTICLE 6

HISTORIC PROPERTIES

6.010. PURPOSE.

It is the purpose of the City to promote and encourage the preservation, restoration, rehabilitation, and adaptive use of buildings, structures, appurtenances, objects, sites, and districts that are indicative of Astoria's historical heritage; to carry out certain provisions of the Land Conservation and Development Commission Goal 5 "Open Spaces, Scenic and Historic Areas, and Natural Resources"; to establish a historic design review process for historic structures, and to assist in providing the means by which property owners may qualify for Federal and State financial assistance programs assisting historical properties.

6.020. SPECIAL PROVISIONS.

A. Signs.

1. Signs or plaques denoting a historic District, building or site will be permitted in accordance with the sign regulations for the zone in which it is located. Such signs will be of dignified design and positioned in a manner that is compatible with the building or site.

2. Any signs constructed or placed on or in association with a historic building will be reviewed by the Historic Preservation Officer to ensure that they are in scale and relate well to the architectural style of the building.

3. Restoration or reconstruction of historic signs are encouraged and will be reviewed by the Historic Preservation Officer to verify that they are a historic restoration or reconstruction. Any change in design and/or wording is not considered to be a historic sign restoration/reconstruction and would be subject to the Sign Ordinance regulations.

6.030. HISTORIC DISTRICT ESTABLISHMENT.

A. The Historic Landmarks Commission, the City Council, or the owners of at least one-third of the privately owned property within a proposed District may initiate the proceedings for designation of a Historic District. If there is multiple ownership in a property, each consenting owner shall be counted as a fraction equal to the interest the owner holds in that property.

A request that an area be designated as a Historic District will be considered by the Historic Landmarks Commission following receipt of a complete application by the

Historic Preservation Officer. The Historic Landmarks Commission will transmit its recommendation of the area as a Historic District to the City Council. The City Council shall hold a public hearing in accordance with the procedures set forth in 9.010 through 9.100 except that notices of the hearing date will be mailed only to owners of property lying on or within the boundaries of the proposed District.

Upon receipt of the Historic Landmark Commission's recommendation, the City Council may authorize submittal of a nomination for Historic District status to the State Advisory Committee on Historic Preservation.

6.040. HISTORIC LANDMARK ESTABLISHMENT.

A. Application.

The Historic Landmarks Commission, City Council or a property owner may initiate the proceedings for designation of a Historic Landmark.

The application should include the following information as applicable: history of the structure; tenants both residential and commercial; exterior features and materials; alterations to the structure; architect; date of construction; outbuildings; photographs, both historic and current; and any other information available.

B. Existing Listings on the National Register of Historic Places.

For the purposes of Historic Landmark designation, buildings, structures, appurtenances, objects, signs, sites and districts which are listed on the National Register of Historic Places shall be automatically considered a Historic Landmark.

C. Primary, Secondary, Eligible/Significant, and Eligible/Contributing Classifications.

For the purposes of Historic Landmark designation, buildings, structures, appurtenances, objects, signs, sites and districts which are classified as Primary, Secondary, Eligible/Significant, or Eligible/Contributing shall be automatically considered a Historic Landmark.

D. Procedures.

Upon receipt of a complete application requesting that a building, structure, appurtenance, object, sign, or site be designated historic, the Historic Landmarks Commission shall consider the request. The Historic Landmarks Commission shall hold a public hearing on the request in accordance with the procedures set forth in Article 9.

The Historic Landmarks Commission may approve, modify or reject such request in accordance with Section 9.030 based on the criteria in Section 6.040.E.

E. Criteria for Historic Landmark Designation.

The Historic Landmarks Commission shall consider and weigh the following criteria in making a determination of potential historic significance:

1. Physical Integrity.

Property is essentially as constructed on original site. Sufficient original workmanship and material remain to serve as instruction in period fabrication.

2. Architectural Significance.

Rarity of type and/or style. Property is a prime example of a stylistic or structural type, or is representative of a type once common and is among the last examples surviving in the City. Property is a prototype or significant work of an architect, builder, or engineer noted in the history of architecture and construction.

3. Historical Significance.

Property is associated with significant past events, personages, trends or values and has the capacity to evoke one or more of the dominant themes of national or local history.

4. Importance to Neighborhood.

Property's presence contributes and provides continuity in the historical and cultural development of the area.

5. Symbolic Value.

Through public notice, interest, sentiment, uniqueness or other factors, property has come to connote an ideal, institution, political entity or period.

6. Chronology.

Property was developed early in the relative scale of local history or was early expression of type/style. The age of the building, structure, site, or object should be at least 50 years, unless determined to be of exceptional significance.

7. The request shall be consistent with the applicable goals and policies of the Comprehensive Plan.

6.050. EXTERIOR ALTERATION.

A. Exemptions.

Nothing in this Section shall be construed to prevent ordinary maintenance of a structure listed or identified as a Historic Landmark as described in Section 6.040. The following are considered to be normal maintenance and repair and are not subject to this Section including, but not limited to:

1. Replacement of gutters and downspouts, or the addition of gutters and downspouts, using materials that match those that were typically used on similar style buildings.

2. Repairing, or providing a new foundation that does not result in raising or lowering the building elevation more than one foot unless the foundation materials and/or craftsmanship contribute to the historical and architectural significance of the landmark.

3. Replacement of wood siding, when required due to deterioration of material, with wood material that matches the original siding in size, dimension, and material.

4. Repair and/or replacement of roof materials with the same kind of roof materials existing, or with materials which are in character with those of the original roof.

5. Application of storm windows made with wood, bronze or flat finished anodized aluminum, or baked enamel frames which complement or match the color detail and proportions of the building.

6. Replacement of existing sashes with new sashes, when using material which is consistent with the original historic material, dimensions, and appearance.

7. Painting and related preparation.

8. Installation of decorative stained and/or leaded glass in existing windows.

9. Fences, retaining walls, and/or landscaping features unless the existing features are noted in the historic designation as contributing features to the historic property.

B. Certificate of Appropriateness.

Unless otherwise exempted, no person, corporation, or other entity shall change, add to, or modify a building, structure, appurtenance, object, sign, or site in such a way as to affect its exterior appearance, if such structure is listed or identified as a Historic

Landmark as described in Section 6.040 without first obtaining a Certificate of Appropriateness.

In obtaining a Certificate of Appropriateness, the applicant shall file an application on a form furnished for that purpose with the Community Development Department.

C. Type I Certificate of Appropriateness - Immediate Approval.

Projects that are limited in scope or minor alterations that meet the criteria listed below are classified as Type I Certificate of Appropriateness permits. Historic Design review performed by the Historic Preservation Officer or designee shall be administrative and shall not require public hearing nor public notice.

1. The Historic Preservation Officer shall review and approve the following Type I permit requests:

   a. There is no change in historic character, appearance or material composition from the existing structure or feature; or

   b. The proposed alteration duplicates the affected building features as determined from a photograph taken during either the Primary or Secondary development periods, original building plans, or other evidence of original building features; or

   c.. The proposed alteration is required for the public safety due to an unsafe or dangerous condition; or

   d. The proposed alteration relates to signage in scale to the architectural style of the building.

2. In addition to the Type I permit reviews listed in Section 1 above, the Historic Preservation Officer shall review and approve the following Type I permit requests if it meets the following:

   a. Criteria.

      1) Located on the rear or interior side yard, not adjacent to a public right-of-way, except as noted below; and/or

      2) Reconstruction and/or replacement of porch and/or stairs on any elevation; and/or

      3) Will not result in an increase in building footprint or envelope except for mechanical venting.

   b. Type I Permit Requests:

1) Installation of mechanical equipment and venting located on other than the primary facade or street scape, or of less than one square foot if located on a non-primary facade street side. Ground mounted equipment shall be screened from view to the maximum extent practicable if visible from a City right-of-way.

2) Installation of contemporary composite material on the flat decking area of porches, decks, and/or stair treads.

3) Replacement of roofing material as follows:

   a) With similar material and/or composition shingles.

   b) Flat roofing not visible from the street scape may be a contemporary material.

   c) Original roof wood shingle or shakes, should be maintained in place whenever possible. Composition roofing is allowed as a substitute for wood shingles in a complete replacement.

   d) Original roof tile, slate, or rolled composition roofing should be maintained in place whenever possible. Imitation slate and wood are allowed as a substitute for original materials in a complete replacement.

4) Removal of an utilitarian chimney that is not a character defining feature.

5) Replacement of skirting material with fiber cement material or other compatible contemporary material.

6) Installation of roof and/or soffit vents.

7) Replacement of existing columns with similar design and dimension of contemporary material other than vinyl material.

8) Installation of television microwave receiving dish.

9) Construction of stairs and railings on any elevation that are not attached to a building.

D. Type II Certificate of Appropriateness - Administrative Review.

Projects that are limited in scope or minor alterations that meet the criteria below are

classified as Type II Certificate of Appropriateness permits. Historic Design review performed by the Historic Preservation Officer or designee shall be administrative and shall not require public hearing before the Historic Landmarks Commission. These reviews shall be considered as a limited land use decision and shall require a public notice and opportunity for appeal in accordance with Article 9 of the Astoria Development Code.

The Historic Preservation Officer shall review and approve the following Type II permit requests if it meets the following:

1. Criteria.

    a. Located on the rear or interior side yard, not adjacent to a public right-of-way, except as noted below; and/or

    b. Reconstruction and/or replacement of porch and/or stairs on any elevation; and/or

    c. May result in an increase in building footprint of no more than 10%, and will not result in an increase in building envelope except for mechanical venting.

2. Type II Permit Requests:

    a. Construction of outbuildings or enclosures (less than 200 square feet).

    b. Awnings on residential property.

    c. Awnings on any elevation of a commercial property.

    d. Handicap accessible ramps on any elevation.

    e. Reconfiguration with not more than 10% increase in footprint, and/or reconstruction of existing decks or porches with similar materials and/or with a change in materials.

    f. Reconstruction of existing stairs and balustrades with a historic design.

    g. Replacement and/or reconfiguration of basement windows on any elevation.

    h. Installation of flat mounted skylight located on other than the primary facade or street scape.

i. Changes to fences, retaining walls, and/or landscaping features that are noted in the historic designation as contributing features to the historic property.

j. Replacement of non-historic features such as aluminum or vinyl windows or siding, steel or fiberglass doors, etc. with a design, size, and material that is consistent with the existing historic features of the structure.

k. Removal of a chimney that is considered as a character defining feature as noted in the historic designation.

l. Solid waste disposal area enclosure.

m. Construction of stairs and railings on any elevation that are attached to a building.

E. Type III Certificate of Appropriateness – Historic Landmarks Commission Review.

Projects that do not meet the criteria for a Type I or Type II review are classified as Type III Certificate of Appropriateness permits. Historic Design review performed by the Historic Landmarks Commission based upon the standards in the Development Code shall be considered discretionary and shall require a public hearing, notice, and opportunity for appeal in accordance with Article 9 of the Astoria Development Code.

F. Historic Design Review Criteria.

Type II and Type III Certificate of Appropriateness exterior alteration requests shall be reviewed by the Historic Landmarks Commission or Historic Preservation Officer as indicated in Section 6.050 following receipt of a complete application.

The following standards, in compliance with the Secretary of the Interior's Standards for Historic Preservation, shall be used to review Type II and Type III exterior alteration requests. The standards summarized below involve the balancing of competing and conflicting interests. The standards are intended to be used as a guide in the Historic Landmark Commission's deliberations and/or the Historic Preservation Officer's decision.

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.

2. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.

3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.

4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.

5. Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.

6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archaeological resources affected by or adjacent to any project.

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and addition do not destroy significant historical, architectural, or cultural material, and such design is compatible with the size, scale, color, material, and character of the property, neighborhood or environment.

10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

6.070. NEW CONSTRUCTION.

A. Certificate of Appropriateness.

No person, corporation, or other entity shall construct a new structure adjacent to or across a public right-of-way from a Historic Landmark as described in Section 6.040, without first obtaining a Certificate of Appropriateness from the Historic Landmarks Commission.

In obtaining a Certificate of Appropriateness as required above, the applicant shall file an application on a form furnished for that purpose with the Community Development Department.

B. Historic Landmarks Commission Historic Design Review Criteria.

A request to construct a new structure shall be reviewed by the Historic Landmarks Commission following receipt of the request. In reviewing the request, the Historic Landmarks Commission shall consider and weigh the following criteria:

1. The design of the proposed structure is compatible with the design of adjacent historic structures considering scale, style, height, architectural detail and materials.

2. The location and orientation of the new structure on the site is consistent with the typical location and orientation of adjacent structures considering setbacks, distances between structures, location of entrances and similar siting considerations.

6.080. DEMOLITION AND MOVING.

A. Certificate of Appropriateness.

No person, firm, or corporation shall move, demolish, or cause to be demolished any structure listed or identified as a Historic Landmark as described in Section 6.040 without first obtaining a Certificate of Appropriateness.

In obtaining a Certificate of Appropriateness, the applicant shall file an application on a form provided for that purpose with the Community Development Department.

B. Criteria for Immediate Approval.

The Historic Preservation Officer shall issue a Certificate of Appropriateness for moving or demolition if any of the following conditions exist:

1. The structure has been damaged in excess of 70% of its assessed value by fire, flood, wind, or other natural disaster or by vandalism; or

2. The Building Official finds the structure to be an immediate and real threat to the public health, safety and welfare.

All other requests will be reviewed by the Historic Landmarks Commission.

C. Historic Landmarks Commission Review Criteria.

Those demolition/moving requests not meeting the conditions for immediate approval shall be reviewed by the Historic Landmarks Commission following receipt of an applicant's request. In reviewing the request, the Historic Landmarks Commission shall consider and weigh all of the following criteria:

1. The structure cannot be economically rehabilitated on the site to provide a reasonable income or residential environment compared to structures in the general area.

2. There is demonstrated public need for a new use, if any is proposed, which outweighs the benefit which might be served by preserving the subject building(s) on the site due to the building's contribution to the overall integrity and viability of the historic district.

3. The proposed development, if any, is compatible with the surrounding area considering such factors as location, use, bulk, landscaping, and exterior design.

4. If the building is proposed to be moved, the new site and surrounding area will benefit from the move.

Any review shall be completed and a decision rendered within 75 days of the date the City received a complete application. Failure of the Historic Landmarks Commission to meet the time lines set forth above shall cause the request to be referred to the City Council for review. All actions of the Historic Landmarks Commission can be appealed to the City Council. The Historic Landmarks Commission will follow the procedural requirements set forth in Article 9.

D. Conditions for Demolition Approval.

As a condition for approval of a demolition permit, the Historic Landmarks Commission may:

1. Require photographic documentation, and other graphic data or history as it deems necessary to preserve an accurate record of the resource. The historical documentation materials shall be the property of the City or other party determined appropriated by the Commission.

2. Require that the property owner document that the Historic Preservation League of Oregon or other local preservation group has given the opportunity to salvage and record the resource within 90 days.

E. Appeal - Extension of Review Period.

On appeal or referral, the City Council may extend the review period for demolition/moving requests a maximum of an additional 120 days from the date of receipt of an application upon a finding that one of the following conditions exists:

1. The applicant has not submitted sufficient information to determine if an immediate demolition or moving should be allowed.

2. There has been little or no activity, within a reasonable amount of time, by the permit applicant to explore other viable alternatives.

3. There is a project under way which could result in public or private acquisition of the historic building or site and the preservation or restoration of such building or site, and that there is reasonable grounds to believe that the program or project may be successful.

If, at the end of an extended review period, any program or project is demonstrated to the City Council to be unsuccessful and the applicant has not withdrawn his/her application for a moving or demolition permit, the Community Development Director shall issue the permit if the application otherwise complies with the code and ordinances of the City.

F. Exception.

In any case where the City Council has ordered the removal or demolition of any structure determined to be dangerous, nothing contained in this chapter shall be construed as making it unlawful for any person without prior approval of the Historic Landmarks Commission, pursuant to this chapter, to comply with such order.

6.090. ADMINISTRATIVE PROCEDURES.

A. The Historic Landmarks Commission and/or Historic Preservation Officer will follow the procedural requirements set forth in Article 9 with regard to application, public notice, quasi-judicial public hearing procedure, appeals, action on applications, filing fees, and additional costs.

B. In the consideration of an exterior alteration, demolition or moving request, the Historic Landmarks Commission and/or Historic Preservation Officer will approve or deny the request or recommend changes in the proposal which would enable it to be approved. The property owner will be notified of the Historic Landmarks Commission's and/or Historic Preservation Officer's decision within 10 working days of the date of action. The applicant may resubmit proposals for which changes have been recommended by the Historic Landmarks Commission.

C. In approving an exterior alteration, demolition or moving request, the Historic Landmarks Commission and/or Historic Preservation Officer may attach conditions

which are appropriate for the promotion and/or preservation of the historic or architectural integrity of the structure, appurtenance, object, site, or district. All decisions to approve, approve with conditions, or deny shall specify the basis of the decision. A decision of the Historic Preservation Officer may be appealed to the Historic Landmarks Commission. A decision of the Historic Landmarks Commission may be appealed to the City Council.

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 8, 2013

M E M 0 R A N D U M

TO: Mayor Van Dusen and City Council

FROM: Paul Benoit, City Manager

SUBJECT: Liquor License Application

Discussion & Analysis

A liquor license application has been filed by David Kroening, Andrew Bornstein, Jerry Kasinger, Luke Colvin, Jack Berka, David Snodgrass, Pamela Snodgrass, Joe Haggren and Mark Rose doing business as River Barrel Brewing Inc, located at the foot of 7th Street, Astoria. The application is a New Outlet – Full On-Premises Sales - Brewery License. A copy of the application is attached.

The appropriate departments have reviewed the application. No objections to approval were noted.

Recommendation

Staff recommends that the City Council consider this application for approval.

Respectfully submitted,

Mark Carlson, CPA
Finance Director

OREGON LIQUOR CONTROL COMMISSION

LIQUOR LICENSE APPLICATION

Application is being made for:

LICENSE TYPES

- [x] Full On-Premises Sales ($402.60/yr)
  - [ ] Commercial Establishment
  - [ ] Caterer
  - [ ] Passenger Carrier
  - [ ] Other Public Location
  - [ ] Private Club
- [ ] Limited On-Premises Sales ($202.60/yr)
- [ ] Off-Premises Sales ($100/yr)
  - [ ] with Fuel Pumps
- [x] Brewery Public House ($252.60)
- [ ] Winery ($250/yr)
- [ ] Other: _____

ACTIONS

- [ ] Change Ownership
- [x] New Outlet
- [ ] Greater Privilege
- [ ] Additional Privilege
- [ ] Other _____

90-DAY AUTHORITY

[ ] Check here if you are applying for a change of ownership at a business that has a current liquor license, or if you are applying for an Off-Premises Sales license and are requesting a 90-Day Temporary Authority

APPLYING AS:

[ ] Limited Partnership [x] Corporation [ ] Limited Liability Company [ ] Individuals

CITY AND COUNTY USE ONLY

Date application received: 7-17-13

The City Council or County Commission: City of Astoria
(name of city or county)

recommends that this license be:

☐ Granted ☐ Denied

By: _____
(signature) (date)

Name: _____

Title: _____

OLCC USE ONLY

Application Rec'd by: OLCC

Date: 7/11/2013 CW

90-day authority: ☐ Yes ☒ No

1. Entity or Individuals applying for the license: [See SECTION 1 of the Guide]

① River Barrel Brewing Inc. ③ _____

② _____ ④ _____

2. Trade Name (dba): River Barrel Brewing

3. Business Location: Foot of 7th Street, Astoria, Clatsop County, Oregon 97103
(number, street, rural route) (city) (county) (state) (ZIP code)

4. Business Mailing Address: 42 7th Street Suite #100 Astoria, OR, 97103
(PO box, number, street, rural route) (city) (state) (ZIP code)

5. Business Numbers: 503-468-0800
(phone) (fax)

6. Is the business at this location currently licensed by OLCC? [ ] Yes [x] No

7. If yes to whom: _____ Type of License: _____

8. Former Business Name: _____

9. Will you have a manager? [x] Yes [ ] No Name: David Kroening
(manager must fill out an Individual History form)

10. What is the local governing body where your business is located? City of Astoria
(name of city or county)

11. Contact person for this application: David Kroening 585-224-5075
(name) (phone number(s))

42 7th Street Suite #100 Astoria, OR 97103 dave@riverbarrelbrewing.com
(address) (fax number) (e-mail address)

I understand that if my answers are not true and complete, the OLCC may deny my license application.

RECEIVED
OREGON LIQUOR CONTROL COMMISSION
JUL 05 2013

Applicant(s) Signature(s) and Date:

① _____ Date 6/20/13 ③ _____ Date _____

② _____ Date _____ ④ _____ Date _____

SALEM REGIONAL OFFICE

OREGON LIQUOR CONTROL COMMISSION

BUSINESS INFORMATION

Please Print or Type

Applicant Name: River Barrel Brewing Inc Phone: 585-224-5075

Trade Name (dba): River Barrel Brewing

Business Location Address: Foot of 7th Street

City: Astoria ZIP Code: 97103

DAYS AND HOURS OF OPERATION

Business Hours:

Sunday	11 am	to	10 pm
Monday	11 am	to	10 pm
Tuesday	11 am	to	10 pm
Wednesday	11 am	to	10 pm
Thursday	11 am	to	10 pm
Friday	11 am	to	2 am
Saturday	11 am	to	2 am

Outdoor Area Hours:

Sunday	11am	to	10 pm
Monday	11 am	to	10 pm
Tuesday	11 am	to	10 pm
Wednesday	11 am	to	10 pm
Thursday	11 am	to	10 pm
Friday	11 am	to	10 pm
Saturday	11 am	to	10 pm

The outdoor area is used for:

☒ Food service Hours: 11am to 10pm

☒ Alcohol service Hours: 11am to 10pm

☒ Enclosed, how railings

The exterior area is adequately viewed and/or supervised by Service Permittees.

_____ (Investigator's Initials)

Seasonal Variations: ☒ Yes ☐ No If yes, explain: Outdoor areas open only during summer months

ENTERTAINMENT

Check all that apply:

- ☒ Live Music
- ☒ Recorded Music
- ☒ DJ Music
- ☒ Dancing
- ☐ Nude Entertainers
- ☐ Karaoke
- ☒ Coin-operated Games
- ☐ Video Lottery Machines
- ☐ Social Gaming
- ☒ Pool Tables
- ☐ Other: _____

DAYS & HOURS OF LIVE OR DJ MUSIC

Sunday	8 pm	to	10 pm
Monday	8 pm	to	10 pm
Tuesday	8 pm	to	10 pm
Wednesday	8 pm	to	10 pm
Thursday	8 pm	to	10 pm
Friday	8 pm	to	12 am
Saturday	8 pm	to	12 am

SEATING COUNT

Restaurant: 48 Outdoor: 32

Lounge: 47 Other (explain): Taproom - 48

Banquet: — Total Seating: 175

OLCC USE ONLY

Investigator Verified Seating: ___(Y) ___(N)

Investigator Initials: _____

Date: _____

I understand if my answers are not true and complete, the OLCC may deny my license application.

Applicant Signature: [signature] **Date:** 6/20/13

1-800-452-OLCC (6522)

www.oregon.gov/olcc

(rev. 12/07)

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 8, 2013

MEMORANDUM

TO: Mayor Van Dusen and City Council

FROM: Paul Benoit, City Manager

SUBJECT: Liquor License Application

Discussion & Analysis

A liquor license application has been filed by Todd Shelton and Lawrence Cary doing business as North Coast Distrillery LLC, located at 1270 Duane Street, Astoria. The application is a New Outlet – Distillery License. A copy of the application is attached.

The appropriate departments have reviewed the application. No objections to approval were noted.

Recommendation

Staff recommends that the City Council consider this application for approval.

Respectfully submitted,

Mark Carlson, CPA
Finance Director

OREGON LIQUOR CONTROL COMMISSION

LIQUOR LICENSE APPLICATION

Application is being made for:

LICENSE TYPES

- ☐ Full On-Premises Sales ($402.60/yr)
  - ☐ Commercial Establishment
  - ☐ Caterer
  - ☐ Passenger Carrier
  - ☐ Other Public Location
  - ☐ Private Club
- ☐ Limited On-Premises Sales ($202.60/yr)
- ☐ Off-Premises Sales ($100/yr)
  - ☐ with Fuel Pumps
- ☐ Brewery Public House ($252.60)
- ☐ Winery ($250/yr)
- ☒ Other: Distillery

ACTIONS

- ☐ Change Ownership
- ☒ New Outlet
- ☐ Greater Privilege
- ☐ Additional Privilege
- ☐ Other _____

90-DAY AUTHORITY

☐ Check here if you are applying for a change of ownership at a business that has a current liquor license, or if you are applying for an Off-Premises Sales license and are requesting a 90-Day Temporary Authority

APPLYING AS:

☐ Limited Partnership ☐ Corporation ☒ Limited Liability Company ☐ Individuals

CITY AND COUNTY USE ONLY

Date application received: _____

The City Council or County Commission:

_____
(name of city or county)

recommends that this license be:

☐ Granted ☐ Denied

By: _____
(signature) (date)

Name: _____

Title: _____

OLCC USE ONLY

Application Rec'd by: OLCC

Date: 7/3/2013 CM

90-day authority: ☐ Yes ☒ No

1. Entity or Individuals applying for the license: [See SECTION 1 of the Guide]

① North Coast Distilling LLC ③ _____

② _____ ④ _____

2. Trade Name (dba): North Coast Distilling

3. Business Location: 1270 Duane Street (number, street, rural route) Astoria (city) Clatsop (county) OR (state) 97103 (ZIP code)

4. Business Mailing Address: 286 Lexington Avenue, Astoria, OR 97103 (PO box, number, street, rural route) (city) (state) (ZIP code)

5. Business Numbers: 503-884-7175 (phone) (fax)

6. Is the business at this location currently licensed by OLCC? ☐ Yes ☑ No

7. If yes to whom: _____ Type of License: _____

8. Former Business Name: _____

9. Will you have a manager? ☑ Yes ☐ No Name: Larry Cary (manager must fill out an Individual History form)

10. What is the local governing body where your business is located? City of Astoria (name of city or county)

11. Contact person for this application: Alyssa Lemire, Davis Wright Tremaine LLP 503-778-5469 (name) (phone number(s))

1300 SW Fifth Ave., Suite 2400, Portland, OR 97201 503-778-5299 alyssalemire@dwt.com (address) (fax number) (e-mail address)

I understand that if my answers are not true and complete, the OLCC may deny the application.

Applicant(s) Signature(s) and Date:

① _____ Attorney-in-Fact Date 6/26/2013 ③ _____ Date _____

② _____ Date _____ ④ _____ Date _____

RECEIVED
OREGON LIQUOR CONTROL COMMISSION
JUN 28 2013
SALEM REGIONAL OFFICE

OREGON LIQUOR CONTROL COMMISSION

BUSINESS INFORMATION

Please Print or Type

Applicant Name: North Coast Distilling LLC Phone: 503-884-7175

Trade Name (dba): North Coast Distilling

Business Location Address: 1270 Duane Street

City: Astoria ZIP Code: 97103

DAYS AND HOURS OF OPERATION

Business Hours:

Sunday	11:30 am	to	9:00 pm
Monday	--	to	--
Tuesday	11:30 am	to	9:00 pm
Wednesday	11:30 am	to	9:00 pm
Thursday	11:30 am	to	9:00 pm
Friday	11:30 am	to	9:00 pm
Saturday	11:30 am	to	9:00 pm

Outdoor Area Hours: N/A

Sunday		to	
Monday		to	
Tuesday		to	
Wednesday		to	
Thursday		to	
Friday		to	
Saturday		to	

The outdoor area is used for:

☐ Food service Hours: _____ to _____

☐ Alcohol service Hours: _____ to _____

☐ Enclosed, how _____

The exterior area is adequately viewed and/or supervised by Service Permittees.

_____ (Investigator's Initials)

Seasonal Variations: ☐ Yes ☒ No If yes, explain: _____

ENTERTAINMENT

Check all that apply: N/A

- ☐ Live Music
- ☐ Recorded Music
- ☐ DJ Music
- ☐ Dancing
- ☐ Nude Entertainers
- ☐ Karaoke
- ☐ Coin-operated Games
- ☐ Video Lottery Machines
- ☐ Social Gaming
- ☐ Pool Tables
- ☐ Other: _____

DAYS & HOURS OF LIVE OR DJ MUSIC

N/A

Sunday		to	
Monday		to	
Tuesday		to	
Wednesday		to	
Thursday		to	
Friday		to	
Saturday		to	

SEATING COUNT

Restaurant: _____ Outdoor: _____

Lounge: _____ Other (explain): Tasting Room: 26

Banquet: _____ Total Seating: 26

OLCC USE ONLY

Investigator Verified Seating: ___(Y) ✓(N)

Investigator Initials: CW

Date: 7/12/2013

I understand if my answers are not true and complete, the OLCC may deny my license application.

Applicant Signature: _____ Attorney-in-Fact **Date:** 6/26/2013

1-800-452-OLCC (6522)

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(rev. 12/07)

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 8, 2013

MEMORANDUM

TO: Mayor Van Dusen and City Council

FROM: Paul Benoit, City Manager

SUBJECT: Liquor License Application

Discussion & Analysis

A liquor license application has been filed by Stephen C and Karen Allen doing business as Andrew & Steve's Chartroom/Astoria Brewing Company, located at 1196 Marine Drive, Astoria. The application is an Additional Privilege - Brewery License. A copy of the application is attached.

The appropriate departments have reviewed the application. No objections to approval were noted.

Recommendation

Staff recommends that the City Council consider this application for approval.

Respectfully submitted,

Mark Carlson, CPA
Finance Director

OREGON LIQUOR CONTROL COMMISSION
LIQUOR LICENSE APPLICATION

Application is being made for:

LICENSE TYPES

- ☐ Full On-Premises Sales ($402.60/yr)
  - ☐ Commercial Establishment
  - ☐ Caterer
  - ☐ Passenger Carrier
  - ☐ Other Public Location
  - ☐ Private Club
- ☐ Limited On-Premises Sales ($202.60/yr)
- ☐ Off-Premises Sales ($100/yr)
  - ☐ with Fuel Pumps
- ☒ Brewery Public House ($252.60)
- ☐ Winery ($250/yr)
- ☐ Other: _____

ACTIONS

- ☐ Change Ownership
- ☐ New Outlet
- ☐ Greater Privilege
- ☒ Additional Privilege
- ☒ Other

90-DAY AUTHORITY

☐ Check here if you are applying for a change of ownership at a business that has a current liquor license, or if you are applying for an Off-Premises Sales license and are requesting a 90-Day Temporary Authority

APPLYING AS:

☐ Limited Partnership ☒ Corporation ☐ Limited Liability Company ☐ Individuals

CITY AND COUNTY USE ONLY

Date application received: _____

The City Council or County Commission:

_____
(name of city or county)

recommends that this license be:

☐ Granted ☐ Denied

By: _____
(signature) (date)

Name: _____

Title: _____

OLCC USE ONLY

Application Rec'd by: OLCC

Date: 7/23/2013 (CW)

90-day authority: ☐ Yes ☒ No

1. Entity or Individuals applying for the license: [See SECTION 1 of the Guide]

① ASTORIA BREWING COMPANY, INC ③ _____

② _____ ④ _____

2. Trade Name (dba): Andrew & Steve's Chartroom / Astoria Brewing Company

3. Business Location: 1196 MARINE DRIVE ASTORIA CLATSOP OR 97103
(number, street, rural route) (city) (county) (state) (ZIP code)

4. Business Mailing Address: 990 ASTOR ST ASTORIA OR 977103
(PO box, number, street, rural route) (city) (state) (ZIP code)

5. Business Numbers: 503 741 3037 503 325 2286
(phone) (fax)

6. Is the business at this location currently licensed by OLCC? ☑ Yes ☐ No

7. If yes to whom: Astoria Brewing Co Inc DBA ANDREW & STEVE'S CHARTROOM Type of License: FULL

8. Former Business Name: NA

9. Will you have a manager? ☐ Yes ☑ No Name: _____
(manager must fill out an Individual History form)

10. What is the local governing body where your business is located? ASTORIA
(name of city or county)

11. Contact person for this application: STEVE ALLEN 503 325 2171 503 440 5940
(name) (phone number(s))

990 ASTOR ST, ASTORIA, OR 97103 503 325 2286 steve@allencpas.com
(address) (fax number) (e-mail address)

I understand that if my answers are not true and complete, the OLCC may deny my license application.

Applicant(s) Signature(s) and Date:

① _____ Date 5/6/13

② _____ Date _____

③ _____ Date 1-18-13

④ _____ Date _____

RECEIVED
OREGON LIQUOR CONTROL COMMISSION
JUL 23 2013
SALEM REGIONAL OFFICE

OREGON LIQUOR CONTROL COMMISSION

BUSINESS INFORMATION

Please Print or Type

Applicant Name: Astoria Brewing Company, Inc Phone: 503 741-3037

Trade Name (dba): Astoria Brewing Company

Business Location Address: 1196 Marine Dr.

City: Astoria ZIP Code: 97103

DAYS AND HOURS OF OPERATION

Business Hours:

Sunday	10:00 Am	to	9:00 PM
Monday	"	to	"
Tuesday	"	to	"
Wednesday	"	to	"
Thursday	"	to	"
Friday	"	to	"
Saturday	"	to	"

Outdoor Area Hours:

Sunday		to	
Monday		to	
Tuesday		to	
Wednesday		to	
Thursday		to	
Friday		to	
Saturday		to	

The outdoor area is used for:

- ☐ Food service Hours: _____ to _____
- ☐ Alcohol service Hours: _____ to _____
- ☐ Enclosed, how _____

The exterior area is adequately viewed and/or supervised by Service Permittees.

_____ (Investigator's Initials)

Seasonal Variations: ☐ Yes ☒ No If yes, explain: _____

ENTERTAINMENT

Check all that apply:

- ☐ Live Music
- ☐ Recorded Music
- ☐ DJ Music
- ☐ Dancing
- ☐ Nude Entertainers
- ☐ Karaoke
- ☐ Coin-operated Games
- ☐ Video Lottery Machines
- ☐ Social Gaming
- ☐ Pool Tables
- ☐ Other: _____

DAYS & HOURS OF LIVE OR DJ MUSIC

Sunday		to	
Monday		to	
Tuesday		to	
Wednesday		to	
Thursday		to	
Friday		to	
Saturday		to	

SEATING COUNT

Restaurant: _____ Outdoor: _____

Lounge: _____ Other (explain): Brewpub Seating 30

Banquet: _____ Total Seating: 30

OLCC USE ONLY

Investigator Verified Seating: ___(Y) ___(N)

Investigator Initials: _____

Date: _____

I understand if my answers are not true and complete, the OLCC may deny my license application.

Applicant Signature: _____ **Date:** 1-18-2013

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

August 9, 2013

MEMORANDUM

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: **WASTEWATER TREATMENT PLANT EFFLUENT TREATMENT UPGRADES – PAY ADJUSTMENT NO. 1**

DISCUSSION/ANALYSIS

The Wastewater Treatment Plant (WWTP) Effluent Treatment Upgrades project includes the following improvements:

- Dechlorination equipment and instrumentation
- Chlorine contact chamber upgrades
- Wastewater effluent flow meter replacement
- Wastewater effluent pH adjustment equipment and instrumentation
- Chlorine feed system upgrades and instrumentation

In November 2012, the construction contract was awarded to R&G Excavating (R&G). Since that time R&G has been working through submittals, procuring long-lead time equipment and mobilized to the site. Due to the nature of the improvements, the primary construction activity needs to occur during the drier summer months when the flows to the treatment plant are at their lowest point. The major construction effort began the last week of June.

Pay adjustment No. 1 for $30,730.06 includes several changes that are itemized below:

A. Concrete leveling base in Chlorine Contact Basin	$20,966.36
B. Installation of new conductors to Chemical Feed Building	$9,513.70
C. Upgrade main electrical distribution panel	$250.00
D. Contractor Contribution (credit)	($5,506.09)

The largest line item in this pay adjustment is for concrete leveling base in the chlorine contact basin costing $20,966.36. After the contractor established a temporary chlorine bypass with a system of three large truck transportable Baker tanks and temporary pumping system, they dewatered the basin and did a thorough cleaning that exposed a rounded floor with a slope not shown on as-bilt plan records. The new UltraBlock baffle

walls that will be constructed as part of this project require a flat bottom, so the project team worked diligently to develop the best, most cost-effective solution to the issue. This solution consists of installing a level concrete floor that could be paved for successful installation of the baffle walls.

The next item in the pay adjustment includes the installation of new electrical conductors to the chemical feed building from the existing onsite laboratory building. The existing conduits do not include Ground and Neutral wires that are required by Code. The additional cost of $9,513.70 includes the Ground and Neutral wires and upgraded new conductors that will allow for the connection of additional loads in the future. R&G has agreed to contribute $5,506.09 towards the upgrade to the conductors so they can use this power instead of a separate onsite generator for the temporary chlorine bypass pumping system. The net cost to the City will be $4007.61. Following is a summary of the pay adjustments:

Pay Adjustment	Amount	Contract Amount	Contingency Balance	Contingency Balance Percentage
		$1,049,000.00	$105,000.00	100%
1	$30,730.06	$1,079,730.06	$74,269.94	71%
Credit	$5,506.09	$1,074,223.97	$79,776.03	76%

RECOMMENDATION

It is recommended that the City Council authorize Pay Adjustment #1 for the WWTP Effluent Treatment Upgrades project for $25,223.97. Funds are available for this project through IFA funding.

Submitted By: Ken P. Cook
Ken P. Cook, Public Works Director

Prepared By: CINDY D. MOORE
Cindy D. Moore, City Support Engineer

CITY OF ASTORIA
Founded 1811 • Incorporated 1856

Date: August 8, 2013

MEMORANDUM

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: **ASTORIA LANDFILL CLOSURE PLAN – OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY APPROVAL**

BACKGROUND

The City owns an inactive landfill located at 1800 Williamsport Road within the southeast municipal boundaries of the City of Astoria. The City began operating the site as a municipal open waste burning facility in about 1965; however unverified information indicates that the landfill may have operated privately for years prior to that date. The site accepted general household wastes, and selected commercial and industrial wastes. The primary sources of the site's industrial waste were fish and seafood processing plants, and the Crown-Zellerbach paper pulp mill located in Wauna. Automobiles were also crushed on-site and sold as scrap.

A solid waste transfer station was constructed on the site in 1985 and general land filling activities then ceased at the site. Currently the transfer station is operated by the Recology Company (formerly Western Oregon Waste). The City has a requirement to close the landfill, but has lacked adequate funding to implement full closure. In September, 2011, DEQ provided the City with a $100,000 grant to have a Site Investigation (SI) performed. The SI has resulted in very favorable findings for the City.

DISCUSSION/ANALYSIS

The City has been in the process of obtaining Oregon Department of Environmental Quality (DEQ) approval of a Landfill Closure Plan for the inactive landfill located along Williamsport Road. The City hired Maul Foster Alongi (MFA) in November of 2012. MFA is an engineering consulting firm that specializes in solid waste and landfill closures. They have worked diligently with the City and DEQ staff to prepare a landfill closure plan that meets all of the state requirements for closure. The plan has been submitted to the City and DEQ for a preliminary review and all comments have been addressed. The plan has now been submitted for City Council approval before going to the DEQ for final approval. The complete 100+ page plan has been electronically forwarded to the Mayor and Council for review. The following is a summary of the plan requirements:

1) **Capping of old garbage areas** – the majority of the capping requirements will be achieved by the construction of the sports complex. Some capping is required on the west side of the transfer station access road which will be done by the developer and paid for by the City.
2) **Post closure monitoring** – after the sports complex is constructed and the old landfill is completely capped, the City will be required to monitor both groundwater and gases. Public Works has budgeted $50,000 in the Landfill Reserve Fund for the current fiscal year (2013/2014) which includes one-time training and equipment expenditures and expects future years to only need to budget approximately $15,000 to $20,000 per fiscal year.
3) **Financial assurance requirements** – state law requires that any landfill owner develop a financial assurance certificate. City staff has been working closely with the DEQ on the development of this certificate. The financial assurance certificate will be finalized sometime between the closure plan approval by DEQ and the finalization of the redevelopment project. The certificate is reviewed annually by DEQ to assure that the post-closure activities anticipated at closure time were accurate and whether adjustments are necessary. Currently it appears that the financial assurance requirements required will only consist of a documentation and commitment of the funds necessary to carry out post closure activities (monitoring of groundwater and gases) over the duration of the post closure care period which is anticipated to be 30 years. Staff anticipates that this obligation will be met through the annual budgeting process with the use of existing revenue generated by Recology activities at the site.

RE-DEVELOPMENT PROJECT

Columbia Memorial Hospital (CMH) has proposed a re-development project at the City landfill that consists of constructing a sports complex which would be owned and operated by the Astoria School District. This redevelopment would provide an excellent opportunity for the City to achieve landfill closure while also making good use of the site for the benefit of the community. The Hospital has completed the first phase of the development which included earthwork preparation over the old landfill material and pre-loading the fill area to allow settlement over the past winter. Full construction is starting and planned to be complete by spring of 2014. The sports complex will allow the use of John Warren Field by the hospital for expansion of valuable services to the City and regional residents. A four party agreement outlining the terms of the exchange has been previously approved by the City Council.

The sports complex will require careful planning and a design that will assure the compatible use with both the existing transfer station and the potential future use of the City Public Works Department for a relocated Public Works Operations shop and yard. The Hospital's design team is working closely with the City and Recology during the development of their sports complex plans. An important part of this planning is the assurance that all DEQ requirements and obligations for landfill closure are met. The sports complex plans are now at 95 percent completion.

A primary responsibility of the City is to assure that the re-development is conducted in a manner that satisfies the DEQ requirements for proper closure of the entire limits of the old landfill. This will assure minimal future effort on the City's part with long term maintenance and post-closure requirements. Since the Sports Complex would be located on the east side of the main access road, it is also important that the closure plans include the old landfill area on the west side of the access road. This is where Recology would like to expand their use in

the near future and where the County would like to construct a household hazardous waste collection facility.

Post-closure activities consist of monitoring and maintaining the waste containment systems and monitoring groundwater to ensure that waste is not escaping and polluting the surrounding environment. The required post-closure period is typically 30 years from site closure. Specific post-closure requirements consist of maintaining the integrity and effectiveness of the final cover system, leachate collection system, groundwater monitoring system, and methane gas monitoring system. These activities will be budgeted on an annual basis and are proposed to be funded thorough the Landfill Reserve Budget.

RECOMMENDATION

It is recommended that City Council approve the Landfill Closure Plan and authorize MFA to submit the plan to DEQ on the City's behalf for final acceptance.

Submitted By Ken P. Cook
Ken P. Cook, Public Works Director

Prepared By JEFF HARRINGTON
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ASTORIA LANDFILL CLOSURE PLAN UPDATE

Prepared for
CITY OF ASTORIA

August 7, 2013
Project No. 0097.02.03

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ASTORIA LANDFILL CLOSURE PLAN UPDATE

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

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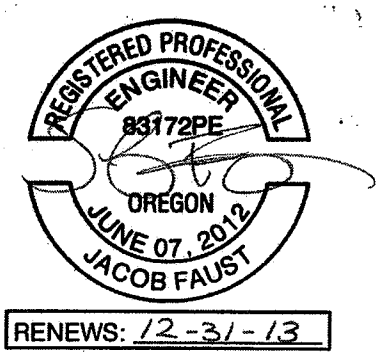

Jacob M. Faust, PE
Project Engineer

CONTENTS

CONTENTS (CONTINUED)

TABLES AND ILLUSTRATIONS

FOLLOWING PLAN:

TABLES

FIGURES

DRAWINGS

95% DESIGN REVIEW DRAWINGS

1 INTRODUCTION

1.1 Site Background

The Astoria Landfill is a former disposal site for Clatsop County and the City of Astoria (the City). The site is located at 1790 Williamsport Road in Astoria, Oregon (Figure 1-1). The landfill was operated for municipal solid waste disposal by Clatsop County and the City for approximately 25 years, with final waste placement in 1986. The City owns the property and continued disposing of street sweepings and clean fill at the site until 2012; no materials are currently disposed at the site.

1.2 Previous Closure Plans

The original landfill closure plan was approved by the Oregon Department of Environmental Quality (DEQ) in June 1986. Modifications to the closure plan were approved by DEQ in 1986, 1990, and 1995; however, activities necessary for attaining final closure of the site have not been completed. This document will serve as an update to the Astoria Landfill Closure Plan Technical Memorandum (Parametrix, 1995) for proposed final closure in anticipation of redevelopment of the site.

1.3 Project Description

The approach for final closure of the landfill is to integrate closure design elements and grading with proposed redevelopment of the site. The proposed development for the site is a proposal by Columbia Lutheran Charities to construct a multi-use sports complex with synthetic turf athletic fields, spectator seating, vehicular access and parking facilities, associated support structures, and associated stormwater and service utilities. Acceptance of final closure and concurrent construction of the development will simplify both projects with a single agency review effort and efficient utilization of the site.

Closure methods will generally follow the methods approved in the 1995 closure plan (Parametrix, 1995) with updates and revisions as noted in this document, made necessary because of changes at the project site and proposed end use.

2 SITE CONDITIONS

2.1 Site Investigations

The following site investigation reports were used to determine closure requirements and determine site history:

- Braun Intertec Northwest, November 1991[1]—Investigation included four test pits in the borrow source areas. Material was tested for Atterburg limits, moisture/density relation, and permeability.
- Parametrix, August 1995—Investigation included methane gas investigation (bar-hole testing) and test pits for cover depth verification and extent delineation.
- Foundation Engineering, April 1996[2]—Investigation included three test pits of the borrow source material. Material was tested for hydraulic conductivity, water content, gradation, and moisture density relation.
- GeoEngineers, February 2012—The investigation was commissioned by DEQ to characterize the site. Soil samples were collected from the ash residue fill (under the transfer station), the firing range, street sweeping piles, and in-place cover soil. Other samples were collected to characterize soil gas content, surface water, pore water, groundwater, and sediment in Craig Creek.
- Maul Foster & Alongi, Inc. (MFA), January 2013—Two borings were completed in the landfill area to measure soil gas. Permeability testing was completed on one of the borings.
- MFA, May 2013—Five trenches were excavated along the assumed waste boundary west of the access road to determine lateral extent and depth of waste.

Additional investigations have been completed at the site; however, no data were obtained from those actions. A summary of results from the 1990 closure plan was provided in the Parametrix report (Parametrix, 1995).

2.2 Extent of Waste

The landfill waste boundary has been determined by previous site investigations, as summarized in the closure plan (Parametrix, 1995). The boundary included in the design plans encompasses approximately 11 acres, as shown in Figure 2-1. Additional fill characterized as ash fill deposited from burning of waste at the site is located beneath the transfer station and encompasses approximately 3 additional acres.

Waste may be present along the western and southwestern edges of the site. In order to determine the edge of waste placement for the cap design, trenches were excavated perpendicular to the waste boundary in five suspected locations. Additional trenches or test pits may be excavated within the existing waste boundary in the same area to confirm depths of existing cover soil when the cap is constructed. If small or sparse deposits of waste are located during construction, they may be excavated and moved to the Western Oregon Waste (WOW) transfer station for disposal in lieu of capping with soil cover.

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[1] Braun Intertec Northwest investigation data located in Appendix to Parametrix Closure Plan (Parametrix, 1995).
[2] Foundation Engineering investigation data located in Appendix to Parametrix Closure Plan (Parametrix, 1995).

Waste was found to be under more than 5 feet of soil cover (typical depth of trench excavation) over most of the western fill area. A deposit of near-surface waste was discovered along the toe of the native slope along the southwest boundary of the exploration area, with increased cover soil depth moving away from the slope. The locations of the test trenches are shown on Figure 2-2, and results of the exploration trenches are included in the existing depth to waste analysis shown on Figure 3-1.

2.3 Surface Grades and Soil Cover

The landfill area is generally flat, with moderate to steep slopes around the landfill perimeter and surrounding area. The landfill has been graded intermittently since the site stopped accepting waste in 1986. Beginning in late 2012, clean soil has been moved from two borrow sources adjacent to the site (see Figure 2-1) to provide additional waste cover and to raise site grades for development.

Soil cover depth was measured for the 1995 closure plan (Parametrix, 1995). Cover soil at that time was found to be generally 4 feet to 9 feet thick over the main landfill, with areas of shallower cover to as little as 6 inches around the perimeter, particularly along the west and south boundaries. Figure 2-2 shows a summary of the boring and test pit locations that catalog cover soil depths. Fill has recently been placed over the site, increasing the depth of cover over much of the site.

2.4 Site Soils

Cover soils at the site have been obtained from two borrow sources immediately adjacent to the site, as shown on Figure 2-1. Soils have shown consistent physical characteristics through previous investigations for gradation, classification, and hydraulic conductivity (permeability). Table 2-1 presents a summary of characteristics. The results of all investigations indicate that site soils used for waste cover have low measured hydraulic conductivity. The in-place cover soils are desirable for use as final cover material.

2.5 Groundwater

The City currently monitors groundwater on a quarterly basis at three monitoring wells (see Figure 2-1). Groundwater at the site is known to contain contaminants typically associated with municipal waste landfills. Groundwater generally flows from north to south. No planned beneficial uses for groundwater are anticipated, as municipal supplies are readily available to the site. Additionally, there is no current or anticipated use of groundwater for residential or commercial purposes in the vicinity of the site, according to public records searches and adjacent property owner surveys performed in 2011 (GeoEngineers, 2012). Groundwater monitoring system improvements will be completed as discussed in Section 3.3.6.

2.6 Stormwater

The site is located in a valley at the base of vegetated slopes extending to the north and east. Exterior slopes extend at horizontal distances of 300 feet to more than 500 feet from the perimeter of the site, and elevations increase vertically as much as 500 feet above the current site grades.

Stormwater at the site currently drains via surface flow to a network of perimeter ditches, culverts, and stormwater piping. Historically, most run-on stormwater has collected in one of two depressions, then has routed to Craig Creek via subsurface drainage pipes. The depressions have been filled as part of the initial site grading. The site discharge point for all site drainage to Craig Creek is located at the south perimeter of the landfill (Figure 2-1). Two abandoned stormwater lines currently run through the landfill area; these lines will be further decommissioned as discussed in Section 3.6.

2.7 Utilities

The landfill site does not currently use public or franchise utilities. The WOW transfer station is currently served by a 6-inch municipal water line, above ground electric service, and telecommunications. Public sanitary sewer connection is not currently available at the site; the nearest connection point to the public sanitary sewer system (without installation of a lift station) is in SE Front Street (Highway 202).

2.8 Landfill Gas

The placed waste materials continue to produce landfill gas (LFG) at the site. Waste placement in the landfill ended in 1986. The Parametrix closure plan included investigation data of the site, using bar-hole testing, and found methane at concentrations ranging from 5 to 75 percent of the lower explosive limit in seven of 32 total explorations (Parametrix, 1995).

The GeoEngineers investigation included soil gas testing and surface readings in structures. The soil gas probes found methane at concentrations from 4.4 to 40.5 percent. Low concentrations of methane were found in stormwater piping south of the transfer station, and elevation concentrations were detected in a manhole south of the transfer station (as high as 11.5 percent). Methane was not detected inside any above ground structures at the waste transfer station (GeoEngineers, 2012).

MFA completed two test borings in 2012 and found soil gas concentrations of methane ranging from 0.18 to 31 percent. LFG testing efforts preceding the MFA investigation were focused only on methane, and therefore additional testing was completed for hydrogen sulfide and non-methane organic compounds (NMOCs). NMOCs were detected in both samples; however, concentrations were below risk-based criteria screening values for residential and occupational soil gas. Hydrogen sulfide was not detected in the samples (MFA, 2013). No other observations such as odor or soil/vegetation discoloration were recorded at the site in previous investigations (GeoEngineers, 2012; Parametrix, 1995) to indicate presence of hydrogen sulfide.

2.9 Site Uses

There currently are four primary site uses (Figure 2-1). The landfill site was most recently used for disposal of street sweepings and inert fill from City operations (no public disposal permitted). The City no longer disposes of street sweepings or accepts inert fill at the site and is exploring alternate disposal alternatives. Municipal waste disposal at the landfill was discontinued in 1986 and is not a current site use.

The northern portion of the site (outside the landfill area) is an active rock borrow area. Material from this area has been used by Columbia Lutheran Charities to preload the proposed development area and will be reused during development for aggregate bases and surfaces. The rock borrow area is anticipated to continue operation following closure of the landfill and redevelopment of the site.

WOW currently operates a waste transfer station in the northwest corner of the site on an approximate four acre parcel leased from the City. Municipal and demolition waste as well as recyclable materials are accepted at the transfer station. All materials accepted at the station are transported off site for disposal or recycling. The transfer station was constructed over a former refuse burn area; ash from refuse incineration remains below the facility. The transfer station is anticipated to continue operation after final closure and development of the landfill.

A government-only firing range also exists northwest of the transfer station. The firing range is anticipated to continue operation after final closure and redevelopment of the landfill. No closure activities are proposed for the firing range as part of this closure plan but may be required in the future.

3 PROPOSED CLOSURE PLAN

3.1 Project Goals for Closure

The goal of final closure for the Astoria Landfill site is to complete the closure to DEQ requirements and prepare the site for redevelopment. The site represents an opportunity to reuse the City-owned landfill property for beneficial and publicly accessible uses, rather than allowing it to remain vacant.

3.2 Closure Requirements and Previous Amendments

Closure of a municipal waste landfill is governed by OAR 340-094-0120. In accordance with subpart (2)(a) of the regulation, the following closure requirements apply unless alternatives are approved by DEQ:

1. All areas containing solid waste shall be closed with at least 3 feet of compacted soil.
2. Overland slopes will be graded to a minimum of two percent and a maximum of 30 percent.
3. The finished surface of the closed areas shall consist of soils of a type or types consistent with the planned future use and approved by DEQ. Unless otherwise approved by DEQ, a vegetative cover of native grasses shall be promptly established over the finished surface of the closed site.
4. All surface water must be diverted around the area of the disposal site used for waste disposal or otherwise prevented from contacting the waste.

5. All systems required by DEQ to control or contain discharges to the environment must be completed and operational.

The closure of the Astoria landfill was originally permitted in 1987, with closure conditions amended in 1990 and 1995. The 1995 closure plan (Parametrix, 1995) conditions will continue to be satisfied with this proposed closure plan, excepting redevelopment-specific amendments and adjustments to current site conditions as specified below.

3.3 Proposed Closure Elements

The closure elements described in this section are identified as design recommendations in Section 3.3.4 of the 1995 closure plan (Parametrix, 1995) and will continue to apply to the site. Each item is discussed as it applies to the current site conditions and proposed modifications, if applicable.

3.3.1 Leachate Surface Seepage Collection System

Leachate collection and disposal systems are not required as part of the closure plan. In previous site observations there have been some noted discharges of leachate to groundwater and surface water along the west or southern boundaries, which lie below the primary surface of the landfill however sampling results do not warrant a collection or treatment system (GeoEngineers, 2012). Installation of cap material and drainage improvements to the landfill area are expected to reduce or eliminate potential for leachate seepage following final closure. Monitoring will continue consistent with the at the site; if seeps are observed following closure or redevelopment, the City will discuss required actions with DEQ.

3.3.2 Regrading of Southern Landfill Slope

The existing slope of the southern face of the landfill is approximately 30 percent, so regrading is not required for final closure. As part of the redevelopment construction, invasive species and debris will be removed from the slope and additional soil or rock armor will be placed as necessary to achieve the desired cover depth.

3.3.3 Final Cover System

The final closure cover system in the approved 1995 Closure Plan consists of 1 foot compacted subgrade material, at least 18 inches of compacted clay/siltstone to achieve a permeability of $1x10^{-6}$ cm/sec, and 6 inches of topsoil; there is no proposed change to this minimum cover section. Permeability of in-place cover soils and on-site borrow sources has been measured as described in Section 2.4. Use of these soils satisfies the DEQ requirements for low-permeability soil.

Records of soil cover depth investigation through 1995 show that cover soil exists at depths of 6 inches to as much as 9 feet (Parametrix 1995). In 2011, 11 additional borings completed to a maximum depth of 5 feet below ground surface by GeoEngineers show cover soil at depths from 6 inches to greater than 5 feet (GeoEngineers, 2012). Additional investigation was completed by MFA on May 9, 2013, to delineate the edge and depth of landfill waste west of the existing access road.

Refuse was located at depths ranging from 6 inches to greater than 5 feet; the excavation locations and depths are shown in Figure 3-1.

The spot elevations and thicknesses measured in these three investigations were compared to the most recent topographic survey information in order to determine the current thickness of cover soil around the landfill, and are shown in Table 3-1 and Figure 3-1. The thicknesses presented in this analysis will serve as a basis for additional cover soil installation to provide the required cap thickness. A map of the soil cover installation required to achieve final closure is shown on Figure 3-2.

Soil from the adjacent borrow sources has recently been placed in preparation for the proposed development. The cover soil requirements for closure will require reevaluation once an updated topographic survey is completed for the site, as site surface elevations have changed significantly from the topography used for the analysis presented in this plan.

3.3.4 Maintain Surface Water Contours for Drainage

The site was recently graded and surface elevation increased in preparation for site development. Contours were maintained during grading activities to promote drainage of the site to the existing stormwater discharge points. Final grading of the redeveloped site will be completed as discussed in Section 4.2. However, if the site is not redeveloped, then a new grading plan will be developed with slopes between 2 and 30 percent directing stormwater to the existing western perimeter drainage ditch. Additional perimeter drainage features such as ditches and culverts may be required along the east and north site perimeter to collect stormwater run-on. This alternative grading and surface water management approach would be required only if the development of the sports complex were to be discontinued.

3.3.5 Landfill Gas Controls

No LFG controls are required or proposed for the landfill closure as a standalone project. Recent site investigations (GeoEngineers, 2012; MFA, 2013) indicate that while LFG is still being produced at the site, it is mainly composed of methane with low concentrations of some NMOCs, as described in Section 2.8. Measurements at the property boundaries and within structures (transfer station structures) show that concentrations were not detected or do not exceed regulatory requirements for additional control action at the existing facilities.

Passive gas controls are required for future structures and selected site development components to be constructed as part of the sports complex, and are described in Section 4.3.3.

3.3.6 Surface/Groundwater Monitoring

Surface and groundwater monitoring will continue at the site following closure. DEQ may evaluate the need for revisions to the monitoring program as part of the closure permit.

MW-1 was identified as damaged in the 2011 site investigation and recommended for replacement (GeoEngineers, 2012); erosion was observed around the well casing which also compromised the concrete collar. As part of the landfill closure the drainage ditch adjacent to the well (which caused the erosion) will be routed through a buried conveyance pipe. The concrete collar will be replaced and the well will be preserved and remain in place. Installation of the pipe will prevent surface erosion and potential for surface water intrusion to the monitoring well.

3.4 Waste Transfer Station

The waste transfer station operated by WOW is built over remnants of a refuse burn pile. Ash deposits located below the facility were characterized and determined to have pesticides, herbicides, polychlorinated biphenyls, and metals (GeoEngineers, 2012). The transfer station is predominantly covered with impervious surfaces, including asphalt paving, concrete, and structures.

LFG sampling was also conducted at the transfer station (GeoEngineers, 2012). Samples were taken with a handheld meter inside the buildings and at three on-site vapor wells. Methane was detected in the wells at between 5 and 23 percent; however, no methane was detected inside any aboveground or occupied structures.

The existing cover at the waste transfer station is sufficient to protect the buried waste from exposure to surface water, and serves to prevent LFG from concentrating inside the aboveground structures, as demonstrated in the site investigations. No additional closure measures are proposed at the transfer station at this time; however, methane monitoring should continue at regular intervals.

3.5 Stormwater Management

Stormwater will be managed consistent with existing practices by directing surface runoff to perimeter drainage ditches and subsurface drainage infrastructure; see Figure 2-1. Runoff control will be enhanced with site grading to meet DEQ requirements for overland slopes (Section 3.2); the site will be stabilized with vegetation or other best management practices as necessary.

Run-on controls will also be installed to minimize the potential for off-site stormwater to enter the site and potentially cause surface erosion or infiltration to the waste. Perimeter ditches will be constructed along the north and east perimeters of the site; these will be routed to primary conveyance ditches or structures. All stormwater and run-on water will outfall to Craig Creek, consistent with current drainage patterns.

The existing Craig Creek diversion extends from west of the access road (immediately southwest of the WOW site) to the south side of the access road, at which point it discharges to a surface channel. The channel runs through a capped portion of the landfill (see Figure 2-1); as a result of erosion of the landfill cap in this area, the channel currently runs through the waste profile. Additionally the creek has eroded foundation soils around monitoring well 1 (described in Section 3.3.6) An extension of the diversion pipe within the waste boundary is recommended to isolate surface water from solid waste. This activity is dependent on the ability to obtain regulatory permits (i.e. wetland removal/fill), if applicable.

Stormwater control measures are proposed for development of the sports complex. The redevelopment-specific stormwater controls are discussed in Section 4.6, and will supersede the installation of controls described in this section.

3.6 Existing Stormwater Structure Decommissioning

Stormwater structures located in the landfill area east of the access road will be decommissioned based on Oregon Department of Transportation specifications. Concrete pipes will be plugged at the ends with concrete or grout and may be filled with controlled-density fill (CDF). Pipes of other material (e.g., polyvinyl chloride [PVC]) will be filled with CDF and plugged at the ends with concrete or grout. Structures such as manholes and inlets will be demolished to at least 3 feet below existing grade and filled with compacted gravel. Existing culverts will be completely removed. Figure 2-1 shows the location of existing stormwater components that will be decommissioned.

3.7 Operations, Maintenance and Monitoring Plan

An Operations, Maintenance and Monitoring Plan will be prepared following issuance of the landfill closure permit. The plan will describe general maintenance procedures, best management practices for facility operation, and monitoring protocols for groundwater, surface water, and landfill gas. The plan will address conditions of the DEQ issued landfill closure permit.

4 REDEVELOPMENT PLAN

The site is currently planned for redevelopment as a multi-use sports complex. The components described in this section are consistent with the current redevelopment plan; other plans for redevelopment of the site would require DEQ's separate review and approval. The measures proposed for the redevelopment regarding LFG control, stormwater handling, and grading are not required as part of the landfill closure, but are necessary for development over the closed municipal waste landfill to protect the public and the environment during the landfill's active use.

The proposed redevelopment includes several components typical of municipal site development. Each component has been designed to accommodate the final closure of the landfill and protect the public against potentially harmful exposures associated with historical landfill materials; guidance for landfill gas controls for development are provided in Appendix A. The proposed facility at final build-out will include a 400-foot-by-400-foot synthetic turf field, a grandstand building with integrated concessions and restrooms, locker and storage building, softball bleachers, at-grade dugouts, announcer booths, and paved and gravel parking areas. A map of the proposed development is shown on Figure 4-1. Preliminary drawings are also attached to this plan for initial review.

4.1 Proposed Site Uses

The site redevelopment proposal includes construction of a multi-use synthetic turf athletic field with associated support facilities. The facility will be utilized by the public for local school sports activities and will be publicly accessible. Current uses adjacent to the site include the WOW waste transfer station and a government-only shooting range; both of these uses will be maintained. Aggregate borrow also takes place adjacent to the site and will also continue after construction of the sports complex.

Expansion of the waste transfer station facility may be evaluated in the future. DEQ will be contacted if expansion requires disturbing subsurface materials or removes impervious areas or other cap soils from the site.

A site-specific health and safety plan will also be prepared for any project that has the potential to encounter buried waste materials and LFG. This section identifies currently known future uses at the site; however, other uses may be incorporated in the future.

4.2 Grading

Final grades for the site will be achieved by importing soil from the adjacent borrow sources. Site preparation grading was started in 2012 and is currently active. Preparation grading work includes placement of fill soil from the adjacent borrow sources over the landfill area to establish rough site grades. This fill material will contribute to a portion of the required landfill cover thickness, as discussed in Section 3.3.3. Rock material from the adjacent rock borrow source was also installed in stages over the landfill to preload and consolidate underlying soils and buried waste. The rock material will remain on site and will be processed and used for final construction of the development infrastructure (subgrade, gravel roadways, etc.). Two wetland depressions were also filled (under permit from the U.S. Army Corps of Engineers) to establish grades for the site.

Fine grading of the subgrade surface soil (landfill cover surface) will be completed to achieve the necessary subgrade elevations for installation of site features for development. Additional soil will be imported from the adjacent borrow sources (Figure 2-1) as necessary to achieve required elevations. During fine grading, additional soil may be placed on the landfill cover, but no soil cover will be removed. Therefore, the soil cover depths determined in Section 3.3.3 remain valid.

Final site grades will generally be between 1 and 5 percent, with perimeter slopes as steep as 30 percent. Surfaces graded flatter than the required landfill closure surface slope of 2 percent will be paved with concrete (sidewalks) or asphalt (parking, driveways) to reduce or prevent infiltration of stormwater to the soil cap. In addition, the sports field will be installed with a surface slope of 0.5 percent and equipped with a subsurface drainage system and low-permeability liner underlayment to mitigate for flat slopes as described in Section 4.3.

4.3 Sports Field Components

The sports field will consist of a 400-foot-by-400-foot playing surface with synthetic grass, a stormwater underdrain system, and an LFG barrier and collection system. Each system is designed to provide an optimal playing surface while providing maximum protection to the public from potential exposure to LFG generated by the closed landfill.

The turf will be underlain by 2 inches of select material and 8 inches of granular drain rock. A network of low-profile perforated strip drain pipes will collect and convey stormwater from the field. A low-permeability liner, such as geosynthetic clay liner (GCL) or linear low-density polyethylene (LLDPE) liner, will underlie the drainage network to improve drainage efficiency. The same LLDPE liner will serve as a secondary cap over the landfill to stop the upward movement of LFG in the soil and then to direct the LFG to a passive venting system. A typical cross section of the sports field is shown in Figure 4-2.

4.3.1 Synthetic Turf

The field surface will be constructed of a synthetic turf. The turf will be installed at a constant slope of 0.5 percent to minimize effects on sports activities. The turf is approximately 1 inch deep and will be underlain by 2 inches of well-graded gravel as a leveling course. The turf is also permeable to allow rapid infiltration of stormwater to the drainage system described below.

4.3.2 Stormwater Drainage System

The sports field will be equipped with a subsurface drainage collection and conveyance system to account for low overland design slope (0.5 percent). The system will consist of a low-permeability liner overlain by an 8-inch layer of open graded drain rock with a network of low-profile perforated PVC pipes. The liner will consist of a GCL installed directly over a compacted subgrade. The GCL will prevent stormwater from infiltrating through the soil cap to buried waste.

The perforated pipes will be installed directly over the GCL at a 45-degree angle perpendicular to the grading slope, and spaced 10 feet on-center to maximize stormwater collection efficiency. The perforated pipes will be connected to two solid wall header pipes running parallel to the grading slope, which connect to the primary site conveyance system outside the field boundary. Header pipes will be installed at a slope of at least 1 percent. A schematic plan of the underdrain system is shown in Figure 4-3; a cross section view is shown on figure 4-2.

4.3.3 Passive LFG Collection and Venting System

A passive LFG venting system will be installed under the sports field to prevent the migration of LFG up to the playing field and lateral migration to other portions of the site. The system will consist of a network of perforated collection pipes, solid wall header pipes, and vertical vents outside the field area. The passive system will be installed below the GCL, which will serve an additional purpose as an LFG barrier. Laboratory tests indicate that GCL reduces methane flow four to five orders of magnitude greater than a compacted clay layer alone (see Appendix B).

The collection pipes will consist of 4-inch-diameter perforated pipes, installed within the top 6 inches of liner subgrade. Six collection pipes will be evenly spaced across the field area and connected to solid wall header pipes around the perimeter of the field. Each collector pipe will have a valve and sampling port installed at the header pipe connection to allow conversion to an active venting system for specific areas if needed.

The material specification for the low-permeability liner (component of the drainage system described above) has been modified so that it will also serve as the low-permeability cap for the passive gas venting system. The cap will consist of a GCL installed over the graded and smoothed landfill cover soil; documentation from the manufacturer regarding use of GCL as a gas barrier is included in Appendix B. The liner is not required for closure of the landfill; however, it is included to provide added protection against potential exposure of the public to LFG and will also prevent stormwater infiltration to the underlying soil cap and waste.

4.3.4 Additional Considerations

The low-permeability liner will also prevent infiltration of stormwater into the landfill cover soil, which will reduce the overall potential of infiltration to the buried landfill waste. Proposed grade for the sports field surface are 0.5 percent, which is lower than the required grade for landfill closure. The installation of the GCL liner/cap for the passive gas and drainage systems will mitigate the effects of flat overland grades and promote efficient drainage of stormwater away from the landfill surface.

4.4 Methane Control Systems for Buildings

Methane control systems for occupied structures will be included to prevent the potential for LFG intrusion. The systems will generally consist of a subslab membrane and passive venting system of perforated collection pipes, solid wall header pipes, and a vent stack to direct the collected gas to a safe location. A description of each component is outlined in this section; standard details and material specifications are located in Appendix A, the LFG building systems design guide. These design details are intended to be a guide for final design of the buildings; DEQ approval will be required for the final design plans before construction.

4.4.1 Membrane

A membrane will be installed below concrete building slabs and foundations to prevent methane intrusion through cracks, penetrations, or expansion joints. Acceptable materials for the barrier include high-density polyethylene (HDPE), LLDPE, liquid boot, or GCL with fabric backing. PVC membranes are not preferred because of limited durability over time. Floor penetrations for utilities and conduits will be connected directly to the membrane and will be terminated in the slab.

4.4.2 Passive Venting System

Passive venting will be provided below building slabs of enclosed structures to allow collection and venting of potential methane gases that could become trapped. Passive vents will consist of

perforated PVC pipes connected to solid wall header pipes at the building perimeter and discharging to vents located above the structure. Perforated pipes will be installed in a layer of gravel beneath the membrane and above the compacted soil subgrade. Pipes will also be wrapped in a nonwoven filter fabric to prevent clogging. Collection pipes will be installed on approximate 50-foot horizontal spacing, with a maximum distance of 25 feet from the edge of slab. Header pipes will be installed at the building perimeter for slabs requiring multiple collection pipes.

Passive vents will be installed for each building to discharge methane from the subsurface collection system. Vents will consist of a solid wall vertical pipe stack connected directly to the header or collection pipe. Vertical pipes will be installed inside building walls or on the building exterior. Vent outlets will be located a minimum of 10 feet horizontally from other building system vents (plumbing, heating, etc.), and 4 feet vertically above the roof line. All ventilation piping will be clearly labeled with placards or adhesive labels indicating the presence of gases. Vents will also be equipped with a vent cap to prevent intrusion of rainwater to the system.

To protect the performance of the venting system, perforations will be oriented downward to prevent the accumulation of condensation in the pipe. Alternatively, the passive ventilation system may include sumps for collection and removal of condensation from the collection piping system. Sumps would be connected to discharge pipes leading directly to the site sanitary sewer system or a temporary storage tank to allow sampling before discharge to the site stormwater drainage system.

All passive venting systems will be designed to allow simple conversion to an active venting system. Conversion may consist of the addition of a powered fan to create suction on the collection piping and increase LFG removal efficiency if it is determined that the operation of the passive system is inadequate.

4.4.3 Methane Measurement for Buildings

Detection systems are required in order to determine the concentration of methane that may be occurring within or underneath a structure. The systems described above typically are paired with an interior detection system or a gas monitoring probe.

4.4.4 Interior Methane Detection and Alarm System

A methane detection and alarm system will be installed in enclosed structures and occupied buildings. The system will provide a warning system that will activate should methane accumulate inside a building. Detection levels will be set to prevent accumulation at an unsafe level that could cause asphyxiation or ignition. Detectors will be placed in all enclosed buildings, with location preference to smaller enclosure spaces such as closets or storage areas, which require smaller amounts of gas to reach higher concentration per room volume.

Depending on building size and orientation, detectors may consist of standalone detection/alarms, or interconnected detection units with a control panel and central alarm system. Systems will operate continuously, even when buildings are not occupied. An auto-dialer or telemetry system may also be included for larger interconnected systems.

4.4.5 Methane Gas Probes

To measure the effectiveness of the collection system, horizontal methane gas probes will be installed below building slabs and the sports field in conjunction with the passive venting system. The probes will consist of a small-diameter (typically 0.75-inch) solid wall PVC pipe installed parallel to the building slab, fitted with a perforated screen at the end. The pipe will be installed directly below the membrane liner, with a vertical separation of 2 to 4 inches above the collection pipes. The probe will terminate with a valve outside the membrane in a sealed access box. Monitoring will be completed per the site Operations, Maintenance, and Monitoring Plan, which will be prepared contingent on conditions of the landfill closure permit.

4.4.6 Interior Venting for Occupied Structures

All spaces that can be occupied at the sports complex will require venting to prevent the accumulation of LFG or to evacuate any gas that does accumulate. The means of venting these spaces can be mechanical or natural.

Naturally vented enclosed spaces—at least 25 percent open wall area at the top and bottom of two walls in order to accommodate natural movement of air through the space. Spaces meeting this requirement do not require any supplemental means of mechanical ventilation.

Passive venting for enclosed spaces—periodic openings at the bottom and top of the lowest level of enclosed spaces. These spaces should have mechanical backup vents to clear air space in the event that gas accumulates beyond the passive system's venting capability.

Powered venting for enclosed spaces—mechanical vent fans for methane environments required for these spaces without natural venting. Spaces shall allow for make-up air at a minimum rate of one exchange per hour. The fan may be always on, or may periodically cycle. The space must be equipped with a methane detector in the primary space at the building entry.

4.4.7 Additional Interior Monitoring

Interior methane monitoring for enclosed structures will also be completed periodically. Multiple readings will be collected throughout enclosed spaces on a quarterly basis concurrently with site monitoring activities as described in the site Operations, Maintenance and Monitoring plan which will be prepared to address conditions of the landfill closure permit.

4.5 Landscaping

Areas not covered with impervious surfaces (paving, concrete, structures, low-permeability liner/synthetic turf) will be planted with grasses or other vegetation. Flat landscaped areas will also have area drains to collect surface stormwater runoff and reduce infiltration to the landfill soil cap. Landscaping will utilize native plant species. Landscaped areas will be graded to meet the minimum slope requirements as described in Section 3.2. Landscaping will be monitored for signs of stress such as dead patches of vegetation or soil and plant discoloration.

Improvements will also be made to surface drainage features along the access road. Vegetated drainage ditches will be installed along both sides of the access road to convey surface runoff to catchments discharging to the site stormwater system.

4.6 Stormwater

The proposed stormwater system will consist of a primary stormwater collection and conveyance system, a subsurface drainage system under the sports field, and a run-on control system.

4.6.1 Primary Conveyance System

The primary conveyance system will consist of HDPE gasketed pipe and concrete manholes. All pipes will be sized to convey the 100-year, 24-hour-duration storm event for Astoria, Oregon. The conveyance system will have two main branches (north and south), both of which will connect at a manhole in the southwest corner of the site and outfall to Craig Creek, consistent with the current site outfall location (see Figure 4-3).

4.6.2 Rain Gardens

Lined rain gardens will be located in landscape planter areas in the parking lots and will serve to collect all surface drainage from the parking, circulation, and pedestrian areas. Each rain garden will be equipped with underdrains and an above-grade overflow connected directly to the primary conveyance system. Rain gardens will also be lined with a low-permeability liner beneath the underdrain to prevent infiltration of stormwater to the landfill soil cap.

4.6.3 Landscape Area Drains

Landscape areas not occupied by rain gardens will be graded to low points, where area drains will be installed. Area drains will be connected directly to the primary conveyance system and will serve to prevent infiltration of excess stormwater to the landfill soil cap.

4.6.4 Sports Field Drainage

The sports field will be a pervious, synthetic turf surface with an underdrain system to collect and convey stormwater falling directly to the field area. The underdrain system will be constructed as described in Section 4.3.2.

4.6.5 Run-on Controls

Stormwater run-on controls will be installed along the north and east perimeters of the development area. Significant upgradient slopes in these areas could potentially contribute large amounts of stormwater runoff to the site. French drains approximately 4 feet deep will be installed to collect surface water run-on and shallow infiltrated stormwater to prevent possible infiltration to groundwater in the landfill. The French drains will be connected directly to the north primary conveyance line.

4.6.6 Existing Stormwater System Modifications

The existing stormwater collection and conveyance system consists primarily of ditches and culverts, with some subsurface conveyance pipes and structures.

Two abandoned conveyance lines also exist within the limits of the landfill. These structures and pipes will be abandoned as described in Section 3.6.

4.7 Utilities

Utilities will be installed as part of the development for sanitary sewer, potable water, and electrical service. Sewer and potable water systems do not require specialized design elements, although trench backfill must be considered. Electrical service at a site with methane concerns is a significant issue, but this can be mitigated with proper design as discussed below.

4.7.1 Electrical Service

Primary electrical service will be delivered to the site with overhead lines and transformers. Subsurface conduits likely will be installed to service light poles or other exterior electrical installations. All conduits and other subsurface electrical utility installations will be required to utilize sealed systems and other methods to prevent intrusion of methane. Recommended details for the electrical system are included in Appendix A. Final approval by DEQ and the County electrical inspector will be required for all systems to be installed at the site.

4.7.2 Utility Trenches

It has been determined that the landfill site continues to produce LFG, including methane, from buried waste. LFG production is low and will continue to decrease over time; however, subsurface concentrations at the site still exist and continue to require management. Subsurface utility trenches and conduits can potentially provide preferential pathways for gas migration to the ground surface.

Utility trenches within the waste boundary will utilize a trench dam consisting of cement/bentonite grout backfill extending 5 feet from the edge of the structure to provide a nonporous channel to prevent gas migration to other portions of the site and adjacent properties. A trench dam detail is included in Appendix A. Gasketed pipe will also be used to prevent gas intrusion to open conduits. This trench backfill method will also prevent infiltration of groundwater that could potentially contain leachate to the drainage systems.

4.8 Parking and Access

Vehicular access and parking facilities will be constructed at the site. Vehicle areas will be covered predominantly with asphalt paving and surrounded by concrete curb. Paved areas will drain by sheet flow to surface collection facilities as described in Section 4.6. Paved areas will be underlain by LFG collection pipes and spaced no more than 50 feet horizontally. Typical details for subsurface LFG venting are included in Appendix A. Strips of open graded gravel may also be included at the edge

of pavement to allow venting of gas around the perimeter of the impervious surfaces (i.e., behind curb). Collection pipes will be connected to vertical vent risers installed at various locations throughout the site (See Figure 4-4 for conceptual layout).

Gravel parking and access areas may also be constructed on less frequently used portions of the site. Gravel surfaces will not require additional LFG collection systems.

5 SUMMARY

This plan has been prepared to describe the requirements for closure of the Astoria Landfill consistent with DEQ regulations, historical data and closure plans, and all available new information since the previous closure plan prepared by Parametrix in 1995. This plan also describes how proposed redevelopment of the site as a multi-use athletic facility will incorporate requirements of landfill closure into the engineering design, and address concerns of the potential exposure hazards of closed landfills. The final engineering and architectural plans for site development will be submitted to DEQ for final approval once design efforts are complete. Preliminary drawings are included with this document for DEQ's initial review.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

REFERENCES

GeoEngineers. 2012. Site investigation, Astoria Landfill. Prepared for Oregon Department of Environmental Quality. February 6.

MFA. 2013. Letter (re: landfill gas investigation: Astoria Landfill site, 1790 Williamsport Road, Astoria, Oregon) to J. Harrington, City of Astoria, from A. Hughes and K. Roslund, Maul Foster & Alongi, Inc., Portland, Oregon. January 17.

Parametrix. 1995. Astoria landfill closure plan technical memorandum. Prepared for City of Astoria. Parametrix, Inc.

TABLES

Table 2-1
Site Soil Permeability Summary
City of Astoria
Astoria Landfill Closure

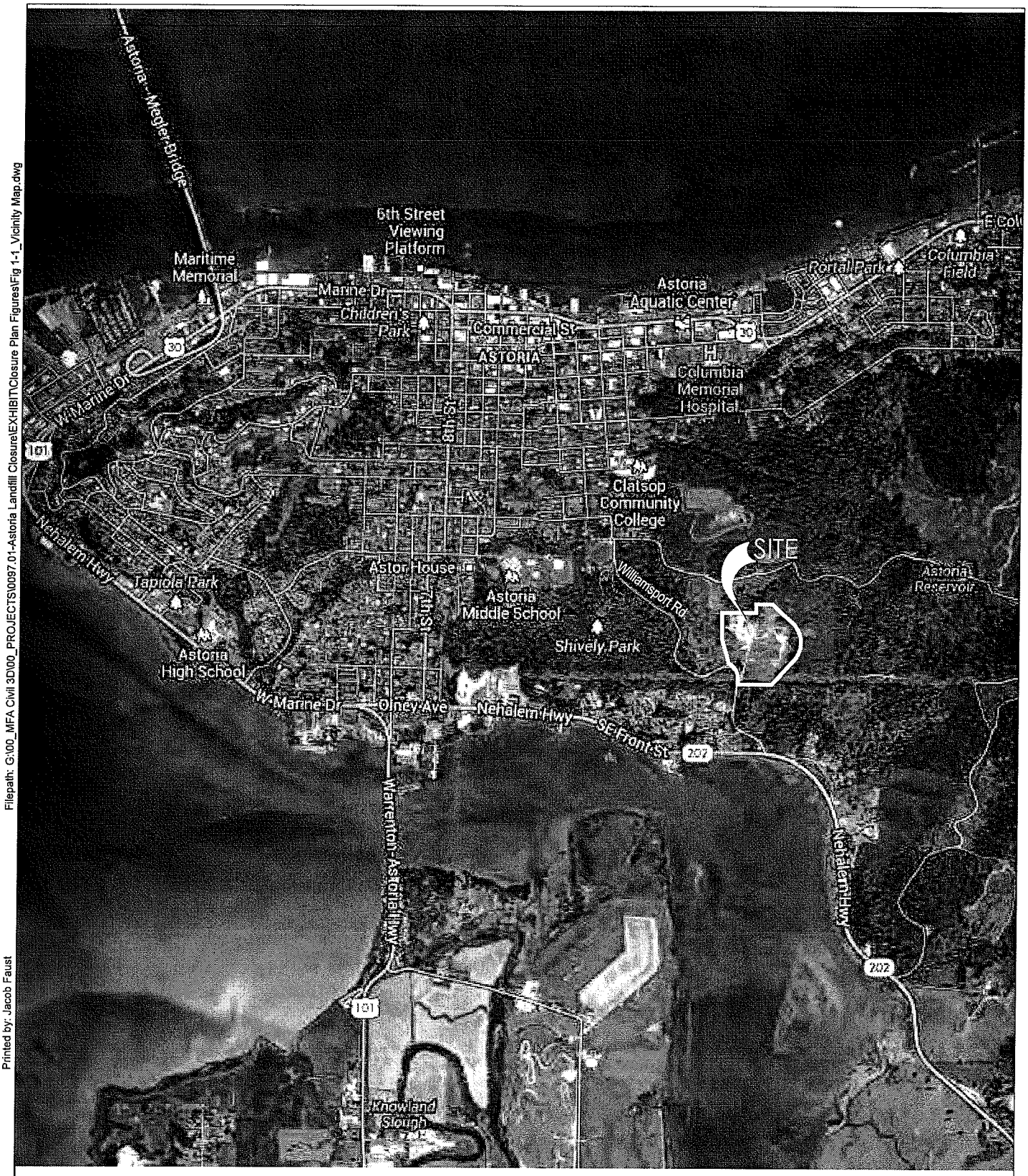
Site Investigation	Sample ID	Soil Description	Hydraulic Conductivity (cm/s)
1990 Closure Permit (information obtained in summary from 1995 Parametrix Report)	N/A	Siltstone	$1.2x10^{-6}$
	N/A	Clay	$2.8x10^{-6}$
1991—Braun Intertec Northwest	TP-1	Brown to gray clay with sand and sandstone	$1.52x10^{-8}$
	TP-2	Gray-brown clay with chunks of mudstone	$< 10^{-9}$
	TP-3	Dark brown/gray clay with compacted claystone	$< 10^{-9}$
	TP-4	Dark brown clay/sand	$< 10^{-9}$
1996—Foundation Engineering	S-7-1	Brown, silty clay	$5.0x10^{-8}$
	S-8-1	Red/brown silty clay with claystone	$6.0x10^{-8}$
	S-9-1	Brown, silty clay with claystone	$8.0x10^{-7}$
2012—Maul Foster & Alongi, Inc.	B-2	Brown clay	$3.0x10^{-7}$

NOTES:
cm/s = centimeters per second.
N/A = not applicable.

Table 3-1
Existing Soil Cover Summary
City of Astoria
Astoria Landfill Closure

Site Investigation	ID	Depth to Waste (feet)	Soil Cover Needed (feet)
Parametrix, 1995 Closure Plan	P1	7.5	0.0
	P2	9.0	0.0
	P3	9.0	0.0
	P4	7.5	0.0
	P5	2.5	0.0
	P6	2.5	0.0
	P7	5.0	0.0
	P8	2.0	0.5
	P9	2.5	0.0
	P10	0.8	1.8
	P11	1.8	0.7
	P12	3.0	0.0
	P13	0.5	2.0
	P14	3.5	0.0
	P15	4.9	0.0
	P16	2.5	0.0
GeoEngineers, 2012 Site Investigation	CAP1	6.0	0.0
	CAP 2	3.5	0.0
	CAP3	4.0	0.0
	CAP4	3.5	0.0
	CAP5	3.0	0.0
	CAP6	3.5	0.0
	CAP7	2.5	0.0
	CAP8	2.0	0.5
	CAP9	4.5	0.0
	CAP10	4.5	0.0
	CAP11	0.5	2.0
Maul Foster & Alongi, Inc. 2013 Site Investigation	TP-1	> 5.0	0.0
	TP-2	> 5.0	0.0
	TP-3	0.5	2.0
	TP-4A	1.5	1.0
	TP-4B	2.0	0.5

FIGURES



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0 2,000' 4,000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

Figure 1-1
VICINITY MAP

ASTORIA LANDFILL CLOSURE
ASTORIA, OR

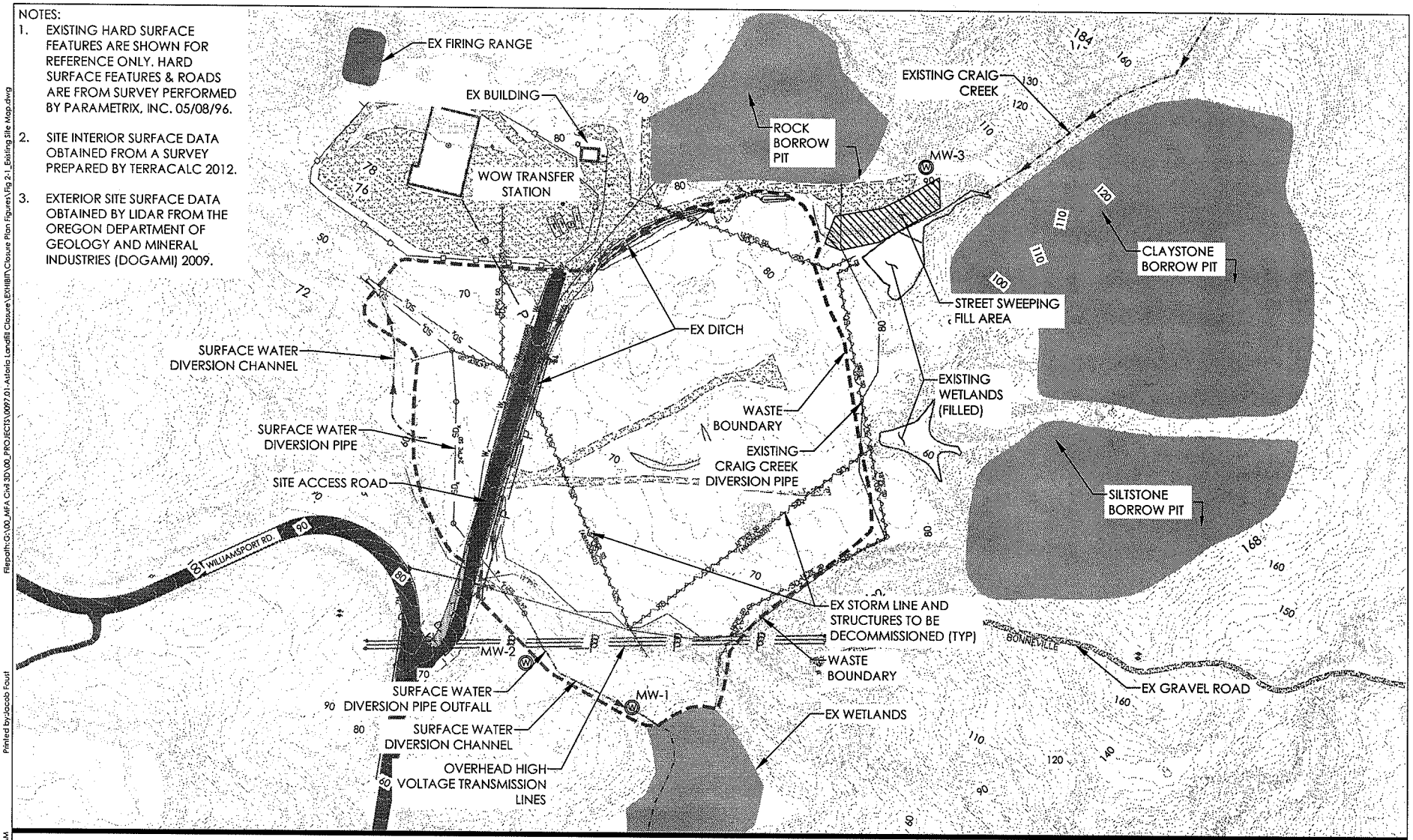

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Figure 2-1
EXISTING SITE MAP
ASTORIA LANDFILL CLOSURE
ASTORIA, OR

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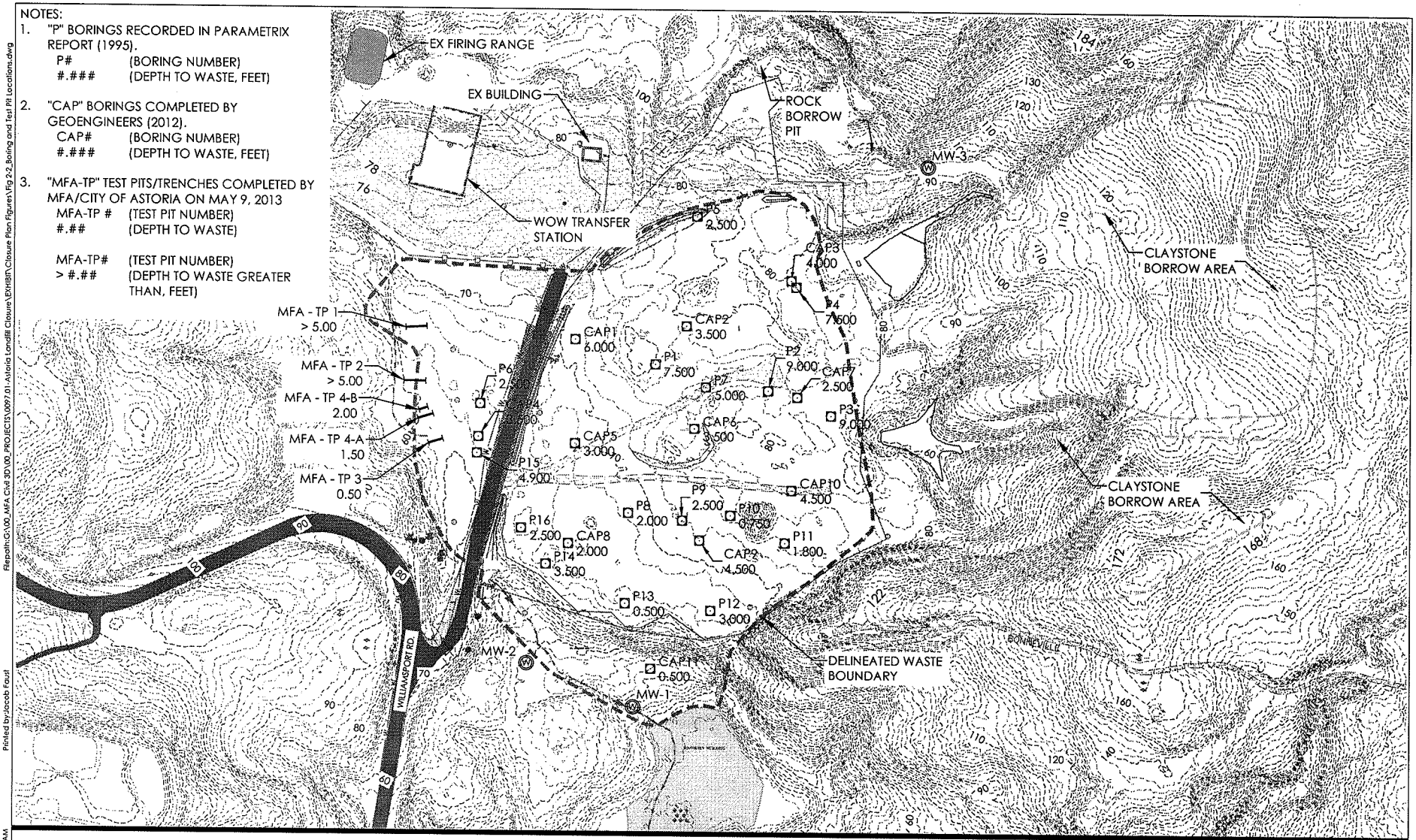

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Figure 2-2
BORING AND TEST PIT LOCATIONS

ASTORIA LANDFILL CLOSURE
ASTORIA, OR

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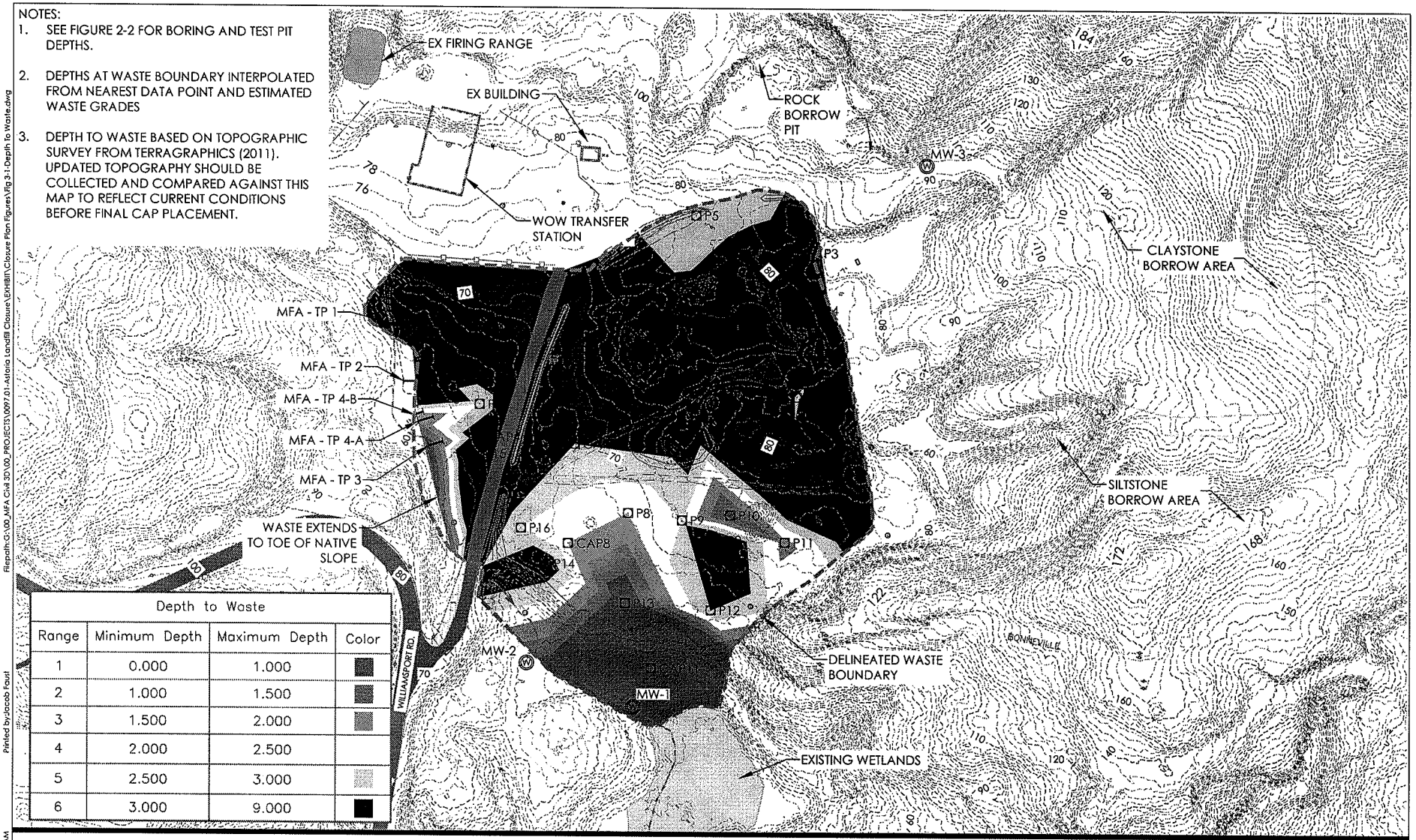
NOTES:

1. SEE FIGURE 2-2 FOR BORING AND TEST PIT DEPTHS.
2. DEPTHS AT WASTE BOUNDARY INTERPOLATED FROM NEAREST DATA POINT AND ESTIMATED WASTE GRADES
3. DEPTH TO WASTE BASED ON TOPOGRAPHIC SURVEY FROM TERRAGRAPHICS (2011). UPDATED TOPOGRAPHY SHOULD BE COLLECTED AND COMPARED AGAINST THIS MAP TO REFLECT CURRENT CONDITIONS BEFORE FINAL CAP PLACEMENT.



Depth to Waste			
Range	Minimum Depth	Maximum Depth	Color
1	0.000	1.000	
2	1.000	1.500	
3	1.500	2.000	
4	2.000	2.500	
5	2.500	3.000	
6	3.000	9.000	

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0 150' 480'

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Figure 3-1
ESTIMATED DEPTH TO WASTE

ASTORIA LANDFILL CLOSURE
ASTORIA, OR

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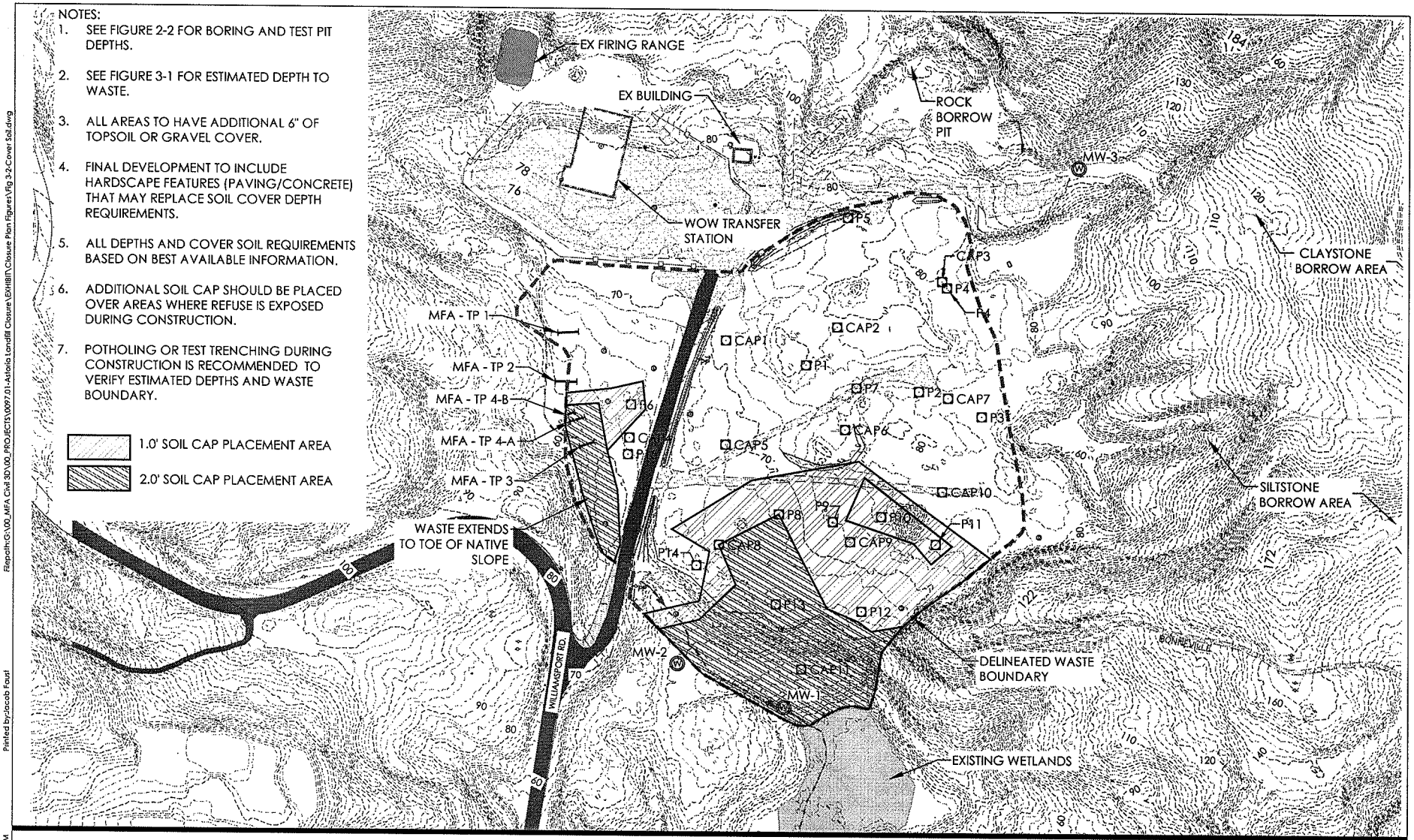

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Figure 3-2
COVER SOIL DEPTH REQUIRED FOR CLOSURE
ASTORIA LANDFILL CLOSURE
ASTORIA, OR

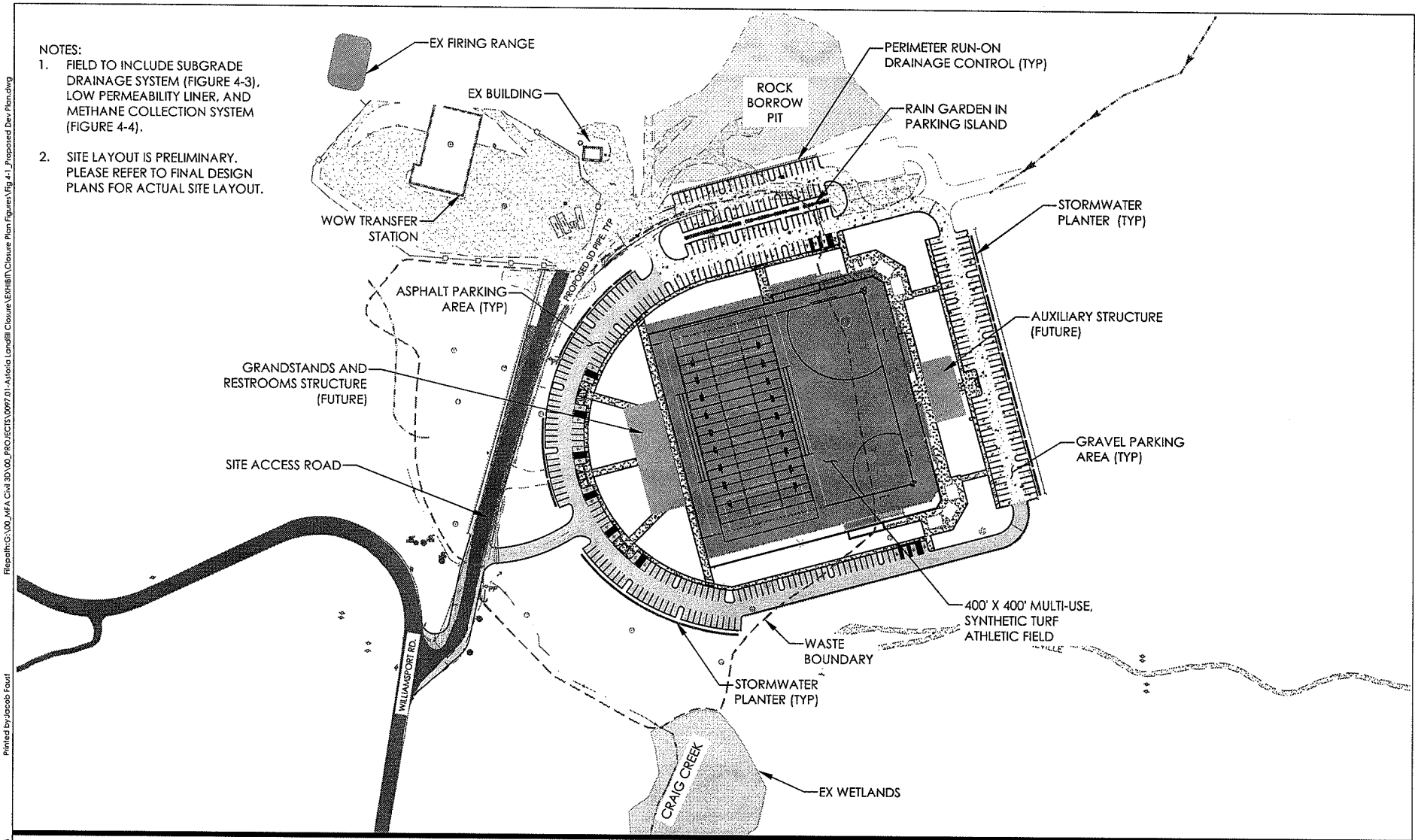

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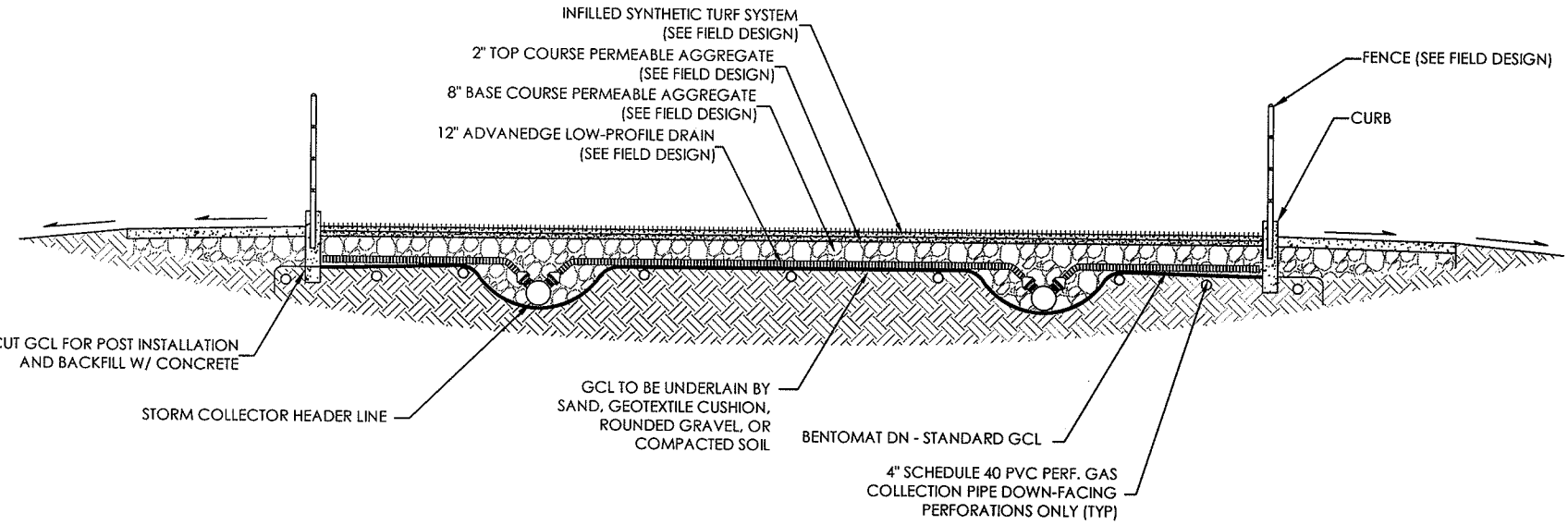
Figure 4-1
PROPOSED DEVELOPMENT PLAN
ASTORIA LANDFILL CLOSURE
ASTORIA, OR



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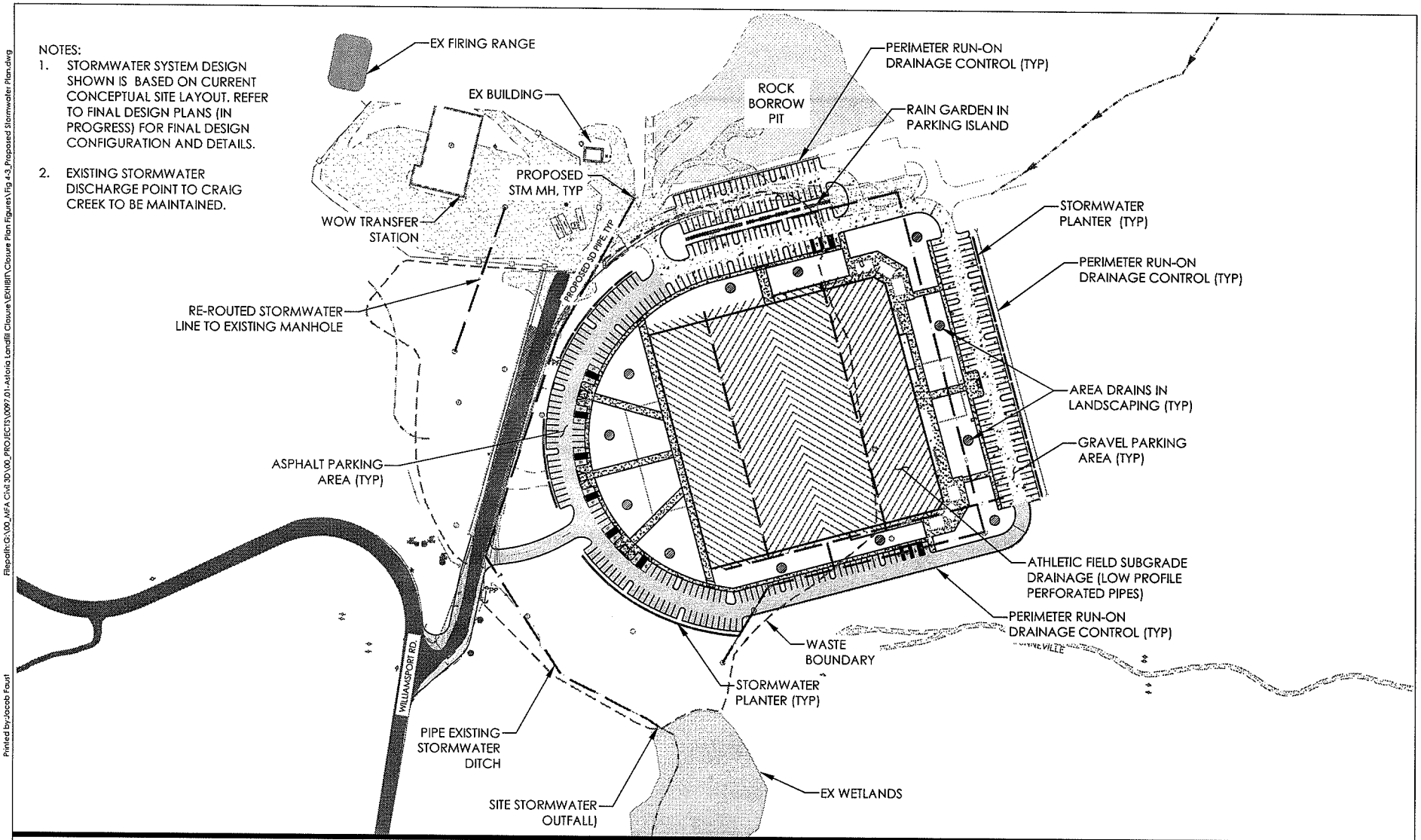
NOT TO SCALE

Figure 4-2
TYPICAL FIELD CROSS SECTION

ASTORIA LANDFILL CLOSURE
ASTORIA, OR



Filepath: G:\00_MFA Civil 3D\00_PROJECTS\0097.01-Astoria Landfill Closure\EXHIBITS\Closure Plan Figures\Fig 4-3_Proposed Stormwater Plan.dwg
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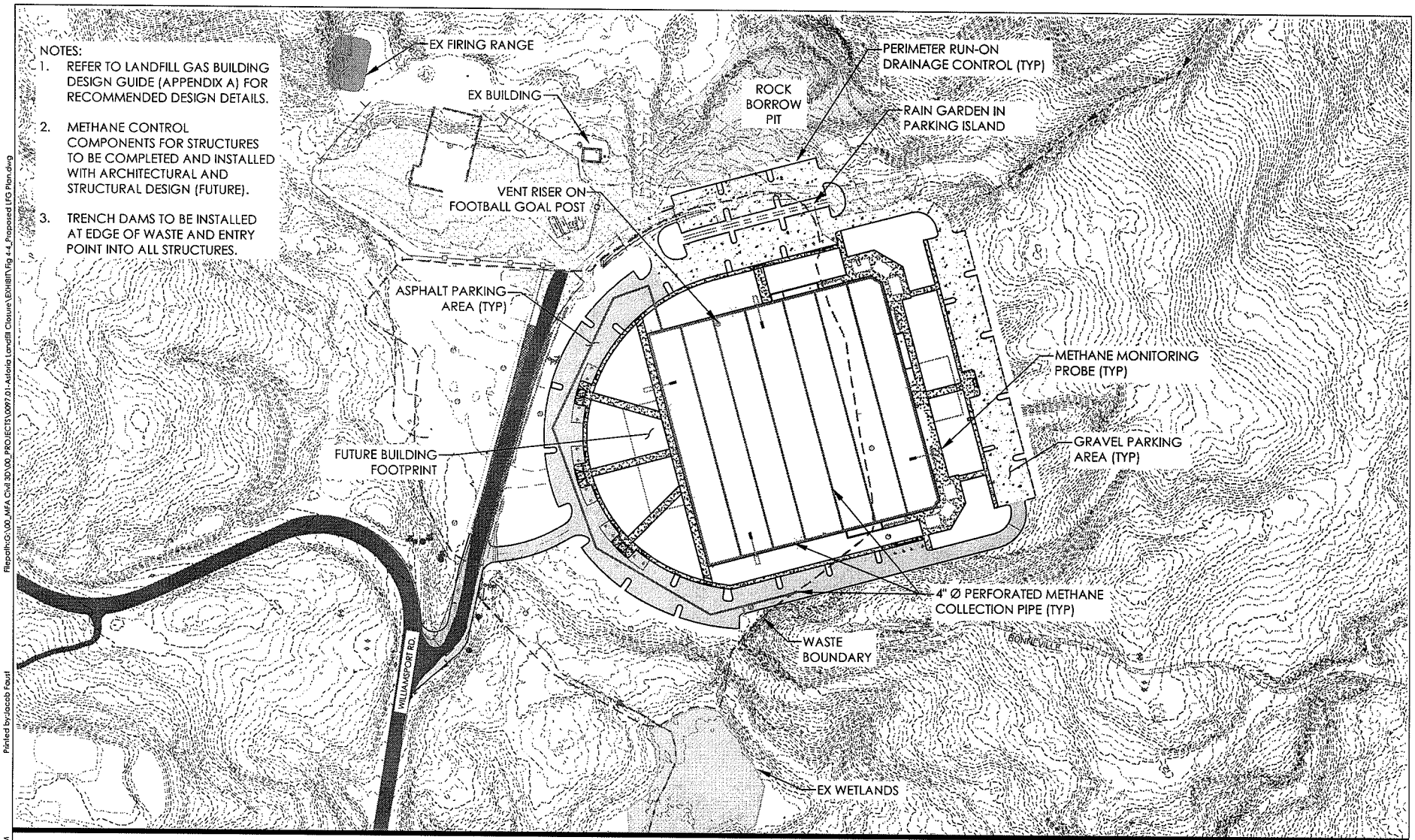
Figure 4-3
PROPOSED STORMWATER PLAN
ASTORIA LANDFILL CLOSURE
ASTORIA, OR



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0 150' 480'

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Figure 4-4
PROPOSED METHANE COLLECTION PLAN

ASTORIA LANDFILL CLOSURE
ASTORIA, OR

DRAWINGS

CMH / ASTORIA SCHOOL DISTRICT SPORTS FIELDS

PREPARED FOR:

COLUMBIA LUTHERAN CHARITIES

ASTORIA, OREGON

PROJECT CONTACTS

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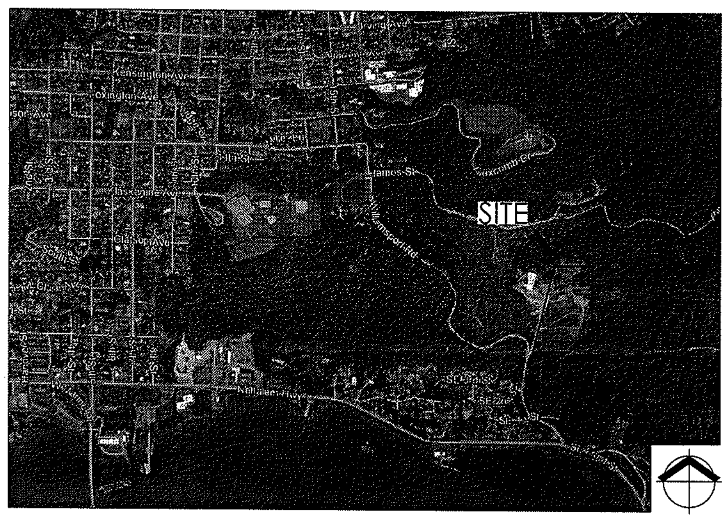
CIVIL ENGINEER MAUL FOSTER & ALONGI, INC. 400 E MILL PLAIN BLVD; STE. 400 VANCOUVER, WA 98660 P: 360-694-2691 F: 360-906-1958 STACY FROST, PE SFROST@MAULFOSTER.COM	FIELD DESIGN D.A. HOGAN & ASSOCIATES, INC. 119 FIRST AVENUE S., SUITE 110 SEATTLE, WA 98104 P: 206-285-0400 F: 206-285-0480 ERIC J. GOLD, ASLA
LANDSCAPE ARCHITECT BERGER PARTNERSHIP 1721 8TH AVENUE N SEATTLE, WA 98109 P: 206-325-6877 F: 206-323-6867 STEVE SHEA, ASLA	SURVEYOR HLB OTAK, INC. 4253-A HWY 101 NORTH SEASIDE, OR 97138 P:503-738-3425 F: 503-738-7455 DALE BARRETT, PLS

PROJECT SUMMARY

SITE ADDRESS:
1790 WILLIAMSPORT ROAD
ASTORIA, OREGON

NEW IMPROVEMENTS:
DEVELOP RECREATIONAL SPORTS FIELDS AND ASSOCIATED FACILITIES. DEVELOPMENT WILL INCLUDE NEW STRUCTURES, PAVED PARKING AREAS, PAVED ROADWAYS, STORMWATER, DOMESTIC WATER, AND SANITARY SEWER UTILITIES AND APPURTENANCES.



VICINITY MAP — NOT TO SCALE

SHEET INDEX

C0.0	COVER SHEET
C1.0	CONSTRUCTION NOTES
C1.1	MASTER LEGEND
C2.0	DEMO PLAN
C3.0	MASTER GRADING PLAN
C3.1	GRADING PLAN I
C3.2	GRADING PLAN II
C3.3	GRADING PLAN III
C3.4	GRADING PLAN IV
C3.5	GRADING DETAILS
C3.6	SURFACING PLAN
C4.0	STREET AND STORM DRAINAGE PLAN
C4.1	STREET PROFILE
C4.2	GAS COLLECTION SYSTEM PLAN
C5.0	WATER AND SANITARY SEWER PLAN
C5.1	ON-SITE SANITARY SEWER PROFILE
C5.2	TRANSFER STA. DRIVE SANITARY SEWER PLAN & PROFILE
C6.0	OFF-SITE SANITARY SEWER PLAN & PROFILE
C6.1	OFF-SITE SANITARY SEWER PLAN & PROFILE
C7.0	STORMWATER FACILITY A DETAILS
C7.1	STORMWATER FACILITY B DETAILS
C7.2	STORMWATER FACILITY C DETAILS
C7.3	STORMWATER FACILITY D DETAILS
C7.4	STANDARD ODOT STORMWATER DETAILS
C7.5	STANDARD ODOT SANITARY SEWER AND WATER DETAILS
C7.6	STANDARD ODOT SANITARY SEWER AND WATER DETAILS
C7.7	STANDARD ODOT ROADWAY DETAILS
C7.8	STANDARD ODOT ROADWAY DETAILS
C7.9	MISCELLANEOUS DETAILS
C7.10	MISCELLANEOUS STORMWATER DETAILS
C7.11	GAS COLLECTION DETAILS
C7.12	GAS COLLECTION DETAILS
C7.13	GAS COLLECTION DETAILS
C7.14	GAS COLLECTION DETAILS

GENERAL NOTES

1. SURVEYS CONDUCTED ON 10/30/2012 and 4/11/13 BY HLB OTAK, INC. AND 5/29/13 BY TERRACALC LAND SURVEYING INC.

2. OTHER EXTERIOR TERRAIN SURVEY OBTAINED FROM LIDAR CONDUCTED BY OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES (DOGAMI) (RELEASE 8-1-09).

3. HORIZONTAL CONTROL BASED ON OREGON STATE PLANE COORDINATE SYSTEM SOUTH ZONE, NAD 83 (2011).

4. ELEVATION DATUM NAVD 88.

5. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CALL (800) 332-2344 (OREGON UTILITY NOTIFICATION CENTER) FOR LOCATION MARK-UP OF EXISTING UTILITIES.

6. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICES OF THE CITY OF ASTORIA AND THE LATEST EDITION OF THE "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION" PREPARED BY ODOT/APWA.

7. EROSION CONTROL METHODS SHALL COMPLY WITH:
1) THE LATEST VERSION OF THE "EROSION AND SEDIMENT CONTROL MANUAL" PREPARED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY.
2) THE NPDES 1200-C PERMIT, EPA NO. ORR10D301, FILE NO. 122555, ISSUED 9-11-12.

8. ALL CONSTRUCTION WITHIN CITY OF ASTORIA RIGHT-OF-WAY SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN AND RIGHT-OF-WAY PERMIT PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE RIGHT-OF-WAY.

9. THE APPLICANT MAY BE REQUIRED TO PROVIDE FLAGGING, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES FOR SAFE TRUCK ACCESS ONTO PUBLIC STREETS. ALL SUCH DEVICES SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND LATEST ADOPTED EDITION OF THE STATE OF OREGON SUPPLEMENT TO THE MUTCD. TWO-WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES ON THE ADJACENT PUBLIC STREETS.

10. ANY PUBLIC OR PRIVATE CURB, GUTTER, SIDEWALK, OR ASPHALT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO CITY OF ASTORIA STANDARDS.

11. IN ORDER TO ENHANCE TRAFFIC AND SAFETY ELEMENTS, THE APPLICANT SHALL MAINTAIN ADEQUATE SIGHT DISTANCE AT THE SITE ACCESS POINTS AND INTERSECTIONS. ANY OBSTRUCTION BY LANDSCAPING, SIGNING, PARKING, BUILDINGS, OR OTHER OBJECTS IS UNSAFE. THE APPLICANT SHALL ENSURE THAT NONE OF THESE INTERFERE WITH VISION CLEARANCE REQUIREMENTS.

12. WHEN EXCAVATION OCCURS, EVERY ATTEMPT SHALL BE MADE TO REPLACE THE EXCAVATED MATERIAL BACK IN THE TRENCH AND MINIMIZE EXTRANEOUS MATERIAL.

13. ANY CHANGES TO THE DESIGN AND/OR CONSTRUCTION SHALL BE APPROVED BY THE OWNER OR ENGINEER.

14. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL ITEMS DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION, INCLUDING, BUT NOT LIMITED TO, VEGETATED AREAS, PAVING, UTILITIES, DRAINAGE, PIPING, AND FENCING.

15. THE PROJECT SITE IS A FORMER MUNICIPAL LANDFILL AND MAY CONTAIN METHANE GAS OR OTHER FLAMMABLE/TOXIC SUBSTANCES. PROJECT PERSONNEL SHALL CONTAIN ALL IGNITION SOURCES TO WELL-VENTILATED AREAS ONLY. ALL CONFINED SPACES SHALL BE KEPT WELL-VENTILATED AT ALL TIMES.

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CMH / Astoria School District Sports Fields

Astoria, OR

REGISTERED PROFESSIONAL ENGINEER — OREGON — STACY J. FROST

RENEWS:

SET TYPE: 95% CONSTRUCTION DOCUMENTS
SET ISSUE DATE: 07.17.13
REVISIONS

DRAWN/CHECKED: M. REITER / S. FROST
SHEET NAME: COVER
SHEET NUMBER: C0.0

GENERAL NOTES

EROSION AND SEDIMENT CONTROL

1. ALL GRADING AND EROSION CONTROL MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE "EROSION AND SEDIMENT CONTROL MANUAL" PREPARED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE EXISTING PROJECT NPDES 1200-C PERMIT, EPA NO. ORR10D301, FILE NO. 122555, ISSUED 9-11-12. EROSION CONTROL SHALL BE PER THE SPECIFICATIONS AND DETAILS CONTAINED THEREIN AND SHALL TAKE PRECEDENCE OVER OTHER STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN DAILY LOG OF EROSION CONTROL AND MAINTENANCE.
3. DURING THE PERIOD FROM OCTOBER 1ST TO APRIL 30TH, NO SOIL SHALL BE EXPOSED FOR MORE THAN TWO (2) DAYS. FROM MAY 1ST TO SEPTEMBER 30TH, NO SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN (7) DAYS.
4. THE CONSTRUCTION ENTRANCE MAY BE REDUCED TO LESS THAN 100' WITH APPROVAL OF THE EROSION CONTROL INSPECTOR.
5. INLET PROTECTION FABRIC SHALL BE INSTALLED UNDER GRATES FOR INLETS IN LANDSCAPED AREAS.
6. THE CONTRACTOR WILL PROVIDE APPROPRIATE PROACTIVE EROSION CONTROL DURING CONSTRUCTION TO PREVENT THE EROSION CONTROL SYSTEMS FROM FAILING DUE TO SILT. THE CONTRACTOR SHALL ENSURE THAT SEDIMENT DOES NOT IMPACT THE ADJACENT PROPERTIES OR THE SURROUNDING PUBLIC ROADS DURING CONSTRUCTION.
7. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, AND VEGETATION IS ESTABLISHED.
8. CARE SHOULD BE TAKEN TO NOT DISTURB MORE AREA THAN NEEDED FOR CONSTRUCTION REQUIREMENTS. ALL DISTURBED SOILS SURFACES ARE TO BE STABILIZED. STABILIZATION OF DISTURBED SOIL AREAS SHALL CONSIST OF: HYDROSEEDING OR HANDSEEDING, MULCHING, PLACING OF EROSION CONTROL BLANKETS OR PLASTIC IN LANDSCAPING SOIL AREAS. IT WILL ALSO CONSIST OF PAVING AND CONCRETE WORK IN DRIVING, PARKING, AND SIDEWALK AREAS. ALL SEEDED AREAS ARE TO BE FERTILIZED, WATERED, AND MAINTAINED TO ENHANCE THE IMMEDIATE REGROWTH OF VEGETATION.
9. MATERIAL STOCKPILES ARE TO BE PROTECTED FROM PRECIPITATION BY THE FOLLOWING MEANS:

   • TEMPORARY - COVER PILES WITH TARPS OR PLASTIC SHEETING WEIGHTED WITH TIRES, LUMBER, OR CONCRETE BLOCKS.

   • PERMANENT - COVER PILES WITH TARPS OR PLASTIC, OR RESEED. PERIMETER AREAS AROUND PILES ARE TO BE SURROUNDED WITH EROSION CONTROL FILTER FABRIC FENCES UNTIL SOILS SURFACE IS STABILIZED WITH RESEEDING.
10. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE CONTINUOUS FUNCTIONING. INSPECTION AND MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO:

    • VERIFYING THAT ALL AREAS ARE GRADED SUCH THAT ALL RUNOFF IS DIRECTED TO A SEDIMENTATION TRAP FACILITY BEFORE BEING DISCHARGING TO SURFACE.

    • REMOVAL OF TRAPPED SILTS AT SILT BARRIERS, SILT TRAPS, OR POINTS OF ACCUMULATION.

    • ADDITIONAL PROTECTIVE MEASURES, AS REQUIRED, DUE TO JOB SITE CONDITIONS.

    • STABILIZED CONSTRUCTION ENTRANCES INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. MONITORING OF VEHICLES LEAVING THE SITE TO MINIMIZE TRANSMISSION OF LOOSE SOILS TO THE PUBLIC ROADWAYS.

    • IF SEDIMENT IS TRANSPORTED ONTO A ROAD SURFACE, THE SURFACE IS TO BE CLEANED THOROUGHLY AT THE END OF EACH DAY.
11. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
12. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
13. THIS SEDIMENTATION AND EROSION CONTROL PLAN IS INTENDED TO BE UTILIZED AS A GUIDE TO CONTROL THE TRANSPORTATION OF LOOSE SOILS FROM THE PROPERTY THAT CAUSE WATER QUALITY AND NUISANCE PROBLEMS OUTSIDE OF THE CONSTRUCTION AREA.
14. DEPENDING ON THE CONTRACTOR'S CONSTRUCTION PRACTICES, SOME PORTIONS OF THE PROPOSED EROSION CONTROL PLAN MAY BE VARIED ACCORDING TO THE JOB SITE CONDITION. ALL CHANGES TO THE PLAN MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ADJUSTMENT.

SITE GRADING

15. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE GEOTECHNICAL REPORT PREPARED BY GRI FOR THE SITE. THE CONTRACTOR SHALL FOLLOW ALL RECOMMENDATIONS REGARDING EARTHWORK AS DETAILED IN THE REPORT.
16. ALL PORTIONS OF THE SITE WITHIN THE LIMITS OF THE WORK SHALL BE MOWED AND STRIPPED TO REMOVE ALL GRASS, ROOTS, ORGANIC SOIL, AND CONSTRUCTION FILL DEBRIS PRIOR TO THE BEGINNING OF ANY GRADING OPERATIONS. THE CONTRACTOR SHALL SALVAGE AND STOCKPILE ENOUGH SELECT TOPSOIL TO ACCOMMODATE LANDSCAPING NEEDS.
17. FOLLOWING STRIPPING AND GRUBBING, THE EXPOSED SOILS SHALL BE PROOF ROLLED TO REVEAL WEAK, ORGANIC, OR OTHER UNSUITABLE SOILS. UNSUITABLE SOILS SHALL BE EXCAVATED TO FIRM GROUND AND FILLED TO GRADE WITH SUITABLE NATIVE OR IMPORTED STRUCTURAL FILL.
18. EXPOSED SUBGRADE SOILS ON AREAS TO RECEIVE STRUCTURAL FILL SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES.
19. IF FILLS ARE NEEDED FOR STRUCTURAL SUPPORT, THEY SHALL BE INSTALLED IN NO MORE THAN 8-INCH LIFTS, AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY FOR FINE GRAINED NATIVE SOILS UNLESS OTHERWISE SPECIFIED ON THE PLAN. THE TOP LIFT OF FILL SHALL BE COMPACTED TO 92%. ALL OTHER SOILS SHALL BE COMPACTED TO NO LESS THAN 85%.
20. COMPACTION TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM D 698 (STANDARD PROCTOR).
21. AT THE END OF THE GRADING OPERATION, THE STOCKPILED STRIPPINGS SHALL BE DISTRIBUTED ON THE LANDSCAPED AREAS IN A COMPACTED DEPTH NOT TO EXCEED 12".
22. ALL SURFACES SHALL BE GRADED SMOOTH AND FREE OF IRREGULARITIES THAT MIGHT ACCUMULATE SURFACE WATER.
23. ALL GRADING OPERATIONS AND DISTURBED SURFACE STABILIZATION SHALL BE IN ACCORDANCE WITH THE PROJECT EROSION CONTROL PLAN.

TRANSPORTATION

24. THE MOST CURRENT EDITIONS OF THE OREGON DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS AND STANDARD DETAILS SHALL BE UTILIZED IN THE CONSTRUCTION OF TRANSPORTATION ELEMENTS OF THESE PLANS.
25. STREET SIGNING AND STRIPING SHALL BE INSTALLED BY THE DEVELOPER. ALL STREET SIGNS AND STRIPING SHALL BE INSTALLED PER THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S.DEPARTMENT OF TRANSPORTATION AND LATEST ADOPTED EDITION OF THE STATE OF OREGON SUPPLEMENT TO THE MUTCD.
26. ALL CONSTRUCTION WITHIN THE CITY OF ASTORIA RIGHT-OF-WAY SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN AND RIGHT-OF-WAY PERMIT PRIOR TO ANY ON-SITE CONSTRUCTION ACTIVITY.
27. PAVING WITHIN THE PUBLIC RIGHT-OF-WAY WILL NOT BE ALLOWED DURING WET OR COLD WEATHER, PER ODOT SPECIFICATIONS.
28. ALL PAVEMENT SHALL BE STRAIGHT CUT PRIOR TO PAVING. EXISTING PAVEMENT SHALL BE REMOVED AS NECESSARY TO PROVIDE A SMOOTH TRANSITION FOR BOTH RIDE AND DRAINAGE.
29. ALL ADA PEDESTRIAN RAMPS SHOWN ON THE PLANS AND ON THE DETAIL SHEETS SHALL BE CONSTRUCTED WITH THE PROJECT.
30. CONTRACTOR SHALL REPORT ALL DAMAGES IMMEDIATELY TO THE CITY'S CONSTRUCTION SERVICES OFFICE OR CONTACT THE INSPECTOR ON THE JOB.

STORM SEWER CONSTRUCTION

31. ALL MATERIALS AND INSTALLATION OF STORM SEWERS AND DRAINAGE SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS IN THE LATEST ADDITION OF THE "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION" BY THE AMERICAN PUBLIC WORKS ASSOCIATION AND THE OREGON DEPARTMENT OF TRANSPORTATION. WHEREVER THE STANDARD SPECIFICATIONS REFER TO THE "STATE", "SECRETARY", OR WHEN REFERENCE IS MADE TO THE DEPARTMENT OF TRANSPORTATION IT SHALL BE UNDERSTOOD THAT THE STANDARD SPECIFICATIONS SHOULD READ THE "OWNER".
32. PRE-PAVING AS-BUILTS ARE REQUIRED FOR STORMWATER, WATER, AND SANITARY FACILITIES. PROVIDE AS-BUILT INFORMATION TO THE CONSTRUCTION INSPECTOR AND CONSTRUCTION ENGINEER FOR APPROVAL PRIOR TO ANY PAVING.
33. MATERIALS FOR STORM SEWER INLET LATERALS AND MAINS SHALL BE DUAL-WALLED, SMOOTH INTERIOR, CORRUGATED POLYETHYLENE STORM SEWER PIPE, UNLESS OTHERWISE SPECIFIED ON PLANS.
34. SEE THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 00445 FOR STORM SEWER PIPE MATERIALS AND PLANS, AND SHEET C4.0 OF THIS PLANSET.
35. PERFORATED PIPE MATERIALS SHALL BE PERFORATED CORRUGATED POLYETHYLENE STORM SEWER PIPE.
36. CATCH BASINS SHALL BE NYLOPLAST DRAIN BASIN H-20 OR PROJECT APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED ON PLANS.
37. TRENCH EXCAVATION SHALL MEET THE REQUIREMENTS OF OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION BY THE AMERICAN PUBLIC WORKS ASSOCIATION AND THE OREGON DEPARTMENT OF TRANSPORTATION SECTION 00405.41.
38. STORM SEWER PIPE BEDDING AND BACKFILL SHALL MEET THE REQUIREMENTS OF SECTIONS 00405.12-14, AND SECTIONS 00405.45-46. PIPE BEDDING MATERIALS SHALL BE ¾"-0 AGGREGATE BEDDING PER SECTION 00405.12 AND PIPE BACKFILL MATERIALS SHALL BE CLASS A OR CLASS B PER SECTION 00405.14 AS APPROVED BY THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. STORM SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE TO THE "TRENCH BACKFILL, BEDDING, PIPE ZONE, AND MULTIPLE INSTALLATIONS" STANDARD DETAIL.
39. STORM SEWER INLETS, AS NOTED ON THE PLANS, SHALL BE FITTED WITH AN APPROVED TRAP.

SANITARY SEWER CONSTRUCTION

40. SANITARY SEWER LATERALS SHALL BE 6" IN SIZE, INSTALLED AT A MINIMUM SLOPE OF 0.01 FT/FT UNLESS OTHERWISE SPECIFIED ON THE PLAN.
41. MATERIALS FOR SANITARY SEWER PIPE SHALL BE PVC PIPE CONFORMING TO ASTM D3034 OR PVC-C900 DR 14, UNLESS NOTED OTHERWISE ON THE PLANS. DUCTILE IRON PIPE SHALL NOT BE USED.
42. SANITARY SEWER PIPE BEDDING AND BACKFILL SHALL MEET THE REQUIREMENTS OF SECTIONS 00405.12-14, AND SECTIONS 00405.45-46. PIPE BEDDING MATERIALS SHALL BE ¾"-0 AGGREGATE BEDDING PER SECTION 00405.12 AND PIPE BACKFILL MATERIALS SHALL BE CLASS A OR CLASS B PER SECTION 00405.14 AS APPROVED BY THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE TO THE "TRENCH BACKFILL, BEDDING, PIPE ZONE, AND MULTIPLE INSTALLATIONS" STANDARD DETAIL.
43. CONTRACTOR TO MAINTAIN A MINIMUM 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN ALL EXISTING AND PROPOSED WATER AND SEWER MAINS, UNLESS OTHERWISE SHOWN ON THE PLANS.
44. ALL SANITARY MANHOLES SHALL BE 48" UNLESS OTHERWISE SPECIFIED ON PLANS.

WATER SYSTEM CONSTRUCTION

45. MATERIALS FOR WATER PIPE SHALL BE PVC PIPE CONFORMING TO PVC-C900 DR 25, UNLESS OTHERWISE SPECIFIED ON PLANS. DUCTILE IRON PIPE SHALL NOT BE USED.
46. PIPE BEDDING MATERIALS SHALL BE ¾"-0 AGGREGATE BEDDING PER SECTION 00405.12, COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR). BACKFILL FOR WATER TRENCHES SHALL BE CLASS A OR CLASS B PER SECTION 00405.14 AS APPROVED BY THE DIRECTOR, UNLESS OTHERWISE SPECIFIED ON THE PLANS. NATIVE BACKFILL MAY BE USED UPON APPROVAL FROM THE INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM RELATIVE DENSITY PER ASTM D 698 (STANDARD PROCTOR).
47. CONTRACTOR TO MAINTAIN A MINIMUM 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN ALL EXISTING AND PROPOSED WATER AND SEWER MAINS, UNLESS OTHERWISE SHOWN ON THE PLANS.
48. ANY SIGNIFICANT DEVIATION FROM THE PLANS WILL REQUIRE A REQUEST FROM THE APPLICANT'S ENGINEER AND APPROVAL FROM THE CITY'S ENGINEER AND CITY INSPECTOR.

BACKFLOW PREVENTION DEVICE NOTES

49. ALL COMMERCIAL WATER METERS SHALL BE PROTECTED WITH A STATE-APPROVED BACKFLOW DEVICE.
50. STATE APPROVED BACKFLOW PROTECTION SHALL BE REQUIRED ON FIRE SPRINKLER AND IRRIGATION SYSTEMS. ALL HOSEBIBS SHALL BE PROTECTED WITH VACUUM BREAKERS. FURTHER BACKFLOW PREVENTION SHALL BE REQUIRED DEPENDING ON WATER USAGE IE - BOILERS, CHILLERS, CHEMICAL ADDITIONS, BOOSTER PUMPS, WELLS, ETC.

BIORETENTION SOIL MEDIA NOTES

1) WHERE EXISTING SOILS MEET THE MINERAL AGGREGATE GRADATION REQUIREMENTS, THOSE SOILS MAY BE AMENDED RATHER THAN IMPORTING MINERAL AGGREGATE.
2) COMPOST SHALL BE PRODUCED BY A COMPOSTING FACILITY PERMITTED BY THE OREGON DEQ.
3) COMPOST PRODUCT MUST ORIGINATE A MINIMUM OF 65% BY VOLUME FROM RECYCLED PLANT WASTE DEFINED AS SOURCE-SEPARATED YARD AND GARDEN WASTES, WOOD WASTES, AGRICULTURAL CROP RESIDUES, WAX-COATED CARDBOARD, PRECONSUMER VEGETATIVE FOOD WASTES, OTHER SIMILAR SOURCE-SEPARATED MATERIALS THAT THE JURISDICTIONAL HEALTH DEPARTMENT DETERMINES TO HAVE A COMPARABLE LOW LEVEL OF RISK IN HAZARDOUS SUBSTANCES, HUMAN PATHOGENS, AND PHYSICAL CONTAMINANTS.
4) A MAXIMUM OF 35% BY VOLUME OF OTHER APPROVED ORGANIC WASTE DEFINED AS MEAT AND POSTCONSUMER SOURCE-SEPARATED FOOD WASTES OR OTHER SIMILAR SOURCE-SEPARATED MATERIALS THAT THE JURISDICTIONAL HEALTH DEPARTMENT DETERMINES TO HAVE A COMPARABLE LOW LEVEL OF RISK IN HAZARDOUS SUBSTANCES AND PHYSICAL CONTAMINANTS, BUT ARE LIKELY TO HAVE HIGH LEVELS OF HUMAN PATHOGENS, INCLUDING POSTCONSUMER FOOD WASTE, BUT NOT INCLUDING BIOSOLIDS, MAY BE SUBSTITUTED FOR RECYCLED PLAN WASTE. MANURE AND BEDDING FROM HERBIVOROUS ANIMALS THAT THE JURISDICTIONAL HEALTH DEPARTMENT DETERMINES TO HAVE A COMPARABLE LOW LEVEL OF RISK IN HAZARDOUS SUBSTANCES AND PHYSICAL CONTAMINANTS WHEN COMPARED TO A TYPE 1 FEEDSTOCK AND MIXED MUNICIPAL SOLID WASTES, POSTCOLLECTION SEPARATED OR PROCESSED SOLID WASTES, INDUSTRIAL SOLID WASTES, INDUSTRIAL BIOLOGICAL TREATMENT SLUDGES, OR OTHER SIMILAR COMPOSTABLE MATERIALS THAT THE JURISDICTIONAL HEALTH DEPARTMENT DETERMINES TO HAVE A COMPARABLE HIGH LEVEL OF RISK IN HAZARDOUS SUBSTANCES, HUMAN PATHOGENS AND PHYSICAL CONTAMINANTS SHALL NOT BE USED.
5) COMPOST SHALL HAVE A MOISTURE CONTENT RANGE SUCH THAT THERE IS NO VISIBLE FREE WATER OR DUST PRODUCED WHEN HANDLING THE MATERIAL.
6) COMPOST SHALL BE TESTED IN ACCORDANCE WITH THE U.S. COMPOSTING COUNCIL "TESTING METHODS FOR THE EXAMINATION OF COMPOST AND COMPOSTING (TMECC) AS ESTABLISHED IN THE COMPOSTING COUNCIL'S "SEAL OF TESTING ASSURANCE" (STA) PROGRAM.

MINERAL AGGREGATE COMPONENT OF BIORETENTION SOIL MEDIA	
SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	95-100
#10	75-90
#40	25-40
#100	4-10
#200	2-5

BIORETENTION SOIL MEDIA SPECIFICATIONS	
COMPOST TO AGGREGATE RATIO:	60-65% MINERAL AGGREGATE, 35-40% COMPOST
ORGANIC MATTER CONTENT:	4-8% BY DRY WEIGHT
CATION EXCHANGE CAPACITY:	≥ 5 MILLIEQUIVALENTS/ 100 GRAM DRY SOIL

COMPOST COMPONENT OF BIORETENTION SOIL MEDIA	
pH:	6 ≤ pH ≤ 8.5 (TMEC 04.11-A)
MANUFACTURED INERT CONTENT:	≤ 1% BY WEIGHT (TMECC 03.08-A)
MINIMUM ORGANIC MATTER CONTENT:	40% (TMECC 05.07-A)
SOLUBLE SALT CONTENT:	≤ 4.0 MMHOS/CM (TMECC 04.10-A)
MATURITY INDICATOR:	≥ 80% (TMECC 05.05-A)
STABILITY INDICATOR:	≤ 7 (TMECC 05.08-B)
CARBON TO NITROGEN RATIO:	≤ 25:1 (TMECC 04.01 & 04.02)
SIZE GRADATION CLASSIFICATION:	"FINE COMPOST" (100% PASSING 1" SIEVE) (TMEC02.02-B)
COPPER CONTENT	<750 MG/KG (EPA 6020)
ZINC CONTENT	<1400 MG/KG (EPA 6020)

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ABBREVIATIONS

AC	ACRE, ASPHALT CONCRETE PAVEMENT	MISC	MISCELLANEOUS
ACOE	ARMY CORPS OF ENGINEERS	MON	MONUMENT (SURFACE)
AD	AREA DRAIN	MW	MONITORING WELL
AGG	AGGREGATE	N	NORTH
AIR	AIR RELIEF	N/A	NOT APPLICABLE
AMSL	ABOVE MEAN SEA LEVEL	NAT G, NG	NATURAL GAS
AP	ANGLE POINT	NE	NORTHEAST
APPD	APPROVED	NGVD	NATIONAL GEODETIC VERTICAL DATUM
APPROX, ±	APPROXIMAT(-E, -LY)	NO.	NUMBER
ASPH	ASPHALT	NTS	NOT TO SCALE
AWWA	AMERICAN WATER WORKS ASSOCIATION	NW	NORTHWEST
BC	BLOCK CORNER	OC	ON CENTER
BCR	BEGIN CURB RETURN	OD	OUTSIDE DIAMETER
BGS	BELOW GROUND SURFACE	ODOT	OREGON DEPARTMENT OF TRANSPORTATION
BLDG	BUILDING	OT	OWNERSHIP TIE
BM	BENCHMARK	P	PIPE
BMP	BEST MANAGEMENT PRACTICE	P TRAN	PAD MOUNTED TRANSFORMER
BO	BLOW-OFF	PCC	PORTLAND CEMENT CONCRETE
BOT, BTM	BOTTOM	PEN.	PENETRATION
B.O.W.	BOTTOM OF WALL	PERF	PERFORAT(-E, -ED, -ES, -ION)
CB	CATCH BASIN	P.L., PL	PROPERTY LINE
CDF	CONTROLLED DENSITY FILL	POW V	POWER VAULT
CFS	CUBIC FEET PER SECOND	PP	POWER POLE
CIP	CAST IRON PIPE	PROP.	PROPOSED
CK	CHECK	PS	PUMP STATION
CL, ℄	CENTERLINE	PSF	POUNDS PER SQUARE FOOT
CMP	CORRUGATED METAL PIPE	PSI	POUNDS PER SQUARE INCH
CO	CLEANOUT	PT	PIPE TRENCH
CONC	CONCRETE	PV	PLUG VALVE
CPL	COUPLING	PVC	POLYVINYL CHLORIDE
CTR	CENTER	PVMT	PAVEMENT
CULV	CULVERT	R, RAD	RADIUS
CY	CUBIC YARD	RC	REINFORCED CONCRETE
DEG	DEGREE(-S)	RCP	REINFORCED CONCRETE PIPE
DEQ	OREGON DEPT. OF ENVIRONMENTAL QUALITY	RD	ROOF DRAIN
DI	DUCTILE IRON	RED	REDUCER
DIA	DIAMETER	REQD	REQUIRED
DIM.	DIMENSION(-S)	REQT	REQUIREMENT
DIP, D.I.P.	DUCTILE IRON PIPE	REV	REVISION
DOE	WASHINGTON STATE DEPT. OF ECOLOGY	R/W, ROW	RIGHT OF WAY
DR	DIMENSION RATIO	RT	RIGHT
DS	DOWNSPOUT	S	SOUTH, SLOPE
DTL	DETAIL	SAN	SANITARY
DWG(S)	DRAWING(-S)	SB	SOIL BORING
E	EAST	SCH	SCHEDULE
EA	EACH	SD	STORM DRAIN
ECR	END CURB RETURN	SDMH	STORM DRAIN MANHOLE
EG	EXISTING GROUND	SDR	STANDARD DIMENSION RATIO
EGL	ENERGY GRADE LINE	SE	SOUTHEAST, SPOT ELEVATION
EL, ELEV	ELEVATION	SF	SQUARE FEET
ELB, ELL	ELBOW	SHT	SHEET
ELEC	ELECTRIC(-AL)	SL	SLOPE
ENGR	ENGINEER	SPEC	SPECIFICATIONS
ENTR	ENTRANCE	SQ	SQUARE
EP, EOP	EDGE OF PAVEMENT	SQ IN	SQUARE INCHES
EQ	EQUAL(-LY)	SRF	SURFACE
EST	ESTIMATE(-D)	SS	SANITARY SEWER
EXC	EXCAVATE	SSMH	SANITARY SEWER MANHOLE
EX., EXTG.	EXISTING	ST	STREET
EW	EACH WAY	STA	STATION
FG	FINISH GRADE	STD	STANDARD
FH	FIRE HYDRANT	STL	STEEL
FL	FLOW LINE	STM	STORM
FLG	FLANGE	STRUCT	STRUCTUR(-E, -AL)
FM	FORCE MAIN	SW, S/W	SIDEWALK
FT	FEET, FOOT	TB	THRUST BLOCK
GAL	GALLON(-S)	TC	TOP OF CURB
GM	GAS METER	TEL, TELE	TELEPHONE
GND	GROUND	TEL R	TELEPHONE RISER
GP	GUARD POST	TEL V	TELEPHONE VAULT
GPM	GALLONS PER MINUTE	TEMP	TEMPORARY
GV	GAS VALVE, GATE VALVE	TW	TOP OF WALL
HDD	HORIZONTAL DIRECTIONAL DRILLING	TP	TOP OF PAVEMENT, TEL POLE, TURNING POINT
HDPE	HIGH DENSITY POLYETHYLENE	TRANS TWR	TRANSMISSION TOWER
HGL	HYDRAULIC GRADE LINE	TYP	TYPICAL
HGT, HT	HEIGHT	UG	UNDERGROUND
HP	HORSEPOWER	UGE	UNDERGROUND ELECTRIC
ID	INSIDE DIAMETER	VERT	VERTICAL
IE	INVERT ELEVATION	VOL	VOLUME
IN	INCH(-ES)	W	WIDTH; WIDE; WEST
IP	IRON PIPE	W/	WITH
L	LENGTH	WC	WITNESS CORNER
LB	POUND(-S)	WM	WATER METER
LF	LINEAR FEET	W/O	WITHOUT
LONG.	LONGITUDINAL	WSE	WATER SURFACE ELEVATION
LT	LEFT	WTR	WATER
MAX	MAXIMUM	WV	GATE/GENERAL WATER VALVE
MC	MEANDER CORNER	YD	YARD
MFA	MAUL FOSTER & ALONGI, INC.	YR	YEAR
MFR	MANUFACTURER		
MH	MANHOLE		
MIC	MONUMENT (IN CASE)		
MIN	MINIMUM; MINUTE		

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

SYMBOL EXIST. PROP. — DESCRIPTION

- GAS METER
- GAS VALVE
- PAD MOUNTED TRANSFORMER
- POWER VAULT
- TRANSMISSION TOWER
- UTILITY POLE
- UTILITY POLE ANCHOR
- TELEPHONE RISER
- TELEPHONE VAULT
- LIGHT POLE

SURVEY SYMBOLS

SYMBOL THEOR./EXIST. FOUND/PROP. — DESCRIPTION

- ANGLE POINT
- BENCH MARK
- BLOCK CORNER
- IRON PIPE
- MONUMENT (IN CASE)
- MONUMENT (SURFACE)
- OWNERSHIP TIE
- SECTION DATA
- SECTION CENTER
- SECTION CORNER
- QUARTER CORNER
- SIXTEENTH CORNER
- CLOSING CORNER
- MEANDER CORNER
- WITNESS CORNER
- SOIL BORING
- SPOT ELEVATION
- TAX LOT / PARCEL NUMBER

WATER SYMBOLS

SYMBOL EXIST. PROP. — DESCRIPTION

- CAP/PLUG
- COUPLING
- GUARD POST
- REDUCER
- THRUST BLOCK
- WATER METER
- DOUBLE CHECK VALVE ASSEMBLY
- FIRE HYDRANT
- AIR RELIEF
- BLOW-OFF VALVE
- CHECK VALVE
- VALVE
- BENDS:
- 90 DEGREE BEND
- 45 DEGREE BEND
- 22.5 DEGREE BEND
- 11.25 DEGREE BEND
- VERTICAL BEND
- REDUCER
- TEE
- CROSS

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST. PROP. — DESCRIPTION

- SAN. SEWER CLEAN OUT
- SAN. SEWER MANHOLE
- STORM DRAIN CATCH BASIN
- STORM DRAIN CULVERT
- STORM DRAIN MANHOLE
- AREA DRAIN

CHANNELIZATION SYMBOLS

SYMBOL EXIST. PROP. — DESCRIPTION

- BIKE PATH
- HANDICAP SYMBOL
- H.O.V. LANE SYMBOL
- ONLY
- RAILROAD CROSSING
- SCHOOL
- STOP
- RAISED MARKERS:
- LANE MARKERS TYPE I
- LANE MARKERS TYPE II
- SIGN

MISCELLANEOUS SYMBOLS

SYMBOL EXIST. PROP. — DESCRIPTION

- MONITORING WELL

Line types

- EXISTING GRADE MAJOR CONTOUR (5.0' INTERVAL)
- EXISTING GRADE MINOR CONTOUR (1.0' INTERVAL)
- EXISTING STORMDRAIN PIPE
- EXISTING WATER PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING AC PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- EXISTING FENCE LINE
- EXISTING ROAD CENTERLINE
- EXISTING RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL)
- PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL)
- PROPOSED STORM DRAIN PIPE
- PROPOSED WATER PIPE
- PROPOSED SANITARY SEWER PIPE
- PROPOSED AC PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED GRAVEL
- PROPOSED FENCE LINE
- PROPOSED ROAD CENTERLINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
- EXISTING OVERHEAD POWER
- EXISTING UNDERGROUND POWER
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND GAS
- EXISTING LANDFILL BOUNDARY

SECTION NUMBER — SECTION REFERENCE SHEET — TYPICAL SECTION CALLOUT

DETAIL NUMBER — DETAIL REFERENCE SHEET — TYPICAL DETAIL CALLOUT

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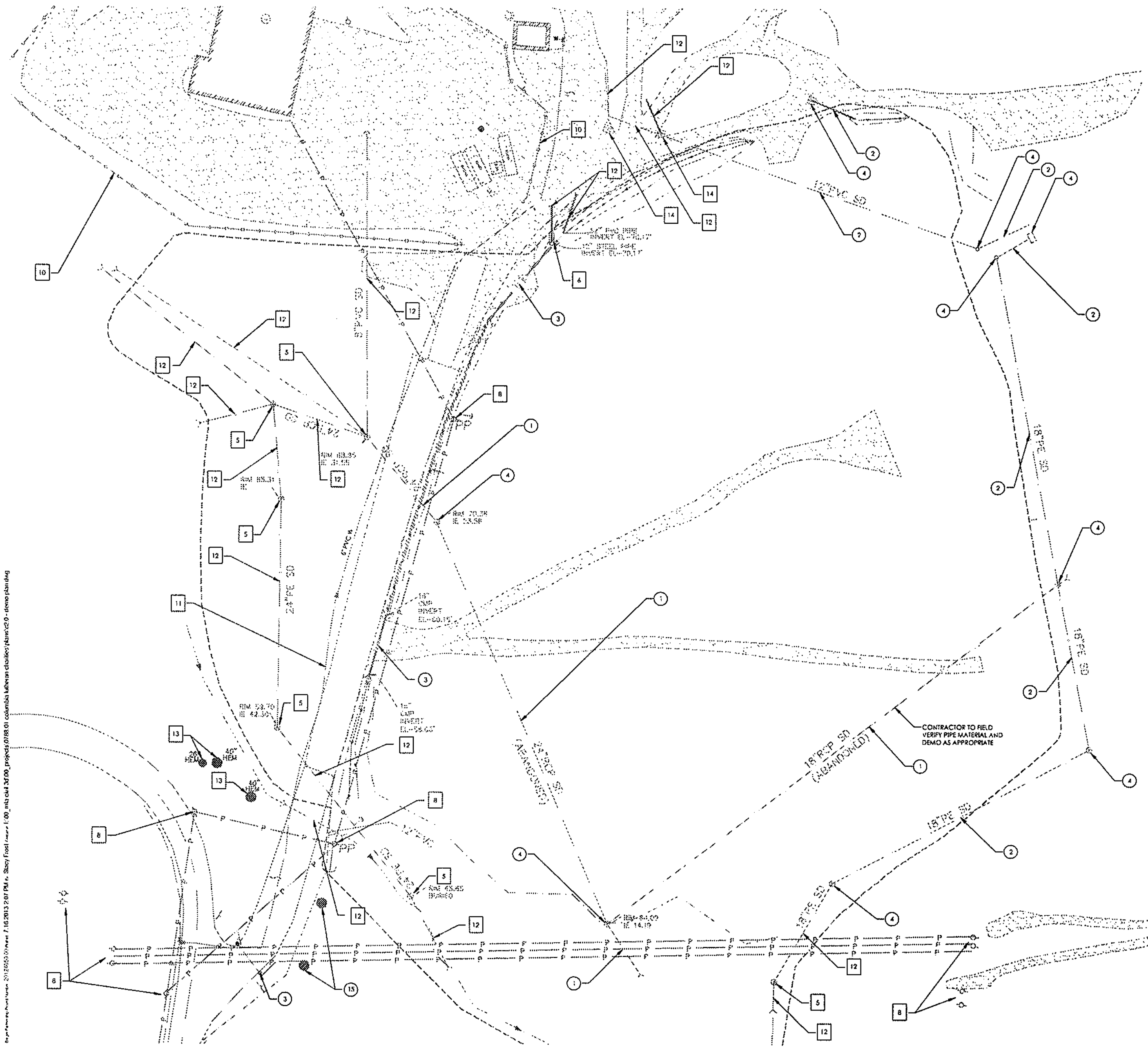
CMH / Astoria School District Sports Fields

Astoria, OR

95% CONSTRUCTION DOCUMENTS
07.17.13
M. REITER / S. FROST
MASTER LEGEND
C1.1



DEMO NOTES:

1. PLUG EXTG. RCP AT UPSTREAM AND DOWNSTREAM ENDS WITH 3000 PSI CEMENT CONCRETE OR GROUT SEAL FOR A MINIMUM LENGTH OF 12" WITH NO VOIDS.
2. PLUG EXTG. PE OR PVC PIPE PER NO. 1 ABOVE AND FILL ENTIRE LENGTH OF PIPE WITH CONTROLLED LOW STRENGTH MATERIAL MEETING REQUIREMENTS OF 2008 ODOT STD SPECIFICATION 00442 WITH NO VOIDS.
3. EXCAVATE, REMOVE, AND DISPOSE OF CMP, GATE POSTS, GATE, AND APPURTENANCES ACCORDING TO ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
4. REMOVE THE MANHOLE CONE OR FLAT TOP AND MANHOLE SECTIONS, OR THE CATCH BASIN FRAME, TO A MINIMUM DEPTH OF 3 FEET BELOW FINISH GRADE AND FILL THE REMAINING MANHOLE BARREL OR CATCH BASIN WITH GRANULAR MATERIAL MEETING THE REQUIREMENTS OF 2008 ODOT STD SPECIFICATION SECTION 02630. COMPACT THE GRANULAR MATERIAL TO 90% OF MAXIMUM DENSITY ACCORDING TO ASTM D 698.
15. EXCAVATE, REMOVE AND DISPOSE OF TREE ACCORDING TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

5	PROTECT EXTG. MANHOLE
6	PROTECT EXTG. STORMWATER QUALITY UNIT
7	PROTECT EXTG. STRUCTURE.
8	PROTECT EXTG. POWER POLE.
9	PROTECT EXTG. LIGHT.
10	PROTECT EXTG. FENCE.
11	PROTECT EXTG. WATER LINE.
12	PROTECT EXTG. STORM LINE.
13	PROTECT EXTG. TREE.
14	PROTECT EXTG. CATCH BASIN

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Astoria, OR

REGISTERED PROFESSIONAL ENGINEER
65669PE
OREGON
NOV. 13, 2007
STACY J. FROST

RENEWS:

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07.17.13
REVISIONS

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DEMO PLAN
SHEET NUMBER
C2.0

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MASTER GRADING
PLAN
C3.0
NOTE:
1) GRADING ACTIVITIES HAVE OCCURRED ONSITE SINCE THE 2009 DOGAMI LIDAR SURVEY WAS CONDUCTED. LIDAR DATA MAY NOT REPRESENT ACTUAL SITE CONDITIONS.
2) EXISTING GRADE CONTOURS REFLECT SUPPLEMENTAL SURVEY DATA WITHIN THE BOUNDARY SHOWN. THE SUPPLEMENTAL SURVEY DATA REFLECTS THE SITE CONDITIONS AS OF 6/29/13. IT IS INTENDED TO PROVIDE THE ACTUAL LOCATION OF CONTOURS AT THE TIME OF THE SURVEY.
APPROX BOUNDARY OF WASTE
SHEET LEGEND
SHEET C3.1
SHEET C3.2
SHEET C3.3
SHEET C3.4
MAUL FOSTER ALONGI
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SUITE 400
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www.maulfoster.com
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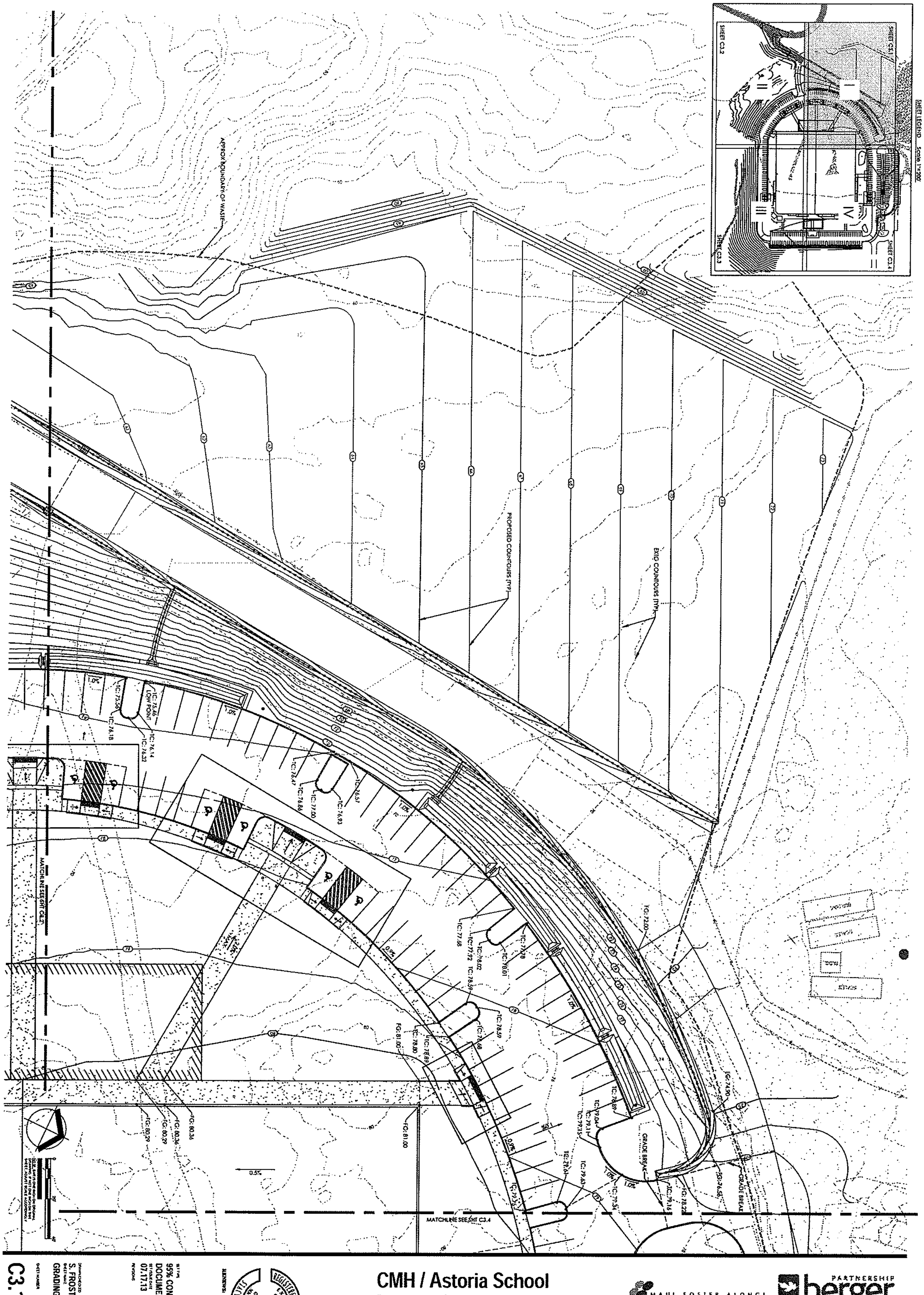
206.326.9817
design@bergger.com



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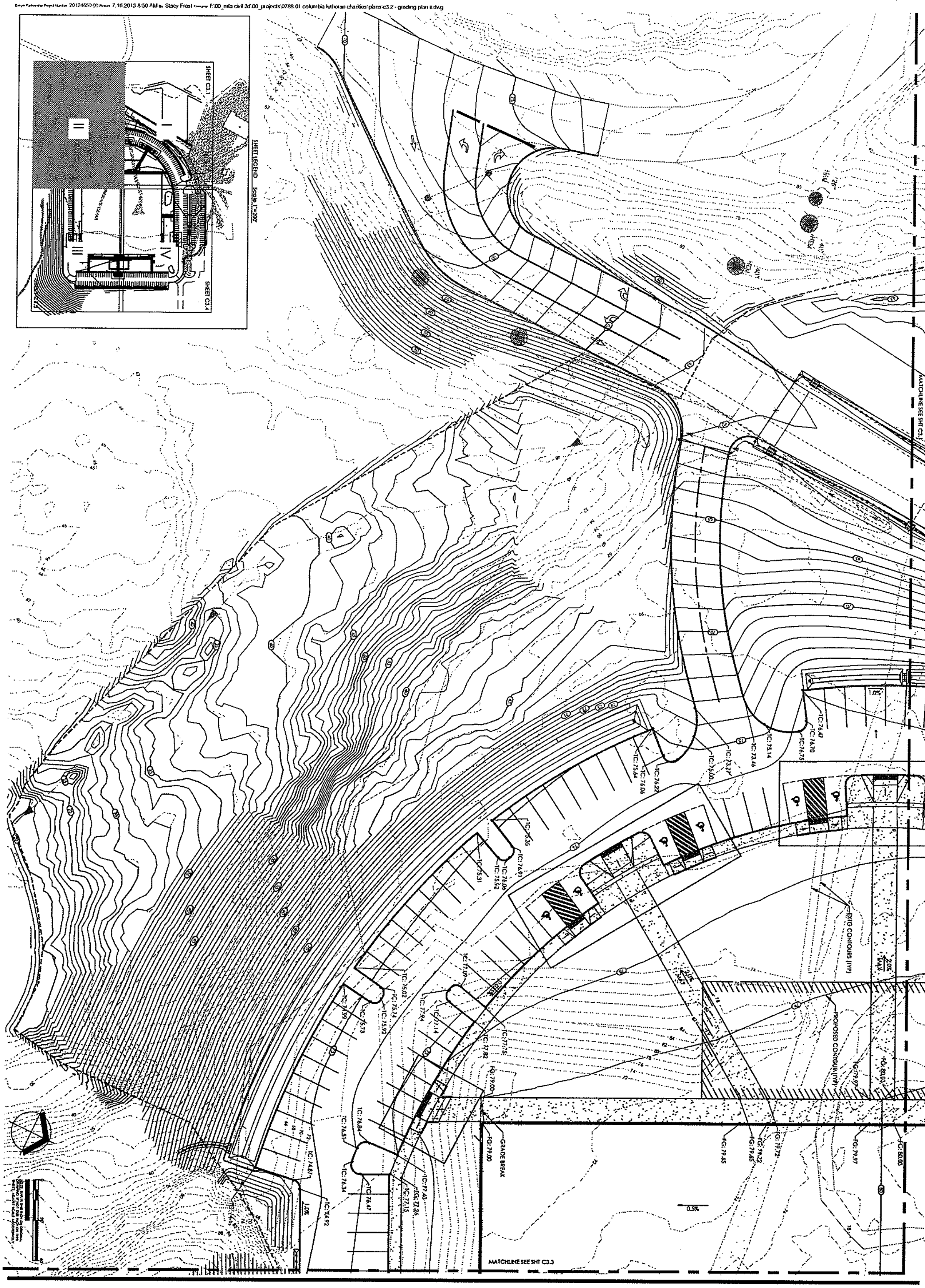
S. FROST

GRADING PLAN I

C3.1

20124650.00 7.16.2013 8:50 AM Stacy Frost f:\100_mfa civil 3d\00_projects\0788.01 columbia lutheran charities\plans\c3.2 - grading plan ii.dwg



C3.2

S. FROST

GRADING PLAN II

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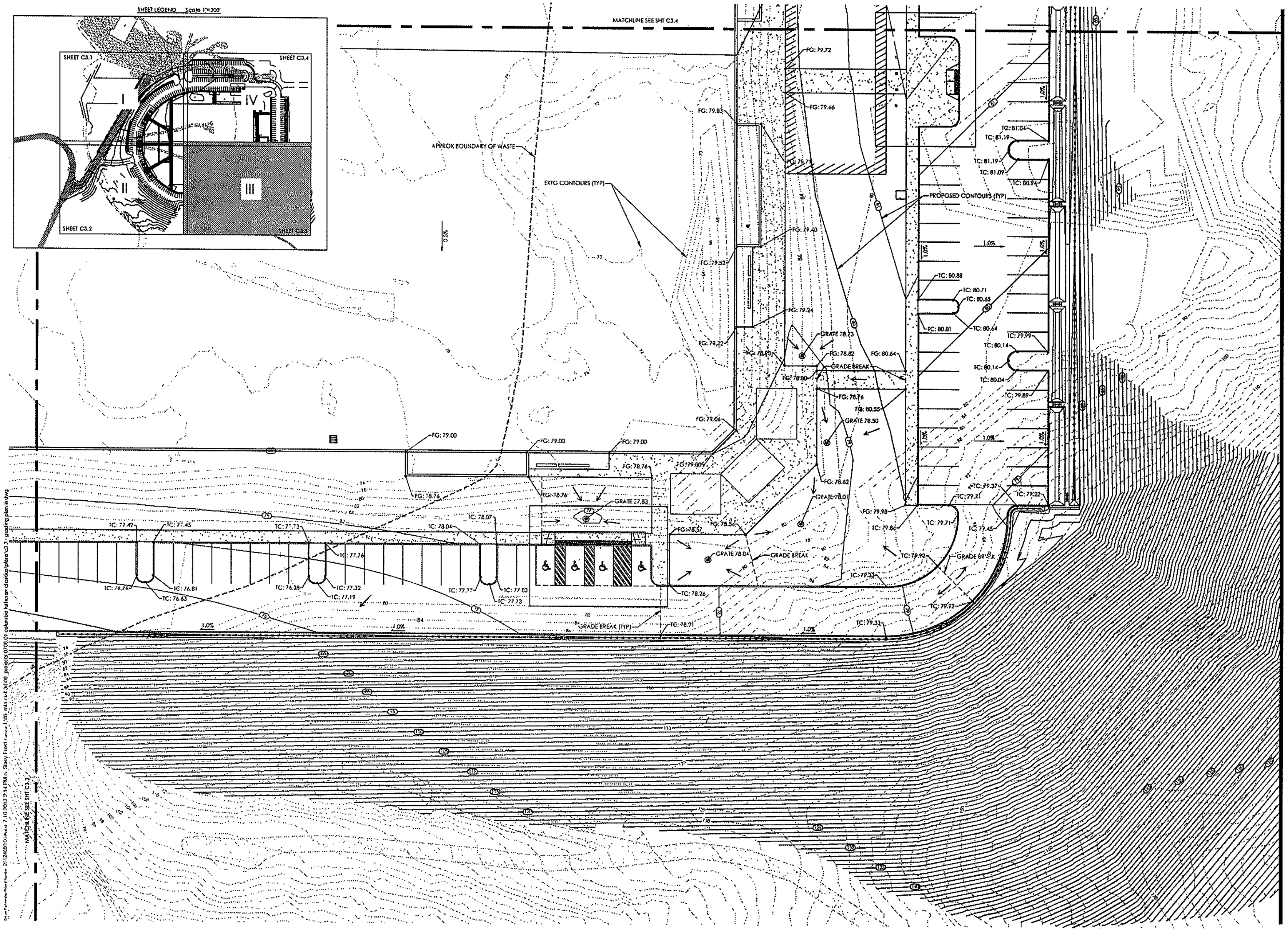

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OREGON
STACI L. FROST

RENEWS:

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S. FROST
SHEET NAME
GRADING PLAN III
SHEET NUMBER
C3.3

CMH / Astoria School District Sports Fields

Astoria, OR

95% CONSTRUCTION DOCUMENTS
01.17.13

S. FROST
GRADING PLAN IV

C3.4

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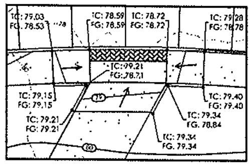
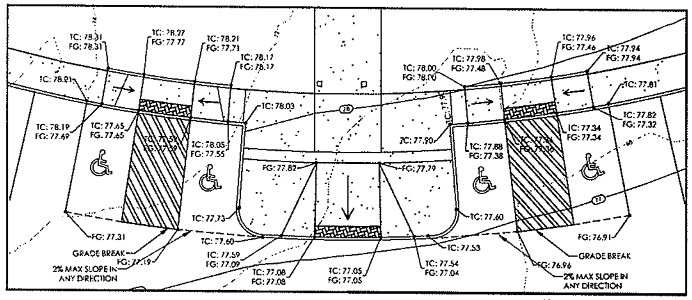


1 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'



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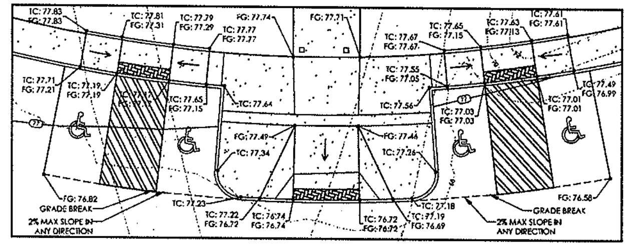

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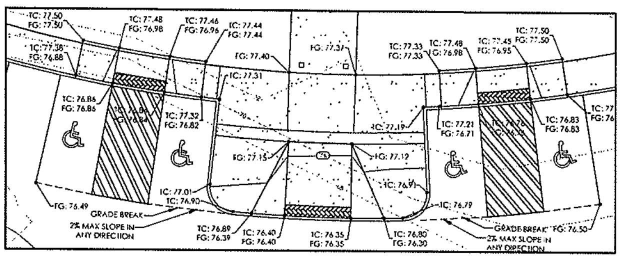
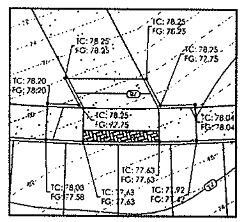
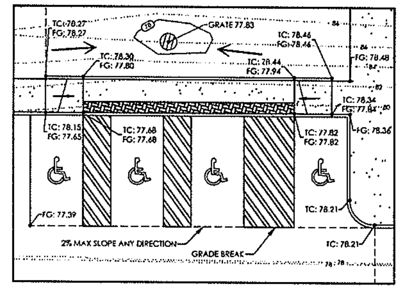


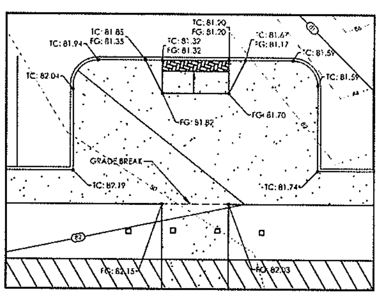
4 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'



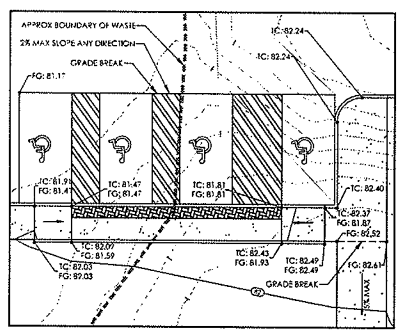
5 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'



6 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'



7 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'



8 / C3.0 ADA RAMP DETAIL
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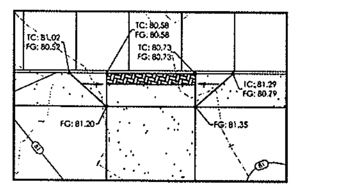

9 / C3.0 ADA RAMP DETAIL
SCALE: 1"=10'

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Astoria, OR

REGISTERED PROFESSIONAL ENGINEER OREGON STACY J. FROST

RENEWS:

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REVISIONS

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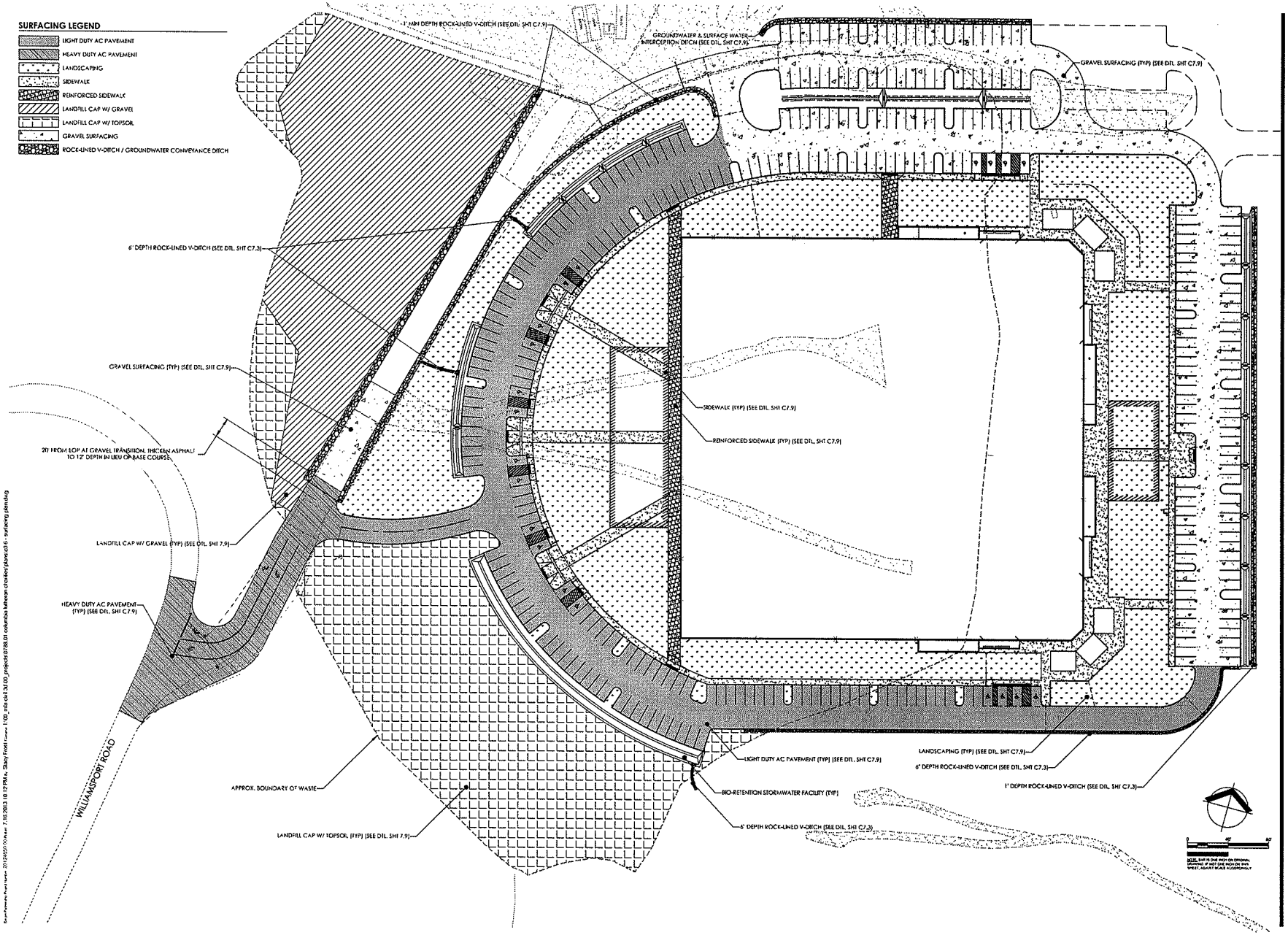
SHEET NAME
GRADING DETAILS
SHEET NUMBER
C3.5



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REGISTERED PROFESSIONAL ENGINEER
65669PE
OREGON
JULY 9, 1985
STACY L. FROST

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SHEET NAME
SURFACING PLAN

SHEET NUMBER
C3.6

CURB RETURN DATA

NO.	Δ	R	L	BCR STA.	ECR STA.	TC ELEVATIONS * (CLOCKWISE) BCR	¼ PT	½ PT	¾ PT	ECR
1	35°36'30"	25.00	15.54	0+11.08 (75.83' RT)	0+01.64 (87.85' RT)	70.22	70.15	69.77	69.39	69.35
2	164°04'51"	23.00	65.87	0+34.10 (40.43 LT)	1+02.53 (12.00 LT)	75.73	74.20	72.67	71.15	69.64
3	36°57'58"	50.00	32.26	0+73.59 (33.18 RT)	0+91.47 (28.18 RT)	70.61	70.42	70.25	70.08	69.89
4	74°07'31"	25.00	32.34	2+20.25 (41.64 RT)	1+94.50 (25.87 RT)	62.53	62.57	63.08	63.55	63.48
5	106°10'20"	10.00	18.53	2+51.30 (20.25 RT)	2+42.98 (33.92 RT)	62.39	62.42	62.45	62.48	62.51

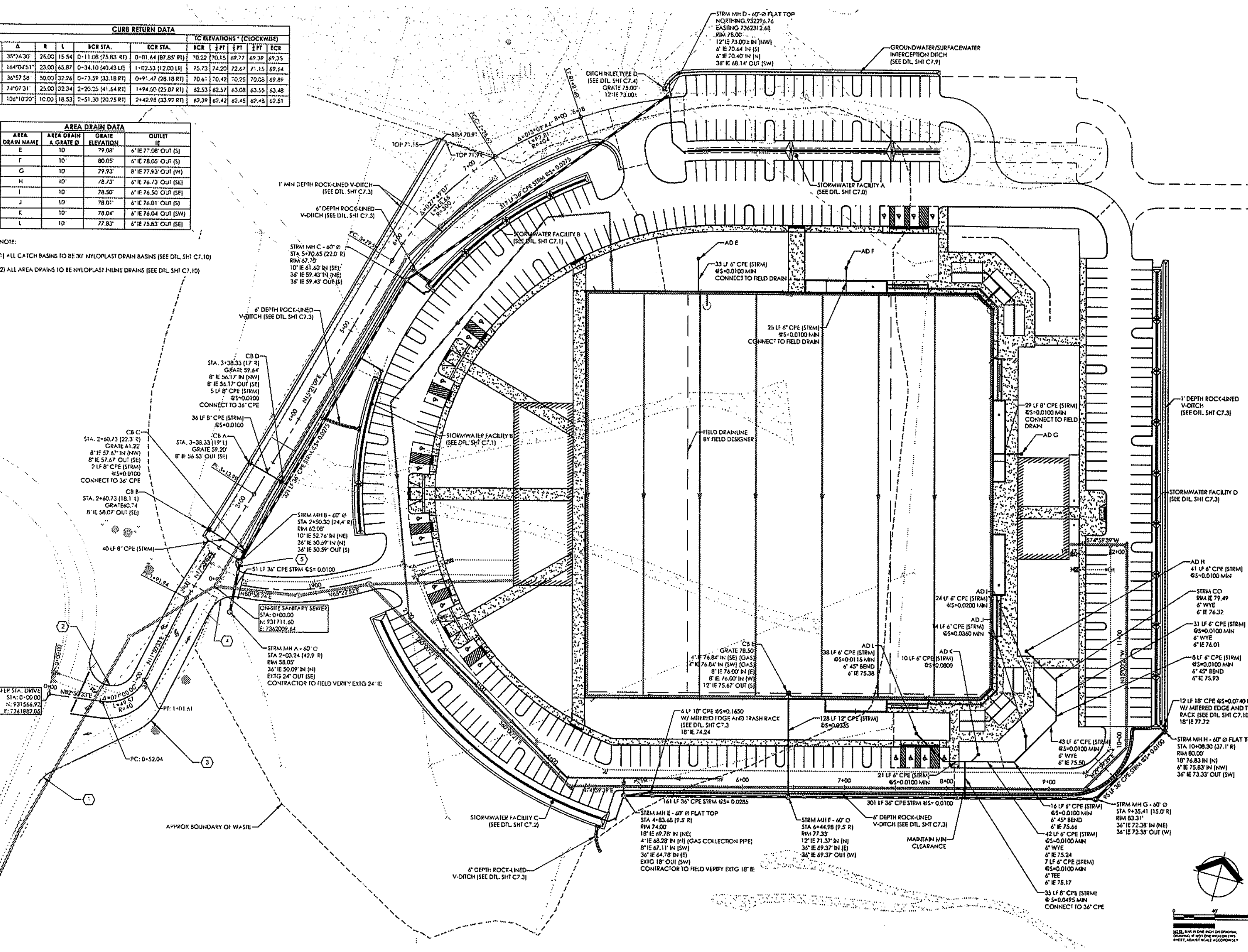
AREA DRAIN DATA

AREA DRAIN NAME	AREA DRAIN & GRATE Ø	GRATE ELEVATION	OUTLET IE
E	10"	79.08'	6" IE 77.08' OUT (S)
F	10"	80.05'	6" IE 78.05' OUT (S)
G	10"	79.93'	8" IE 77.93' OUT (W)
H	10"	78.73'	6" IE 76.73' OUT (SE)
I	10"	78.50'	6" IE 76.50' OUT (SE)
J	10"	78.01'	6" IE 76.01' OUT (S)
K	10"	78.04'	6" IE 76.04 OUT (SW)
L	10"	77.83'	6" IE 75.83' OUT (SE)

NOTE:

1) ALL CATCH BASINS TO BE 30" NYLOPLAST DRAIN BASINS (SEE DTL. SHT C7.10)

2) ALL AREA DRAINS TO BE NYLOPLAST INLINE DRAINS (SEE DTL. SHT C7.10)



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Astoria, OR

REGISTERED PROFESSIONAL ENGINEER — OREGON — STACY J. FROST

RENEWS:

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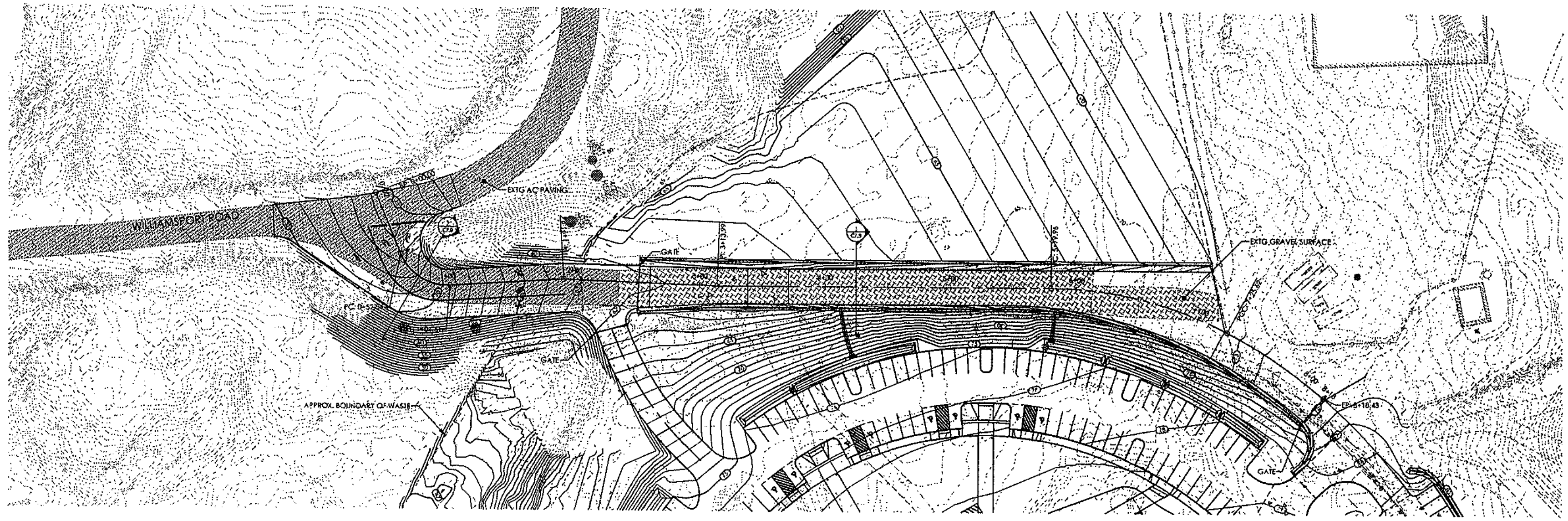
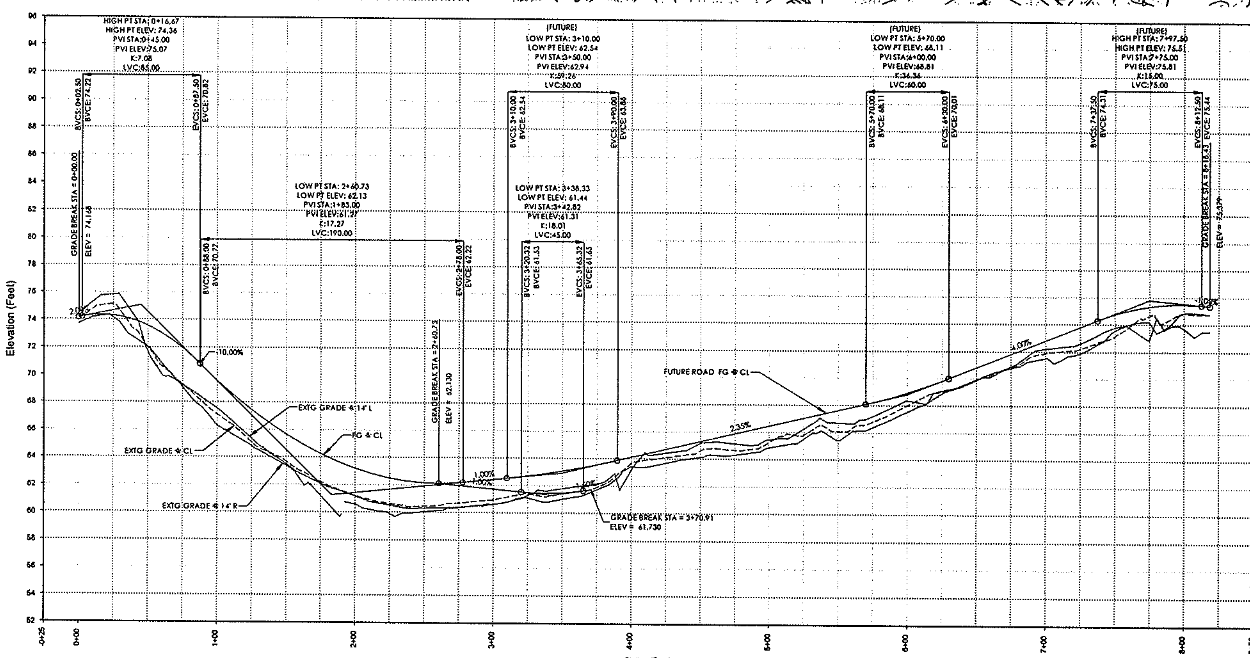
M. REITER / S. FROST

STREET AND STORM DRAINAGE PLAN

C4.0





PROFILE VIEW OF SECTION TRANSFER STA. DRIVE
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10

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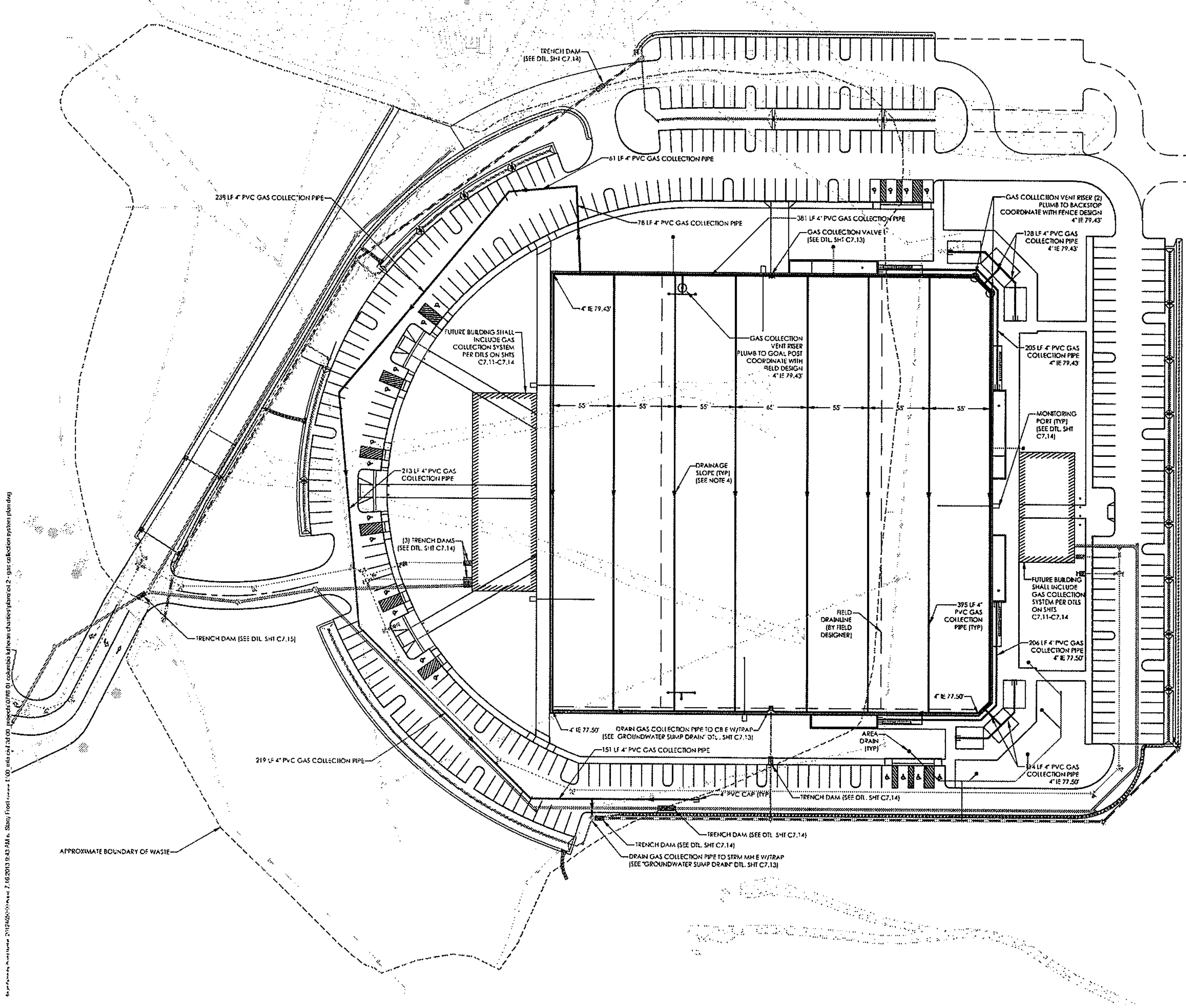
M. REITER / S. FROST
STREET PROFILE

C4.1



NOTES:

1) ALL GAS COLLECTION PIPE BENDS SHALL BE 45° OR 90° 4" PVC BENDS (AS APPROPRIATE) UNLESS OTHERWISE NOTED.
2) ALL GAS COLLECTION PIPE TEES SHALL BE 4" PVC TEES UNLESS OTHERWISE NOTED.
3) 4" PVC GAS COLLECTION PIPE SHALL BE MINIMUM SCHEDULE 40, SLOTTED OR PERFORATED. DOWN FACING PERFORATIONS ONLY.
4) ARROWS SHOW SLOPE OF 4" PVC GAS COLLECTION PIPE FOR DRAINAGE TO CATCH BASIN. SLOPE PIPE WITH FIELD GRADING UNLESS OTHERWISE NOTED.
5) SUB-FIELD GAS COLLECTION SYSTEM TO CONFORM WITH DTL. SHT C7.14. SUB-PAVEMENT GAS COLLECTION SYSTEM TO CONFORM WITH DTL. SHT C7.13.
6) GAS COLLECTION VENT RISERS SHALL HAVE AV-4-PVC AURA PVC VENT BY ACTIVE VENTILATION PRODUCTS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS

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STACY J. FROST

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M. REITER / S. FROST
GAS COLLECTION SYSTEM PLAN

C4.2

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OREGON
JULY 1, 2005
RENEWAL

ISSUED
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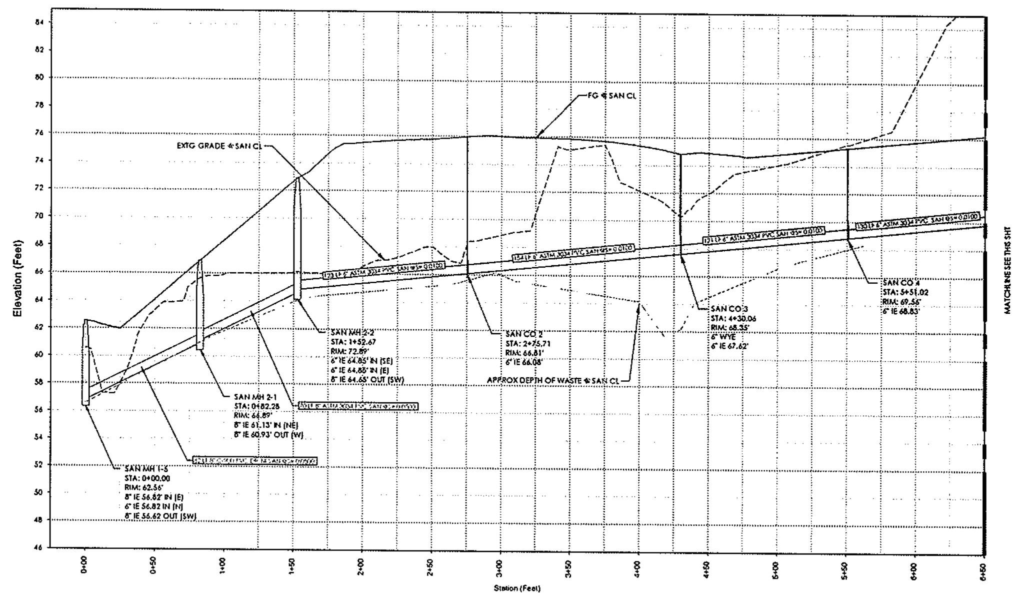
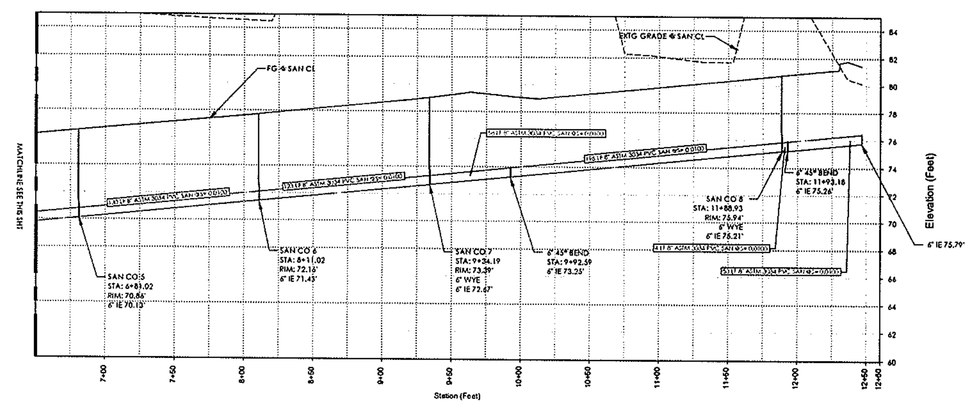
PREPARED
M. REITER / S. FROST

WATER AND SANITARY SEWER PLAN

C5.0



PROFILE VIEW OF PROPOSED ONSITE SANITARY SEWER PROFILE STA 0+00-6+50
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10



PROFILE VIEW OF PROPOSED ONSITE SANITARY SEWER PROFILE STA. 6+50-12+50
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10

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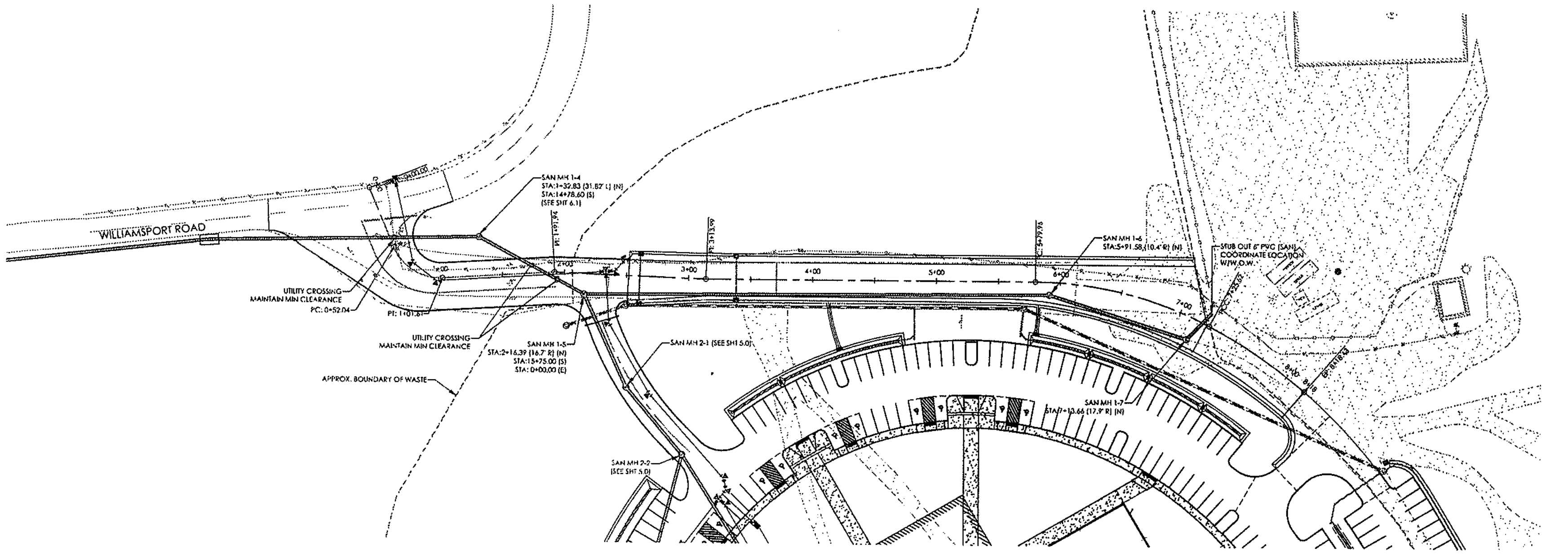
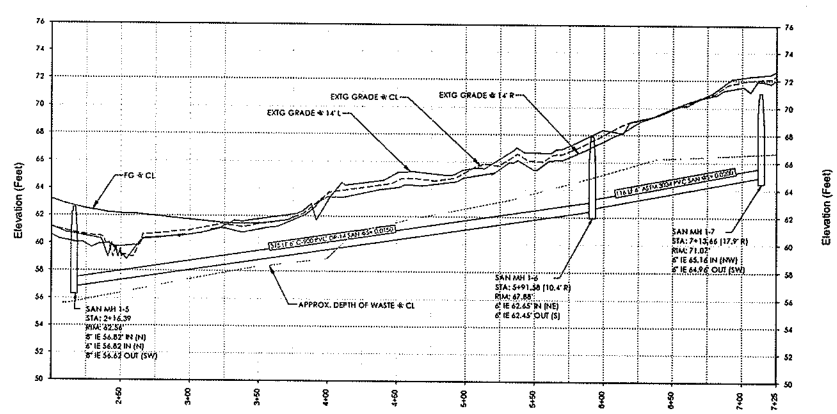
M. REITER / S. FROST
ON-SITE SANITARY SEWER PROFILE

C5.1





PROFILE VIEW OF TRANSFER STA. DRIVE PROPOSED SANITARY SEWER
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10

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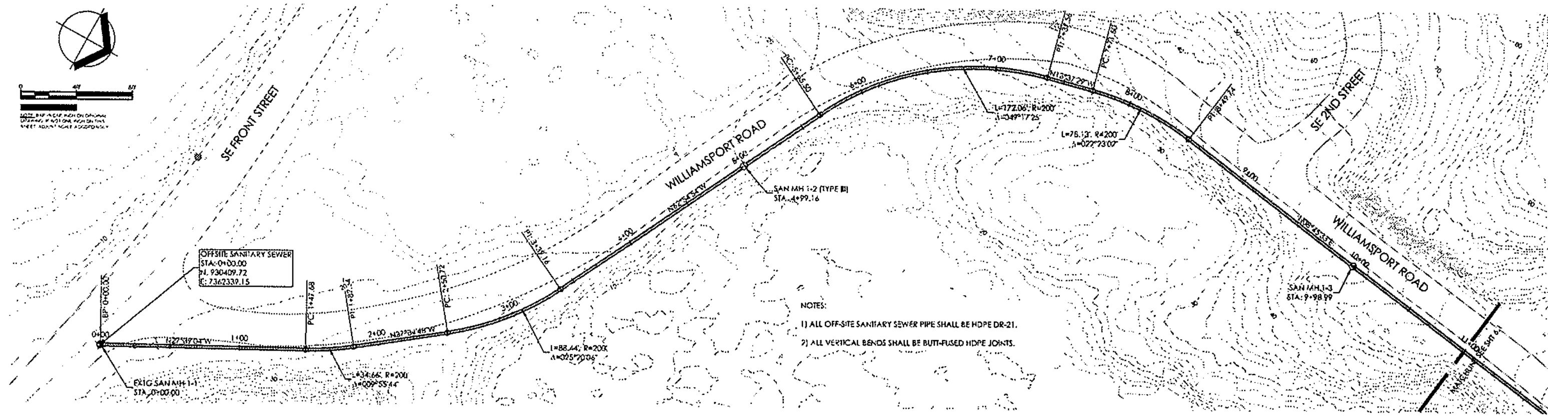
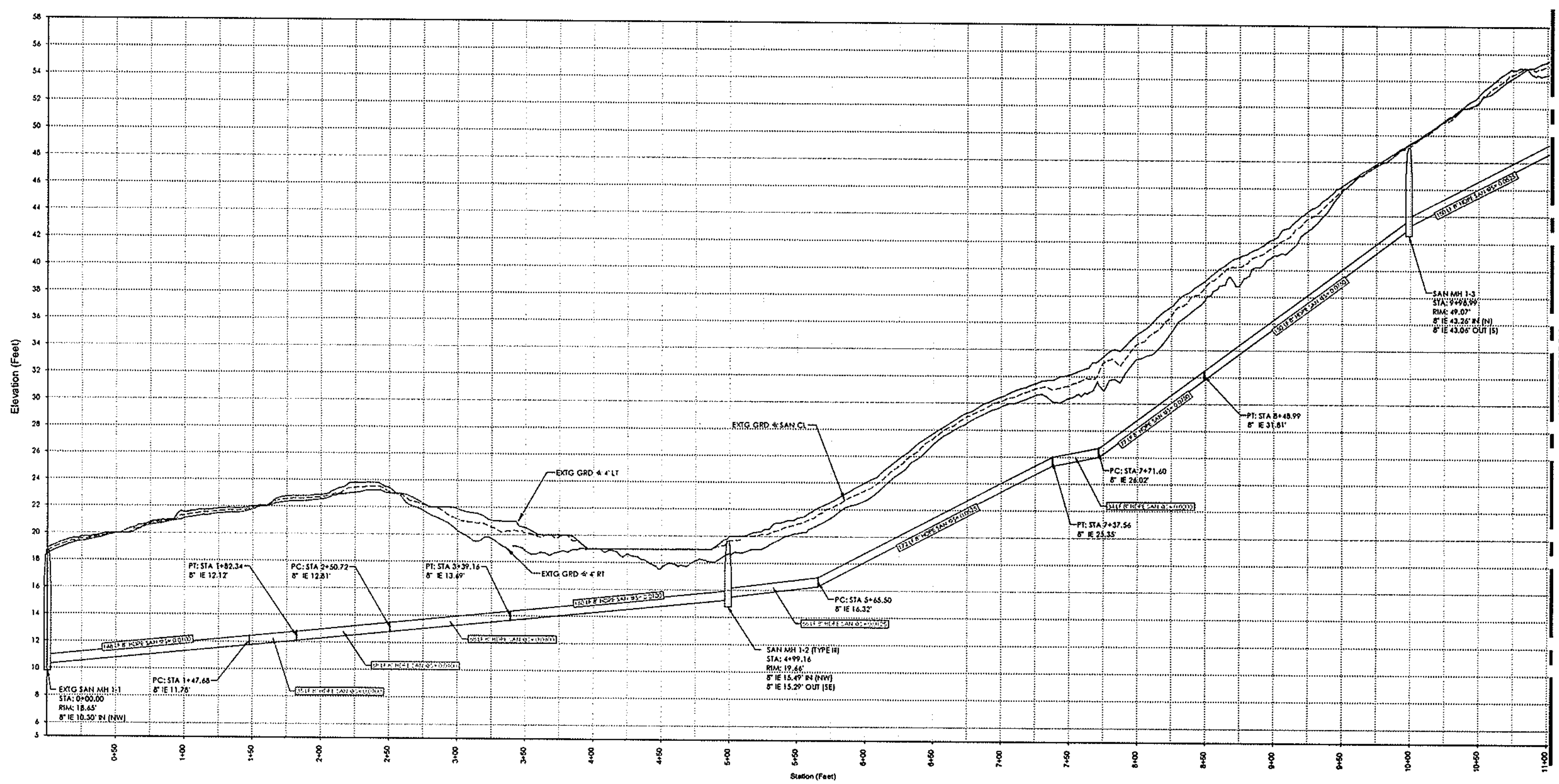
TRA. STA. DR. SANITARY PLAN & PROFILE

C5.2





PROFILE VIEW OF PROPOSED OFF-SITE SANITARY SEWER STA. 00+00 - 11+00
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10

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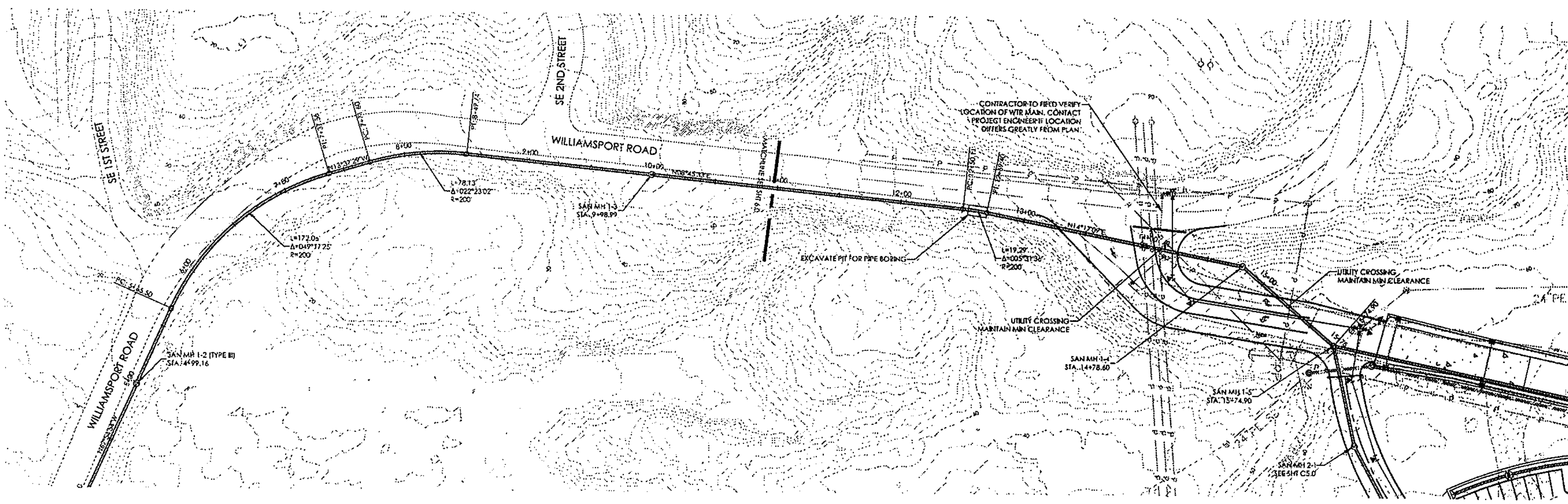
OFF-SITE SANITARY SEWER PLAN & PROFILE
C6.0

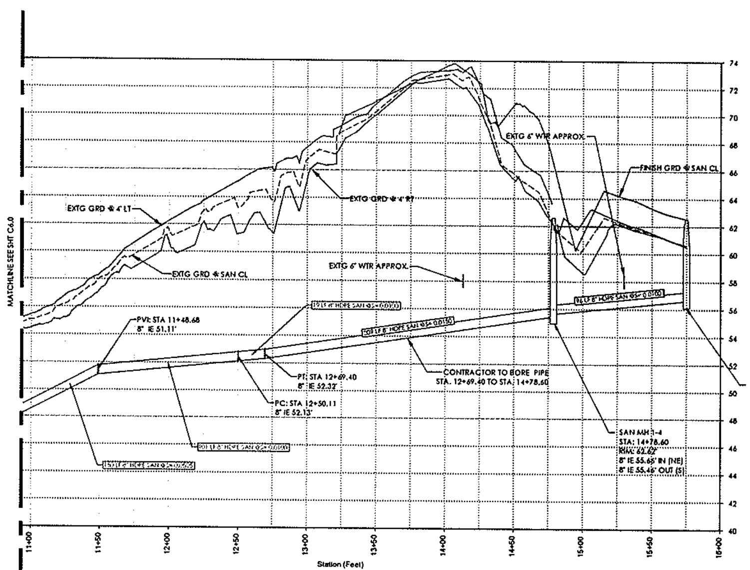


NOTES:

1) ALL OFF-SITE SANITARY SEWER PIPE SHALL BE HDPE DR-21.

2) ALL VERTICAL BENDS SHALL BE BUTT-FUSED HDPE JOINTS.

3) CONTRACTOR TO BORE 8" SANITARY SEWER STA. 12+69.40 TO STA. 14+78.60.



PROFILE VIEW OF PROPOSED OFF-SITE SANITARY SEWER STA 11+00 - 16+00
HORIZONTAL SCALE: 1" = 40' VERTICAL SCALE: 1" = 4'
VERTICAL EXAGGERATION: 10

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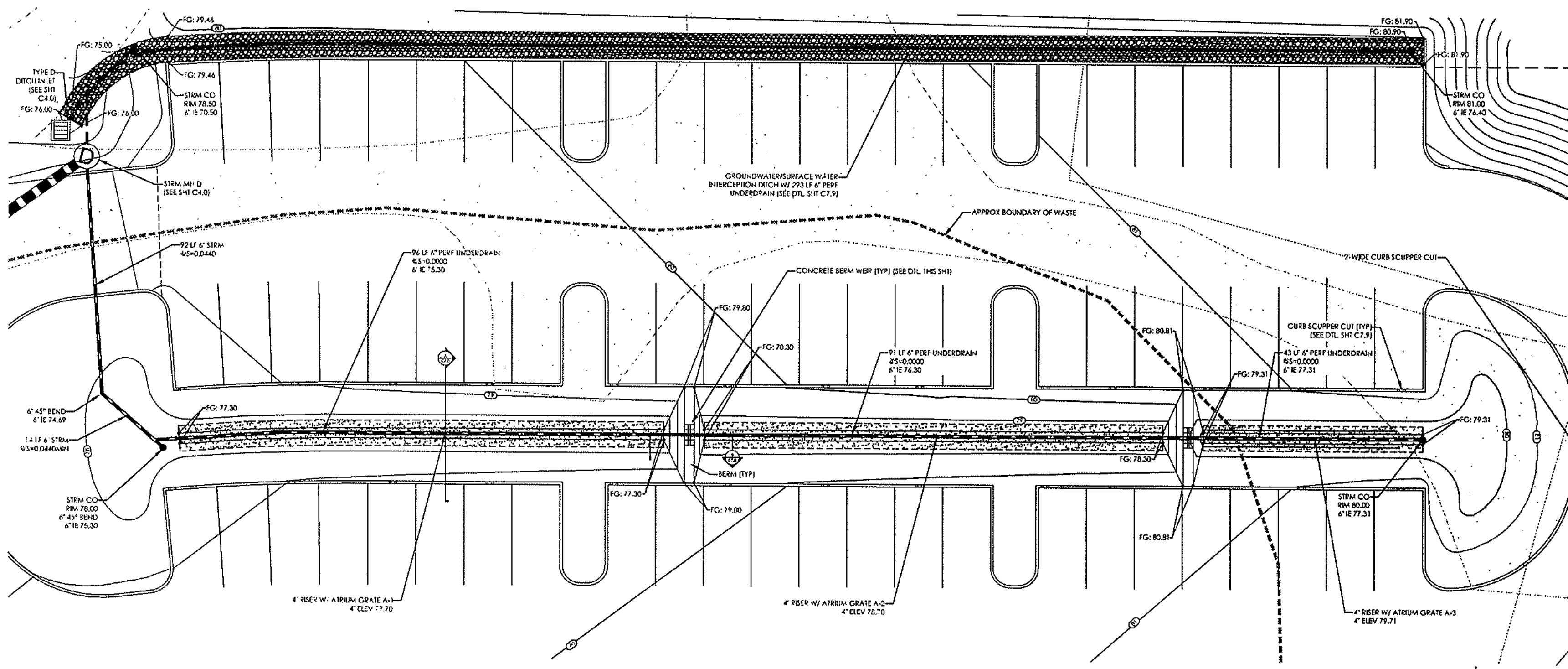
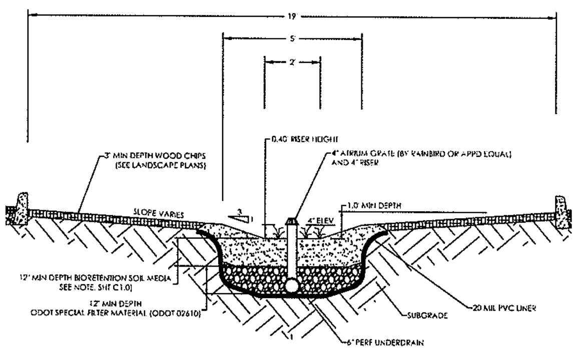
OFF-SITE SANITARY SEWER PLAN & PROFILE

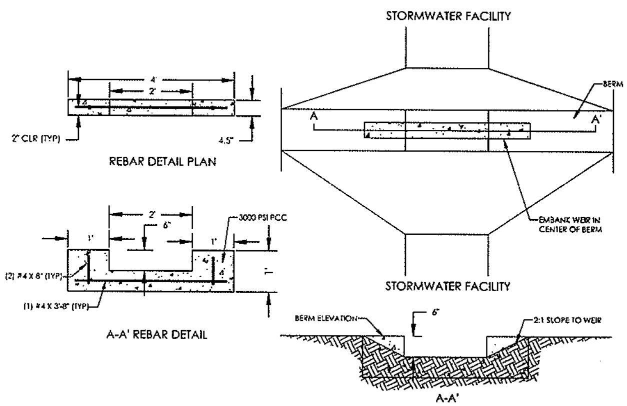
C6.1



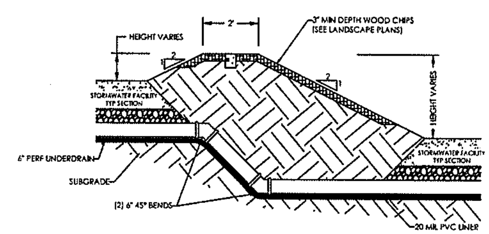
STORMWATER FACILITY "A" PLAN
Scale: 1" = 10'



(A) STORMWATER FACILITY "A" TYPICAL SECTION
SCALE: NTS



CONCRETE BERM WEIR DETAIL
Scale: NTS



(B) STORMWATER FACILITY BERM TYPICAL SECTION
SCALE: NTS

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SHEET NUMBER
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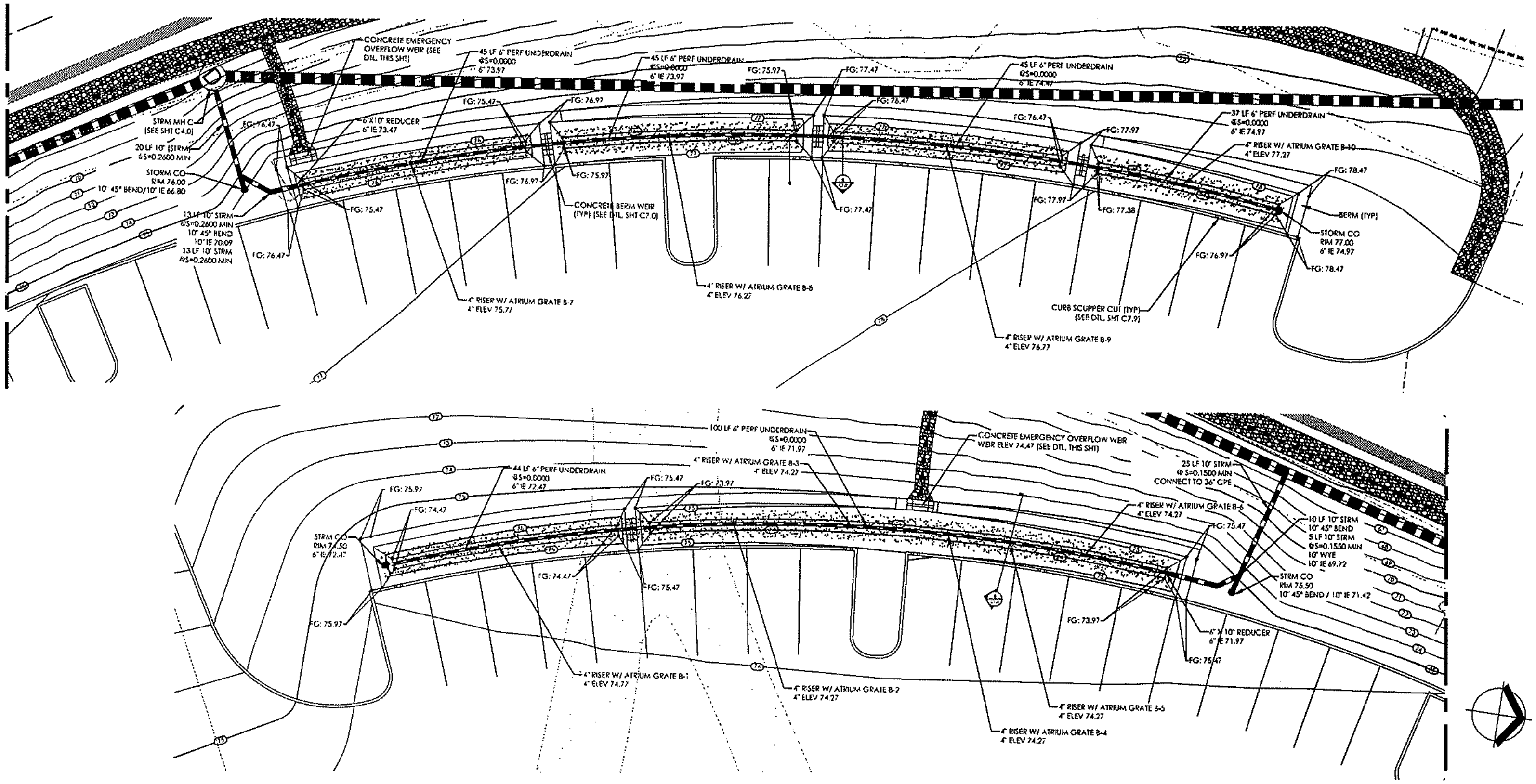
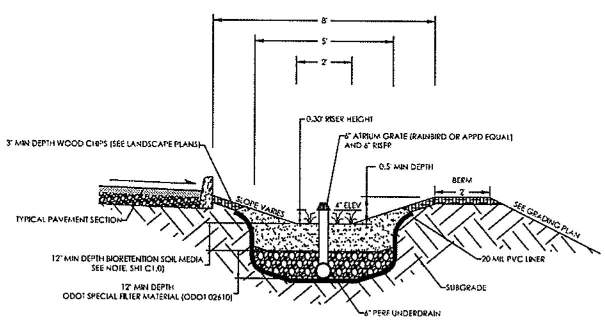


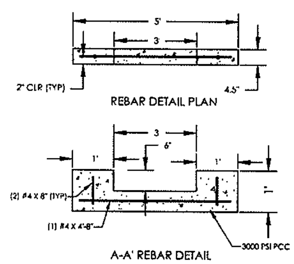
STORMWATER FACILITY "B" PLAN

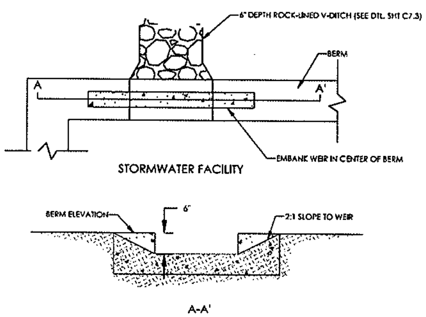
Scale: 1" = 10'



B STORMWATER FACILITY "B" TYPICAL SECTION

SCALE: NTS





CONCRETE EMERGENCY OVERFLOW WEIR DETAIL (TYP OF 4)

Scale: NTS

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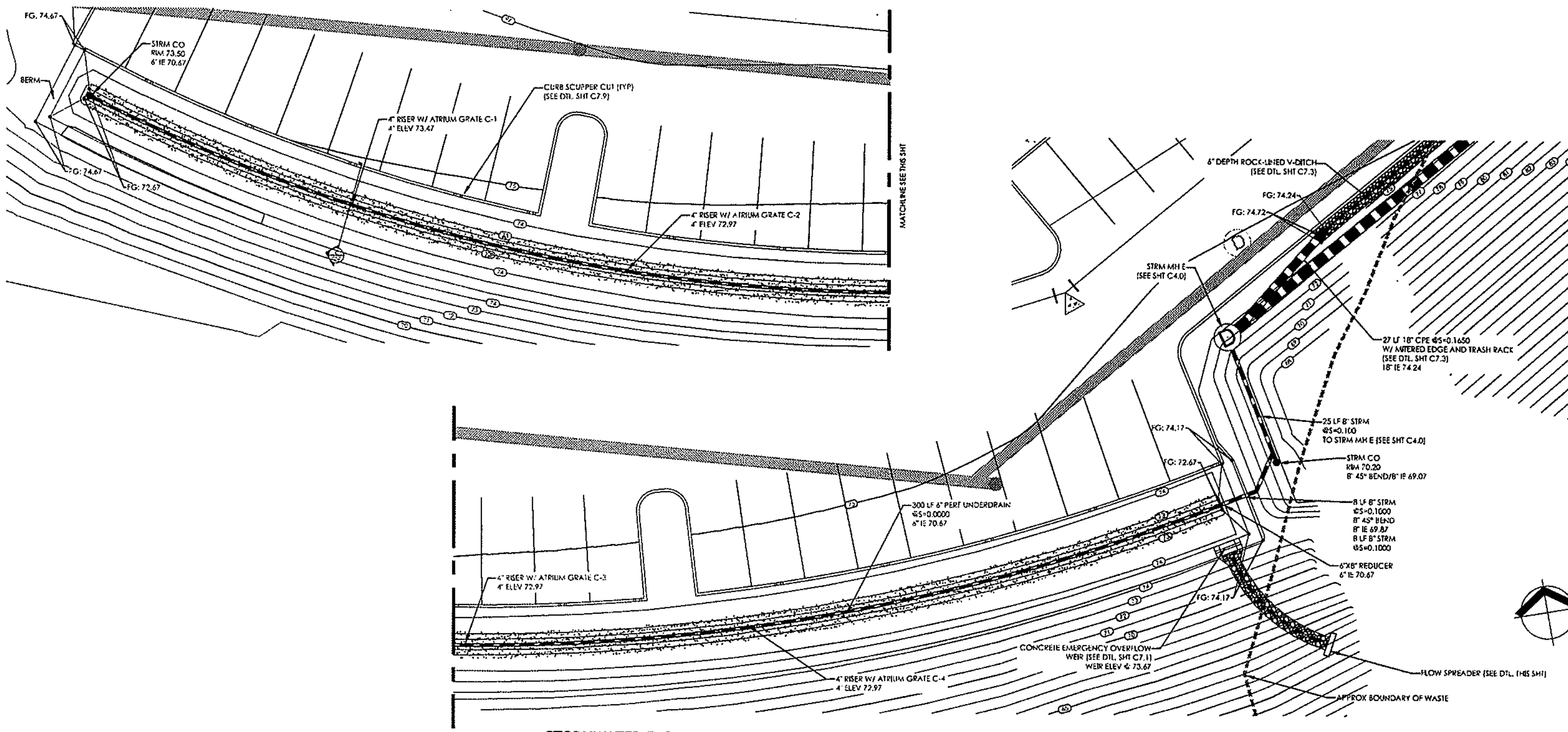
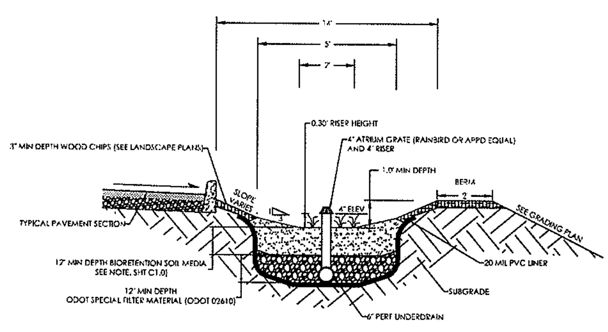
STORMWATER FACILITY B DETAILS

C7.1



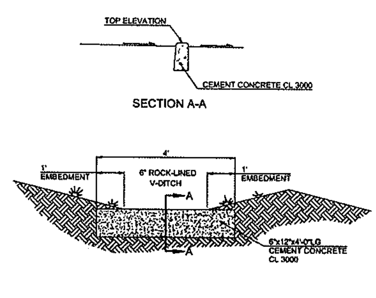
STORMWATER FACILITY "C" PLAN

Scale: 1" = 10'



(C) STORMWATER FACILITY "C" TYPICAL SECTION

SCALE: NTS



FLOW SPREADER

Scale: 1" = 10'

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SHEET NUMBER
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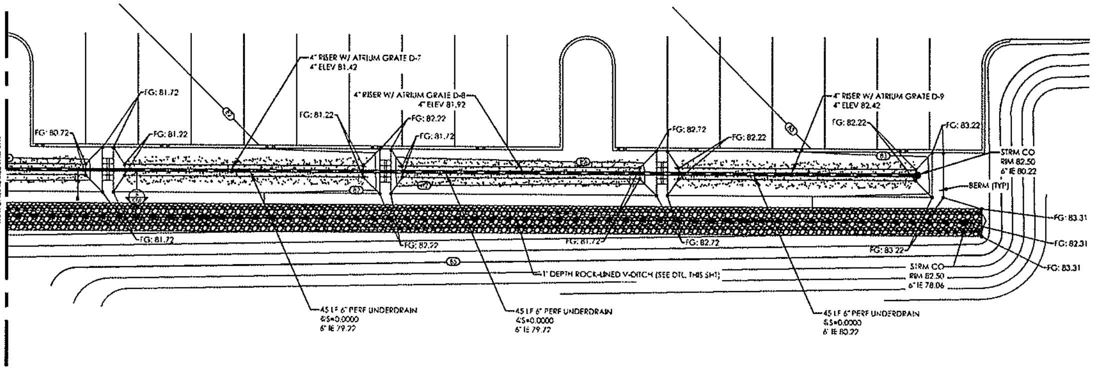
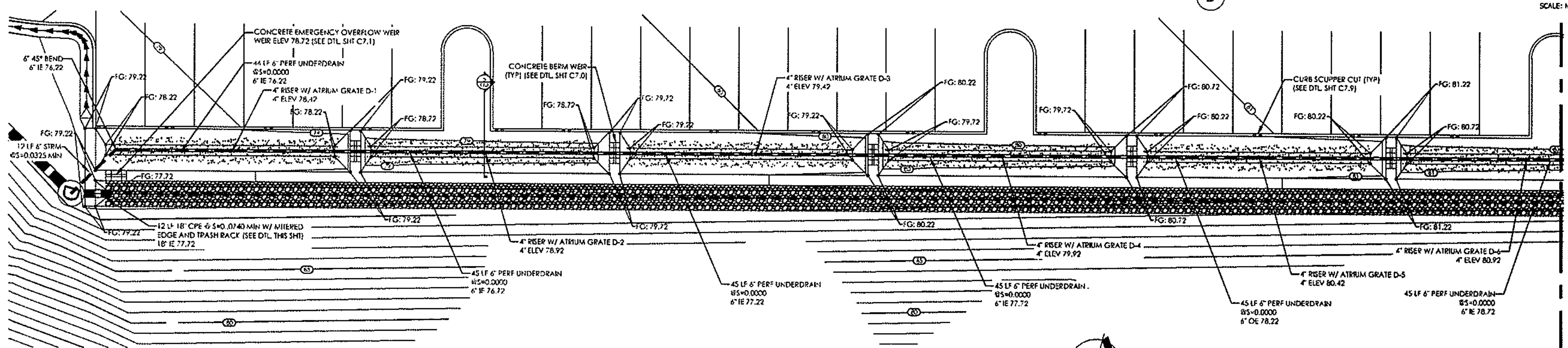
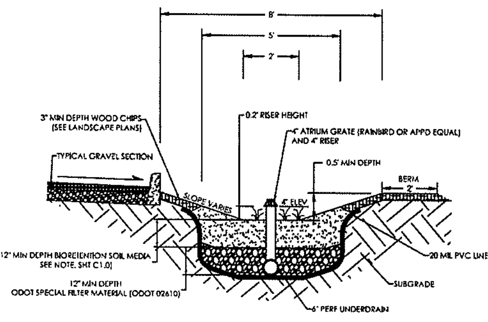




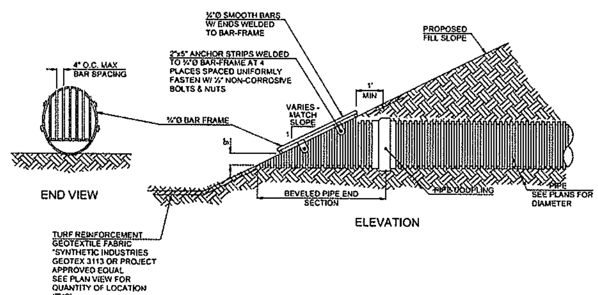
STORMWATER FACILITY "D" PLAN

Scale: 1" = 10'



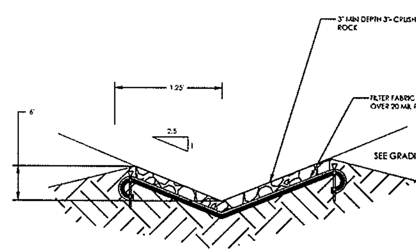
D STORMWATER FACILITY "D" TYPICAL SECTION

SCALE: NTS



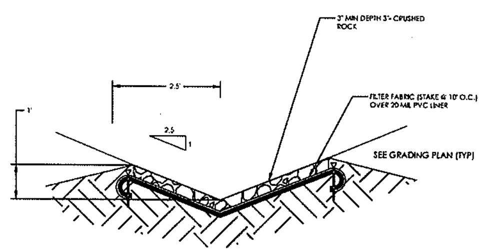
TRASH RACK

Scale: NTS



6" DEPTH ROCK-LINED V-DITCH TYPICAL SECTION

Scale: NTS



1' DEPTH ROCK-LINED V-DITCH TYPICAL SECTION

Scale: NTS

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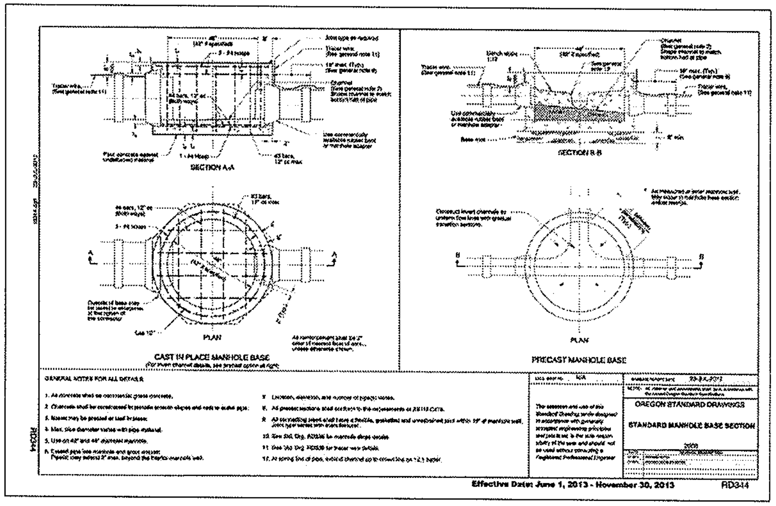
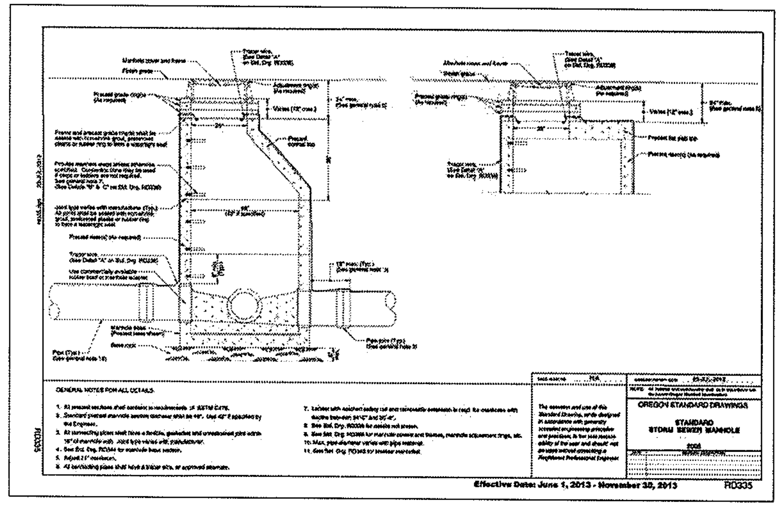
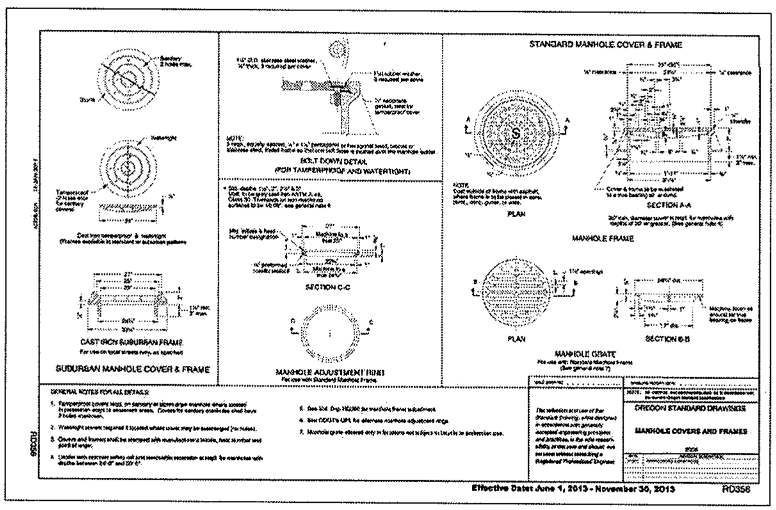
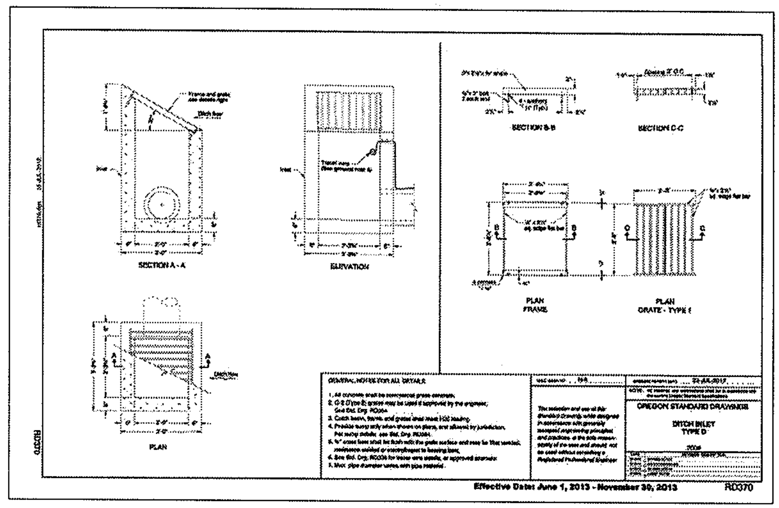
STORMWATER FACILITY D DETAILS

C7.3









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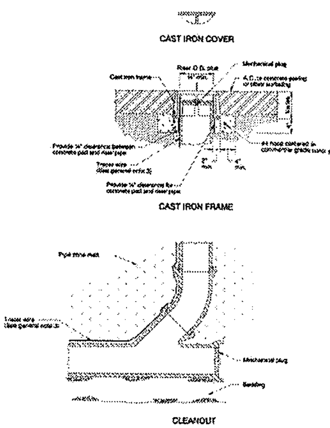
STANDARD ODOT STORMWATER DETAILS

C7.4



GENERAL NOTES FOR ALL DETAILS

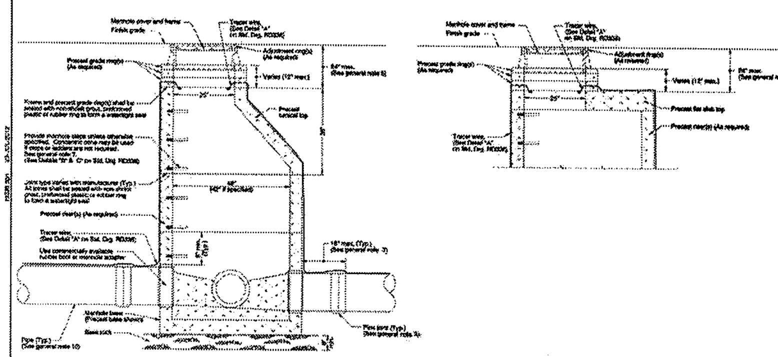
OREGON STANDARD DRAWINGS

SANITARY CLEANOUT

2008

Effective Date: June 1, 2013 - November 30, 2013

RD362



GENERAL NOTES FOR ALL DETAILS

OREGON STANDARD DRAWINGS

STANDARD SANITARY SEWER MANHOLE

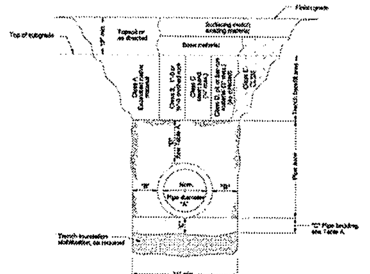
Effective Date: June 1, 2013 - November 30, 2013

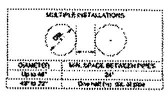
RD338

TABLE A

"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
[illegible]	[illegible]	[illegible]	[illegible]
24	16	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14

For pipes over 72" diameter, see general note 3.





GENERAL NOTES FOR ALL DETAILS

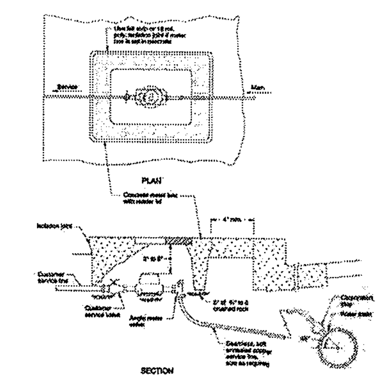
OREGON STANDARD DRAWINGS

TRENCH BACKFILL, BEDDING, PIPE ZONE AND MULTIPLE INSTALLATIONS

2008

Effective Date: June 1, 2013 - November 30, 2013

RD300



GENERAL NOTES FOR ALL DETAILS

OREGON STANDARD DRAWINGS

¾" TO 2" WATER SERVICE CONNECTION

2008

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RD274

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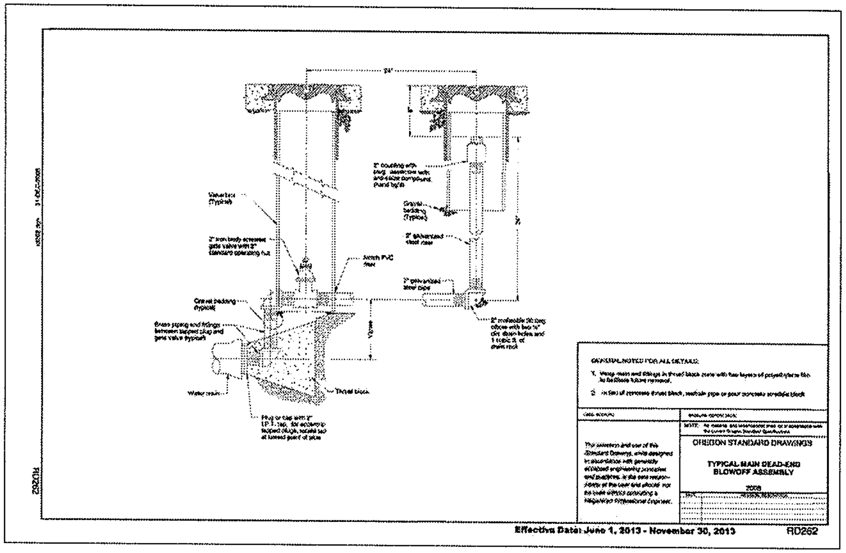
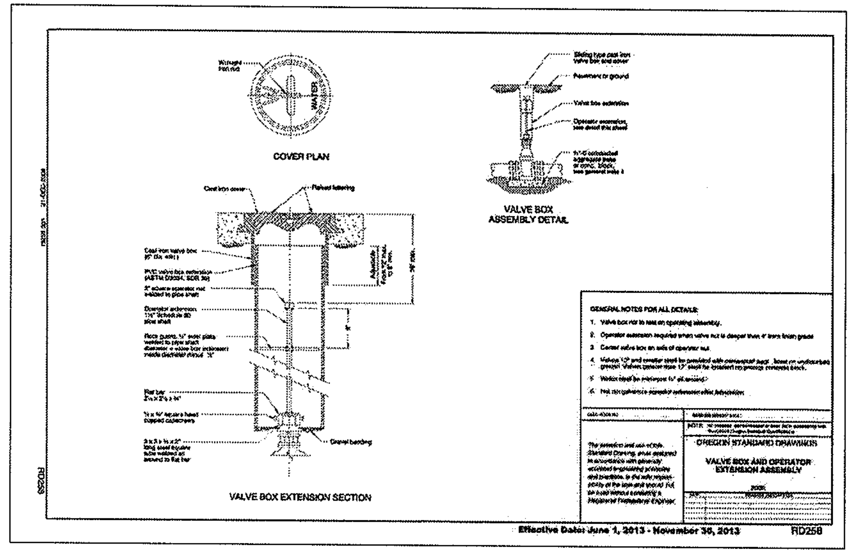
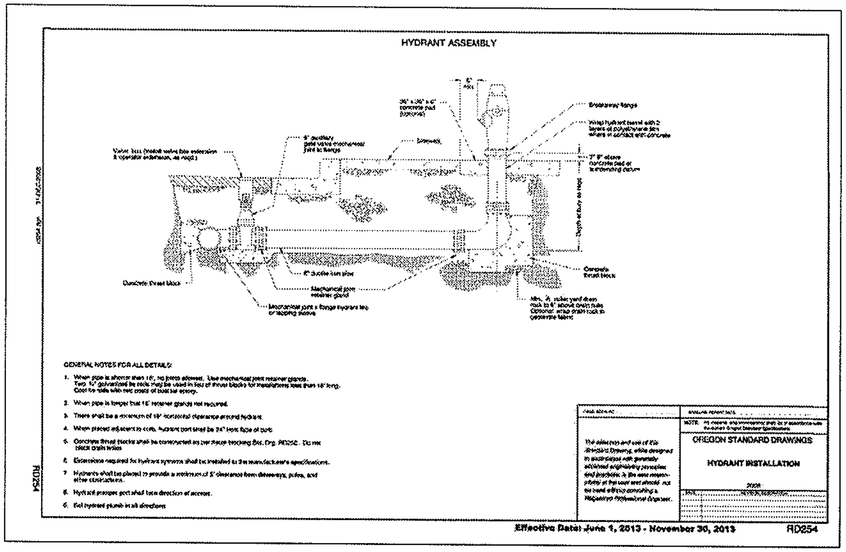
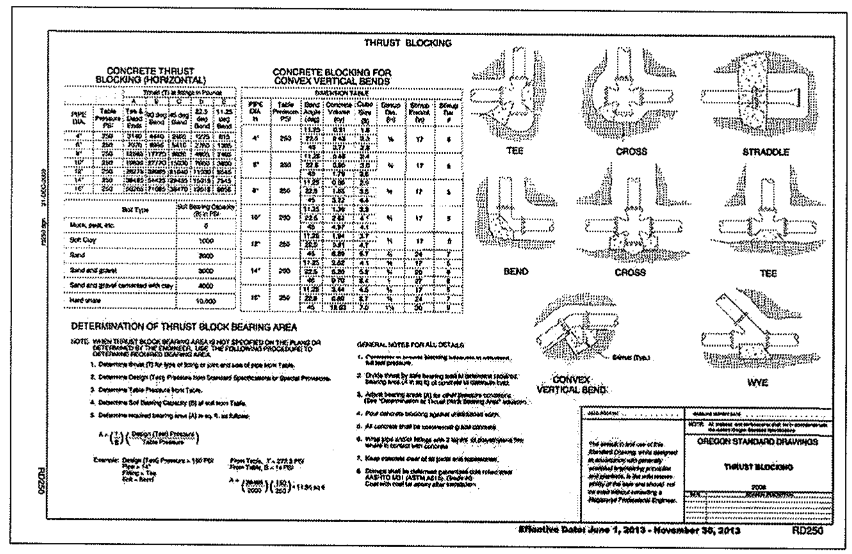
STANDARD ODOT SSWR & WTR DETAILS

C7.5









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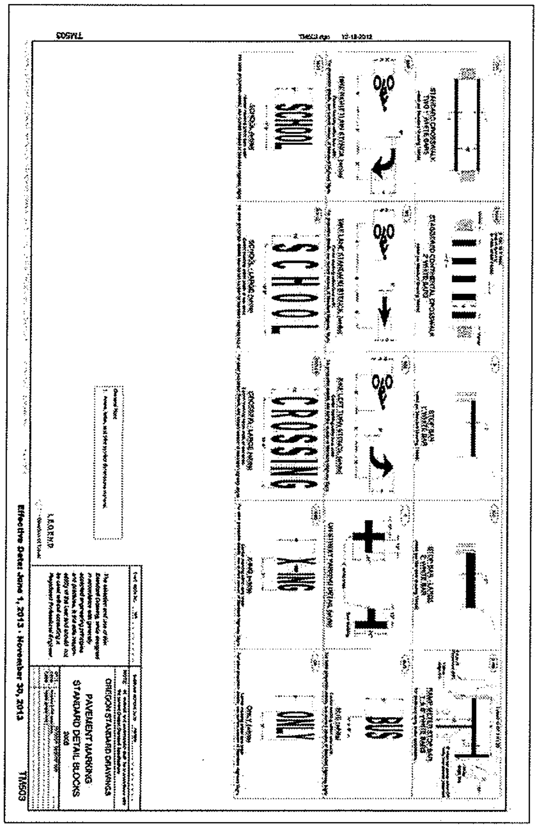

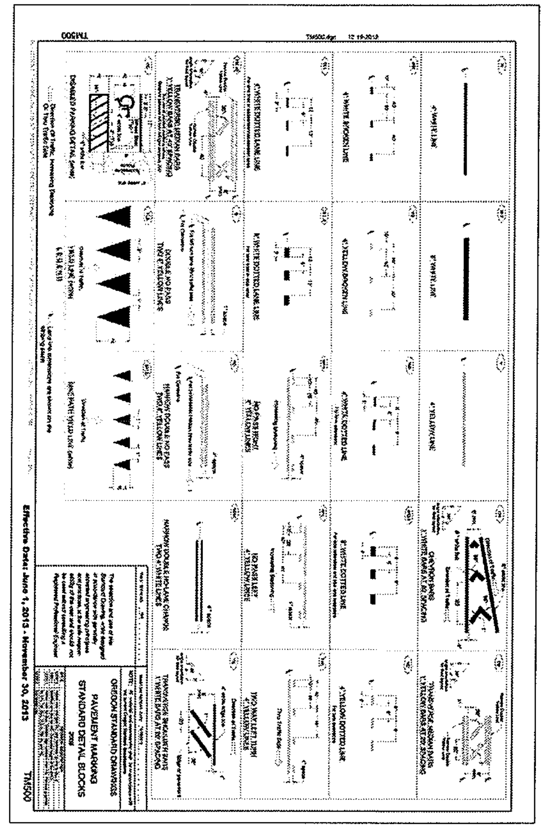

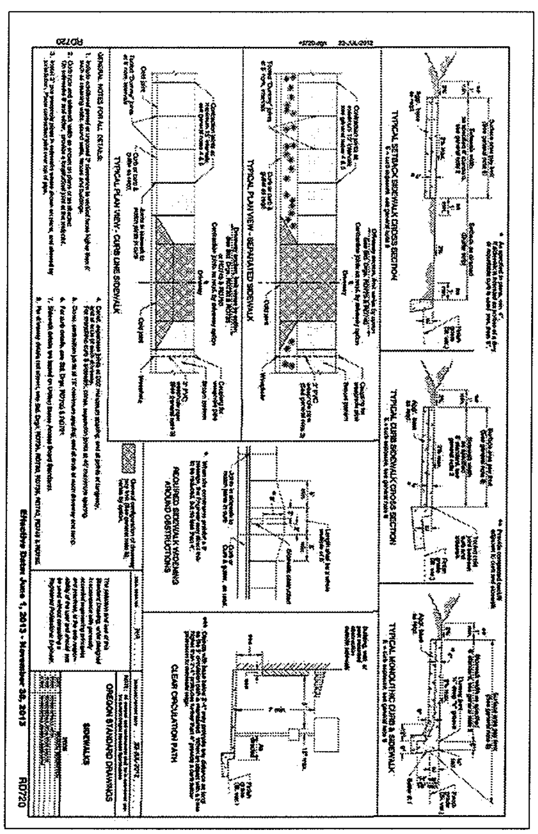

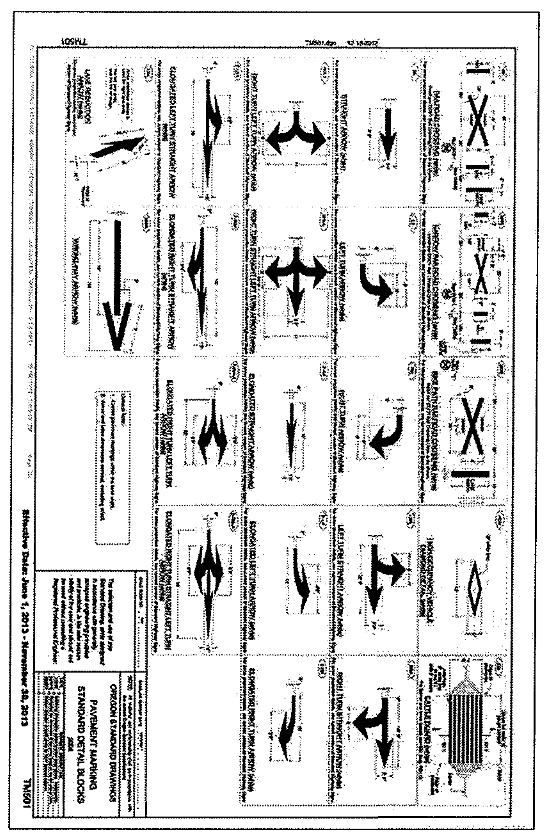

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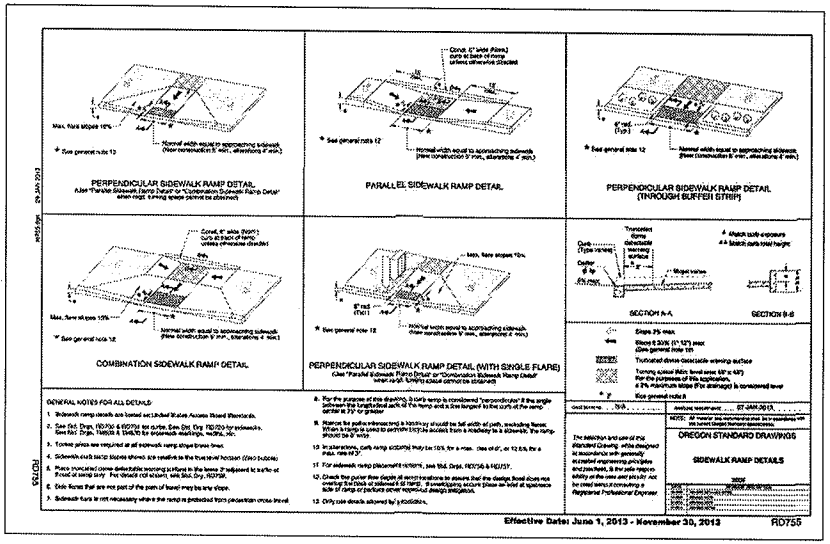
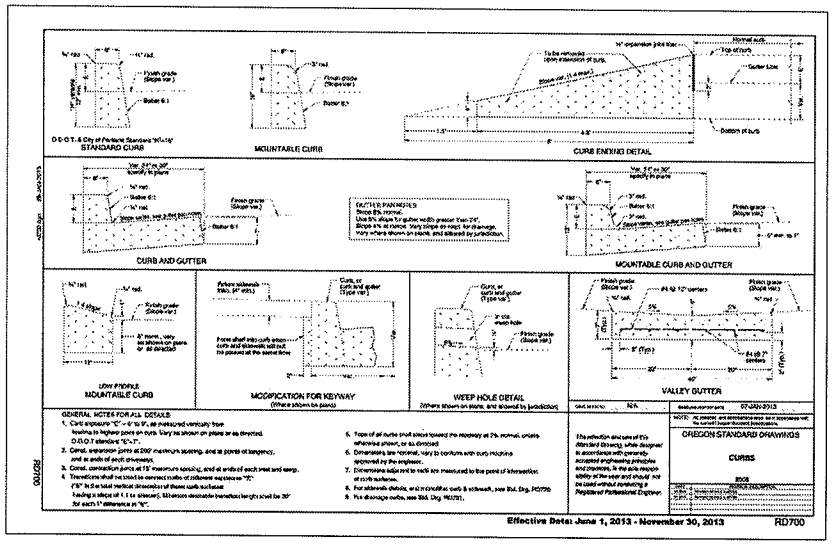
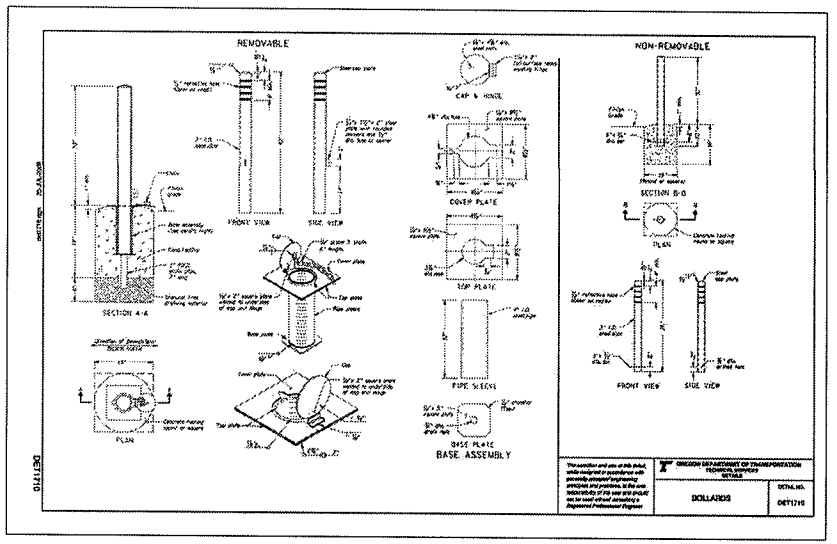
STANDARD ODOT ROADWAY DETAILS

C7.7







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SHEET NUMBER
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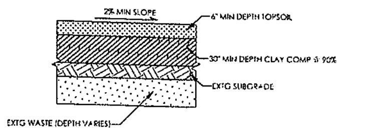
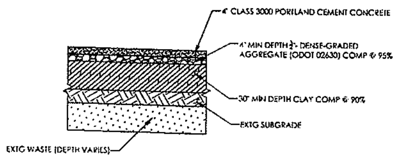
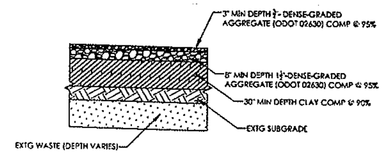


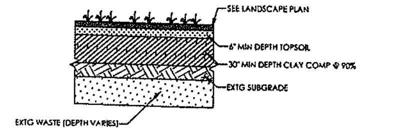
LANDFILL CAP W/ TOPSOIL TYPICAL SECTION
Scale: NTS



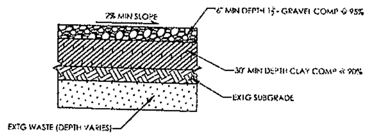
SIDEWALK TYPICAL SECTION
Scale: NTS



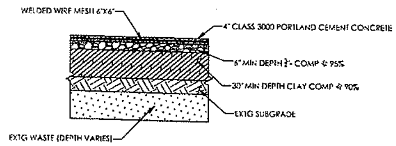
GRAVEL SURFACING TYPICAL SECTION
Scale: NTS



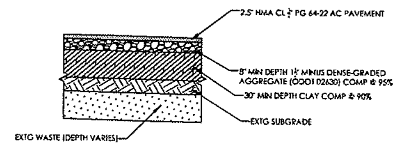
LANDSCAPING TYPICAL SECTION
Scale: NTS



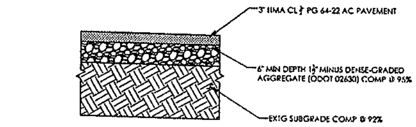
LANDFILL CAP W/ GRAVEL TYPICAL SECTION
Scale: NTS



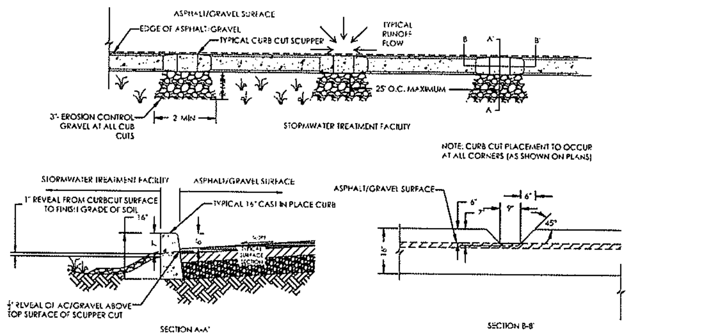
REINFORCED SIDEWALK TYPICAL SECTION
Scale: NTS



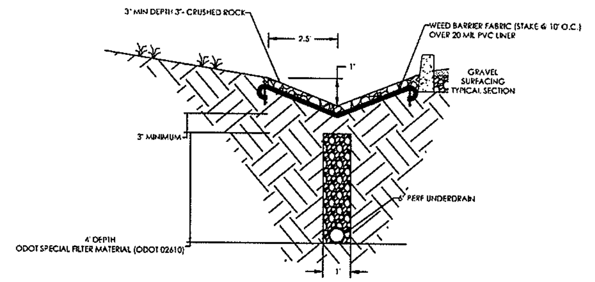
LIGHT DUTY AC PAVEMENT TYPICAL SECTION
Scale: NTS



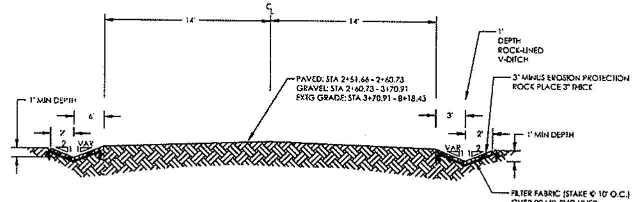
HEAVY DUTY AC PAVEMENT TYPICAL SECTION
Scale: NTS



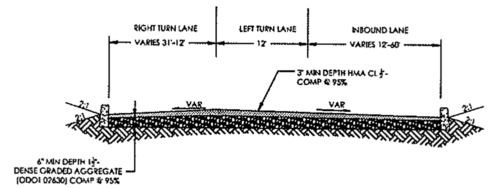
CURB SCUPPER CUT
Scale: NTS



GROUNDWATER/SURFACE WATER INTERCEPTION DITCH TYPICAL SECTION
Scale: NTS



(1) TRANSFER STATION DRIVE TYPICAL SECTION
SCALE: NTS
STA 2+51.66 - 2+60.73 - PAVED
STA 2+60.73 - 3+70.91 - GRAVELED
STA 3+70.91 - 8+18.43 TO BE PAVED IN THE FUTURE BY OTHERS.
ALL ROADSIDE DITCHES TO BE CONSTRUCTED UNDER THIS CONTRACT.



(2) TRANSFER STATION DRIVE TYPICAL SECTION
STA 0+00.00 - 2+51.66
SCALE: NTS

berger PARTNERSHIP
1721 8th Ave N
Seattle WA 98109
206 325 6877
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VANCOUVER, WA 98660
PHONE: 360-694-2691

CMH / Astoria School District Sports Fields
Astoria, OR

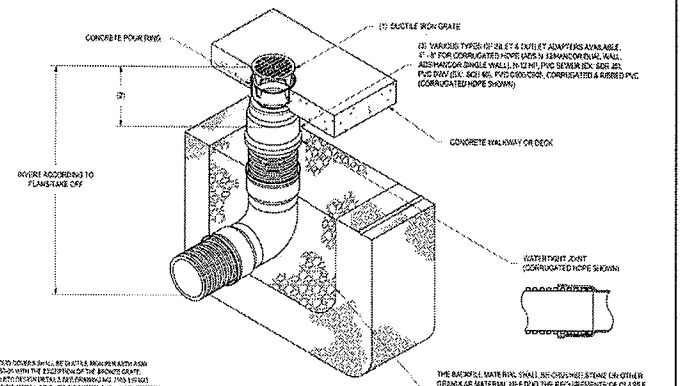
REGISTERED PROFESSIONAL ENGINEER
OREGON
STACY J. FROST

RENEWS:

SET TYPE
95% CONSTRUCTION DOCUMENTS
SET ISSUE DATE
07.17.13
REVISIONS

DRAWN/CHECKED
M. REITER / S. FROST
SHEET NAME
MISC. DETAILS
SHEET NUMBER
C7.9

NYLOPLAST 8" INLINE DRAIN: 2708AG ___X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN/LANDSCAPE	LIGHT DUTY	2708GRTDI	7001-115-001
SOLID COVER	LIGHT DUTY	2708SCDI	7001-115-002
SLOTTED	N/A	2708SLDI	7001-115-003
FLOW	N/A	2708GDDI	7001-115-004

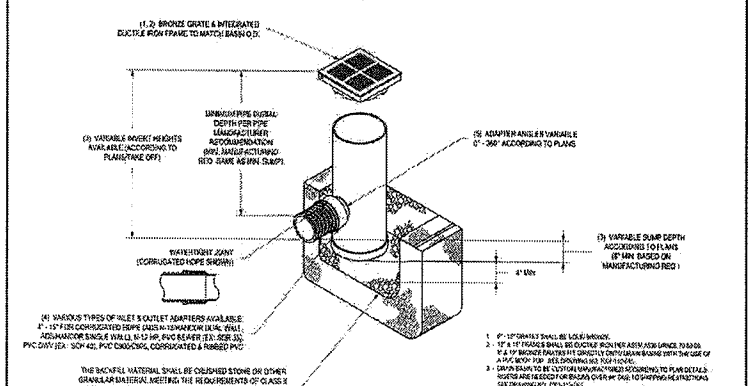
DRAWN BY	ESC	MATERIAL	
DATE	11-15-06		
REVISED BY	ESC	PROJECT NO./NAME	
DATE	3-20-13		
DWG INIT.	K	SCALE 1:10	SHEET 1 OF 1

Nyloplast — 3126 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2900 FAX (770) 932-2929 www.nyloplast-us.com

TITLE: 8"/INLINE/DRAIN GUARD SPEC/INSTALLATION DETAIL

DWG NO. 7001-115-005 REV: B

8" - 15" NYLOPLAST DRAIN BASIN WITH BRONZE GRATE



1. 8" - 15" GRATES SHALL BE CAST IRON.
2. 18" & 15" GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" BRONZE GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC SPIGOT FOR ADS DRAINAGE AND TOUGHNEDE.
3. DRAIN BASINS TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. INVERTS ARE DETERMINED FOR EACH PROJECT. SEE DRAWING NO. 7001-115-002.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE PIPE (ADS N-12/MANCOR DUAL WALL) N-12 HP, & PVC SEWER.
5. ADAPTERS CAN BE MOUNTED ON ANY ANGLE BETWEEN 0° AND 360°. THE DIFFERENCE IN ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-115-013.
6. 5" - 15" SPIGOT GRATES HAVE NO LOAD RATING.

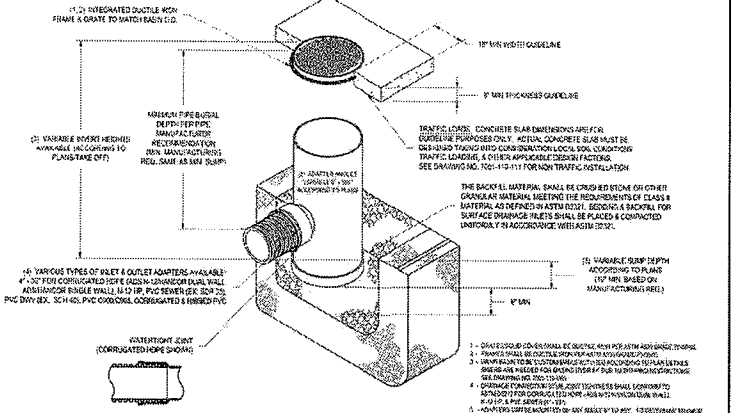
DRAWN BY	ESC	MATERIAL	
DATE	3-20-13		
APPD BY	ESC	PROJECT NO./NAME	
DATE	3-20-13		
DWG SIZE	A	SCALE 1:20	SHEET 1 OF 1

Nyloplast — 3126 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2900 FAX (770) 932-2929 www.nyloplast-us.com

TITLE: DRAIN BASIN WITH BRONZE GRATE QUICK SPEC/INSTALLATION DETAIL

DWG NO. 7001-115-004 REV: A

NYLOPLAST 30" DRAIN BASIN: 2830AG ___X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	LIGHT DUTY	2830GRTDI	7001-115-006
SOLID COVER	LIGHT DUTY	2830SCDI	7001-115-007
SLOTTED	N/A	2830SLDI	7001-115-008
FLOW	N/A	2830GDDI	7001-115-009

1. GRATE SHOWN CONFORMS TO DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAME SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. INVERTS ARE DETERMINED FOR EACH PROJECT. SEE DRAWING NO. 7001-115-003.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE PIPE (ADS N-12/MANCOR DUAL WALL) N-12 HP, & PVC SEWER (EX: SDR 35).
5. ADAPTERS CAN BE MOUNTED ON ANY ANGLE BETWEEN 0° AND 360°. THE DIFFERENCE IN ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-115-013.

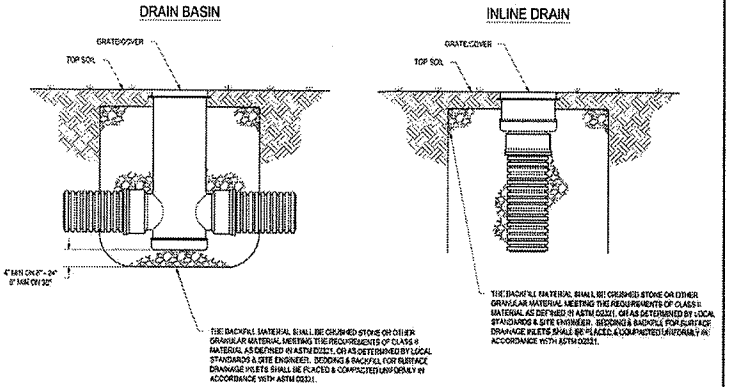
DRAWN BY	ESC	MATERIAL	
DATE	4-3-09		
REVISED BY	ESC	PROJECT NO./NAME	
DATE	3-21-13		
DWG SIZE	A	SCALE 1:40	SHEET 1 OF 1

Nyloplast — 3126 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2900 FAX (770) 932-2929 www.nyloplast-us.com

TITLE: 30" DRAIN BASIN GRATE SPEC & INSTALLATION DETAIL

DWG NO. 7001-115-003 REV: D

NON TRAFFIC INSTALLATION



DRAWN BY	CJA	MATERIAL	
DATE	6-30-11		
REVISED BY	ESC	PROJECT NO./NAME	
DATE	3-20-13		
DWG SIZE	A	SCALE 1:20	SHEET 1 OF 1

Nyloplast — 3126 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2900 FAX (770) 932-2929 www.nyloplast-us.com

TITLE: DRAIN BASIN & INLINE DRAIN NON TRAFFIC INSTALLATION

DWG NO. 7001-115-011 REV: D

PARTNERSHIP berger 1231 8th Ave N Seattle, WA 98109 206.325.6817 bergerpartnership.com

PAUL FOSTER ALONGI 400 EAST MILL PLAIN BLVD SUITE 400 VANCOUVER, WA 98660 PHONE: 360.699.2001

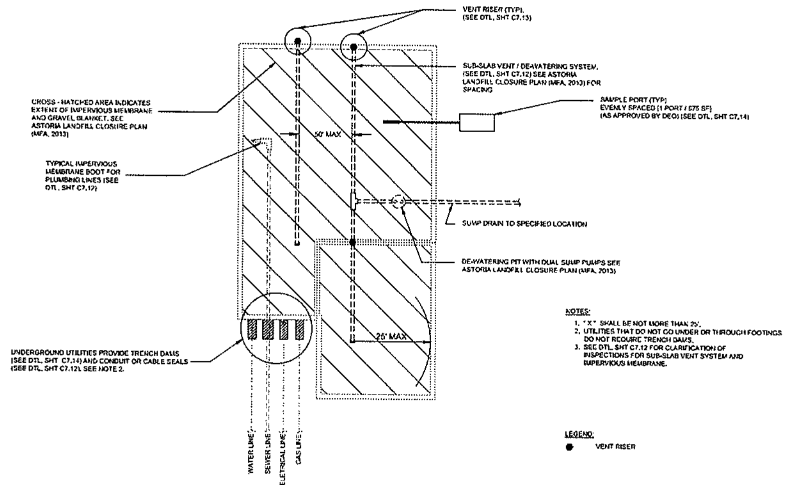
CMH / Astoria School District Sports Fields

Astoria, OR

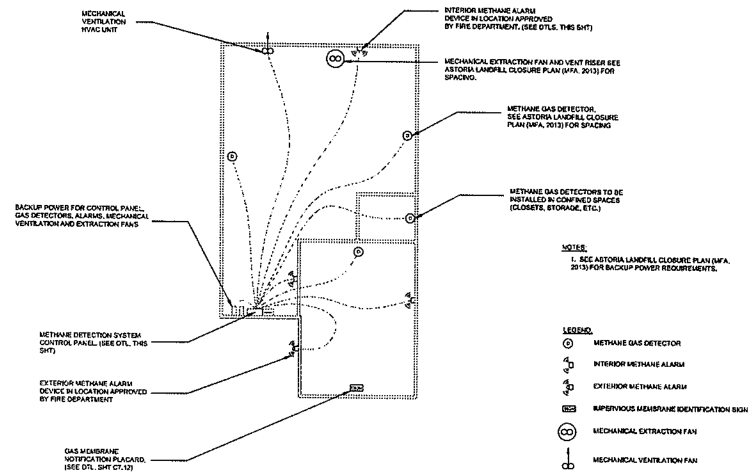
REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 11, 1995 — STACY I. FROST — RENEWAL:

SET TYPE: 95% CONSTRUCTION DOCUMENTS
SET ISSUE DATE: 07.17.13
REVISIONS

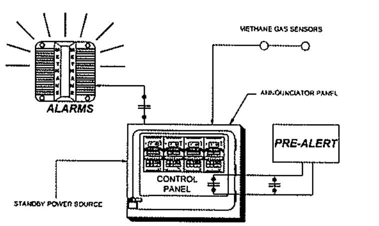
DRAWN/CHECKED: M. REITER / S. FROST
SHEET NAME: MISC. STRM DETAILS
SHEET NUMBER: C7.10



SAMPLE PLAN FOR BELOW SLAB METHANE MITIGATION COMPONENTS



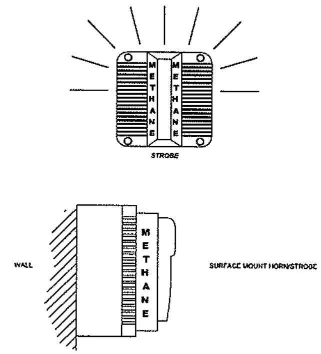
SAMPLE PLAN FOR ABOVE SLAB METHANE MITIGATION COMPONENTS



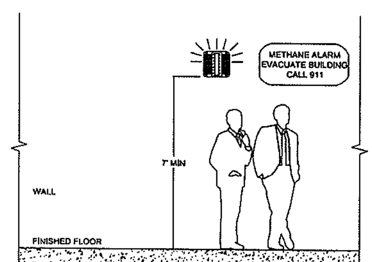
NOTES:

1. THE METHANE DETECTION SYSTEM SHALL OPERATE 24 HR/DAY CONTINUOUSLY.
2. ALL BUILDING STROBE/ALARMS TO SOUND SIMULTANEOUSLY UPON ANY HIGH GAS DETECTION IN BUILDING.
3. AUTO DIALER SHALL BE REQUIRED.
4. STANDBY POWER SHALL PROVIDE SUFFICIENT POWER TO THE METHANE GAS SENSORS FOR 24 HOURS.

METHANE DETECTION SYSTEM



METHANE ALARM DEVICE - HORN AND STROBE



NOTE:

1. ALL METHANE AUDIO/VISUAL ALARMS SHALL BE INSTALLED ABOVE THE FLOOR AT A STANDARD HEIGHT OF 7 FEET WITH ADJACENT SIGNAGE (AS SHOWN) UNLESS OTHERWISE NOTED.
2. PREFERENCE SHALL BE GIVEN TO SMALL ENCLOSED SPACES FOR LOCATING DETECTORS.

METHANE ALARM DEVICE MOUNT

berger PARTNERSHIP
1721 8th Ave N
Seattle WA 98109
206 325 6877
bergerpartnership.com

MAUL FOSTER ALONGI
400 EAST MILL PLAIN BLVD
SUITE 400
VANCOUVER, WA 98660
PHONE: 360-694-2691

CMH / Astoria School District Sports Fields

Astoria, OR

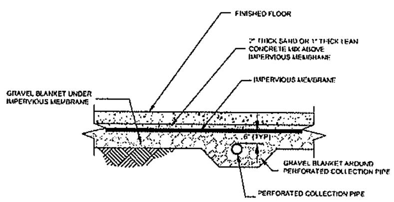
REGISTERED PROFESSIONAL ENGINEER 65469PE OREGON STACY J. FROST

RENEWS:

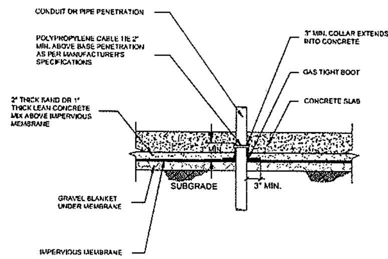
95% CONSTRUCTION DOCUMENTS
07.17.13

M. REITER / S. FROST
GAS COLLECTION DETAILS

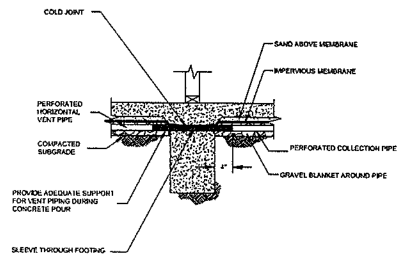
C7.11



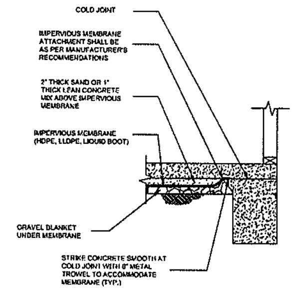
SUB SLAB VENT SYSTEM



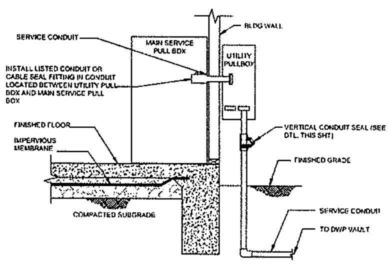
MEMBRANE BOOT



VENT PIPE AT INTERIOR FOOTING



MEMBRANE TERMINATION AT EXTG FOOTING



NOTE:

1. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS.
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE - SENSITIVE CORROSION PREVENTIVE TAPE.

CONDUIT OR CABLE SEAL FITTINGS

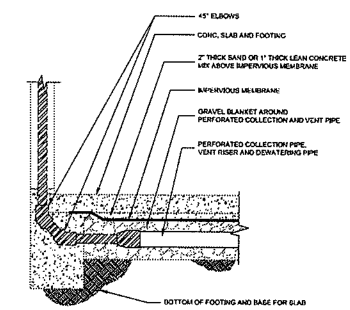
WARNING

THIS BUILDING IS PROTECTED WITH A METHANE GAS CONTROL BARRIER. ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE BUILDING OFFICIAL AND INSPECTION BY AN ENGINEER.

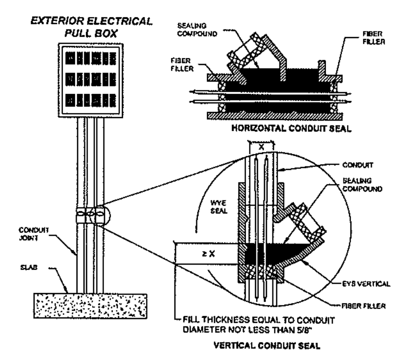
NOTES:

1. THIS NOTIFICATION IS TO BE PERMANENTLY STAMPED OR ETCHED IN THE SURFACE OF THE SLAB OR OTHER LOCATION APPROVED BY THE BUILDING INSPECTOR AT THE TIME OF CONSTRUCTION.
2. ALL LETTERS 1/2" (MIN.) IN HEIGHT.
3. AT LEAST ONE REQUIRED PER BUILDING.
4. THIS NOTIFICATION SHALL BE POSTED AND MAINTAINED AT THE FRONT ENTRANCE OF THE BUILDING, EXCEPT RESIDENTIAL BUILDINGS.

GAS MEMBRANE NOTIFICATION PLACARD



INSPECTION REQUEST TERMINOLOGIES



CONDUIT SEAL

berger PARTNERSHIP
1721 8th Ave N
Seattle WA 98109
206.325.6877
bergerpartnership.com

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400 EAST MILL PLAIN BLVD
SUITE 400
VANCOUVER, WA 98660
PHONE: 360-694-2691

CMH / Astoria School District Sports Fields

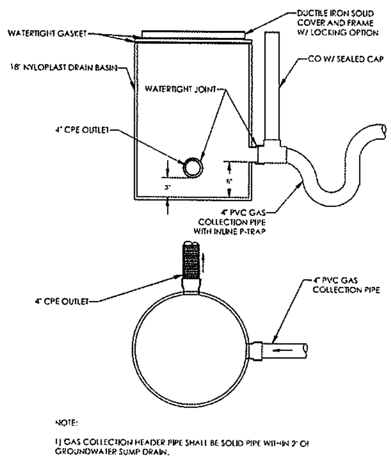
Astoria, OR

REGISTERED PROFESSIONAL ENGINEER 65460PE OREGON STACY J. FROST

RENEWS:

95% CONSTRUCTION DOCUMENTS
07.17.13

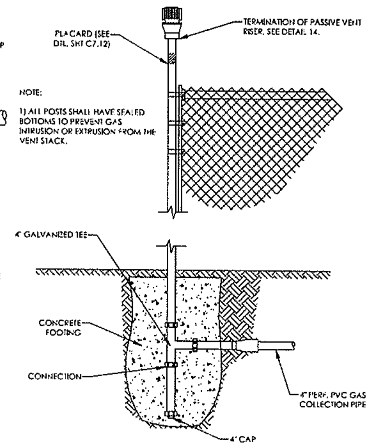
M. REITER / S. FROST
GAS COLLECTION DETAILS
C7.12



NOTE:

1) GAS COLLECTION HEADER PIPE SHALL BE SOLID PIPE WITHIN 2' OF GROUNDWATER SUMP DRAIN.

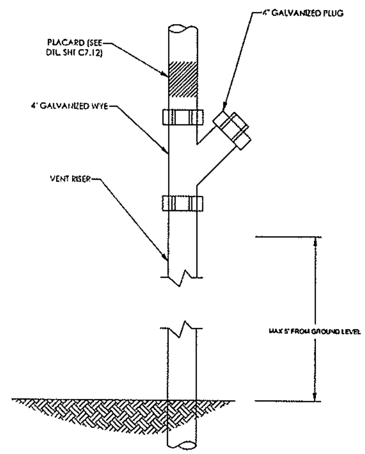
GROUNDWATER SUMP DRAIN



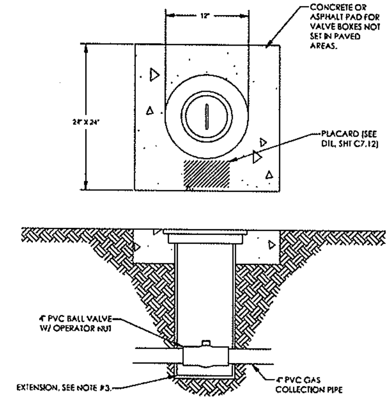
NOTE:

1) ALL POSTS SHALL HAVE SEALED BOTTOMS TO PREVENT GAS INTRUSION OR EXTRUSION FROM THE VENT STACK.

VENT RISER - CHAIN LINK FENCE BACKSTOP



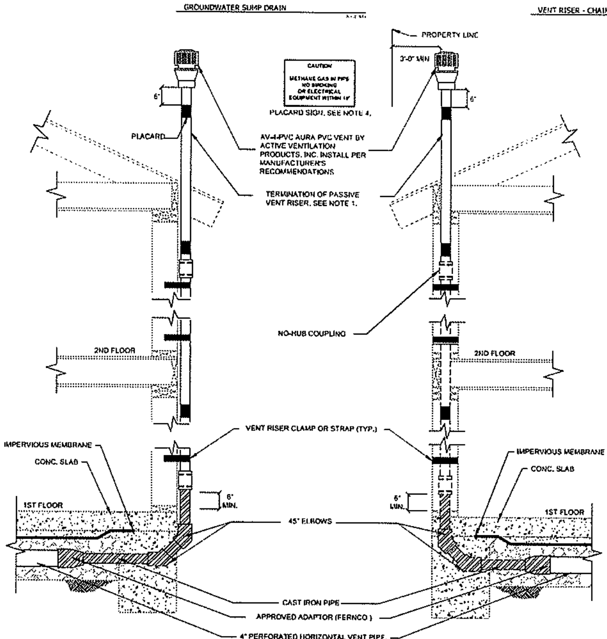
EXTERIOR VENT STACK



NOTE:

1) GAS COLLECTION PIPE SHALL BE SOLID PIPE WITHIN 2' OF VALVE BOX.
2) VALVE BOX SHALL BE U.S. FILTER/PACIFIC WATER WORKS NO. 910 OR EQUAL.
3) EXTENSIONS SHALL BE 8" PVC PIPE WITH SEALED BOTTOM.
4) PIPE PENETRATIONS SHALL BE SEALED.

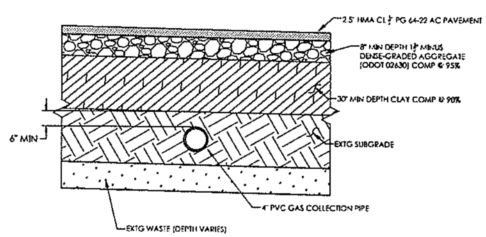
GAS COLLECTION VALVE



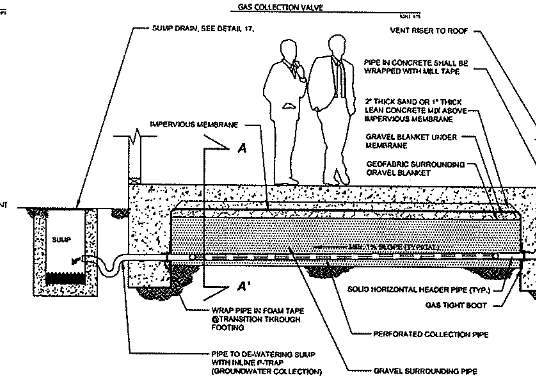
NOTES:

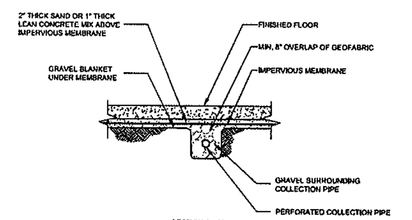
1. TERMINATION OF PASSIVE VENT RISER SHALL BE AS FOLLOWS:
   A. 10' MIN. AWAY FROM, OR AT LEAST 3' ABOVE ANY OPENABLE WINDOW, DOOR, OPENING OR AIR INTAKE, OR VENT SHAFT.
   B. 3' MIN. IN EVERY DIRECTION FROM ANY LOT LINE, ALLEY, AND STREET.
   C. EXTEND THROUGH THE VENT FLASHING, 6" MIN. ABOVE THE ROOF, AND 1' MIN. FROM ANY PARAPET OR BUILDING WALL.
2. WRAP ALL PIPING WITH APPROVED MATERIAL THROUGH CONCRETE SLAB OR FLOOR.
3. THE PIPING OF THE VENTING SYSTEM SHALL BE TESTED WITH AIR IN ACCORDANCE WITH THE 2009 UNIFORM PLUMBING CODE.
4. PLACARD SIGN SHALL BE 3" HIGH X 4" WIDE, MADE OF PLASTIC WITH ADHESIVE BACKING, AND HAVE 1/4" HIGH BLACK LETTERS ON WHITE BACKGROUND
5. RESIDENTIAL BUILDINGS UP TO 2 STORIES MAY USE PVC, CAST IRON, GALVANIZED STEEL, BLACK IRON OR PVDF PIPES AS VENT RISER. FOR ALL OTHER BUILDINGS, VENT RISER SHALL BE OF GALVANIZED STEEL PIPE.

VENT RISER



SUB PAVEMENT GAS COLLECTION PIPE TYPICAL SECTION





SECTION A - A'

NOTES:

1. PERFORATED HORIZONTAL PIPE USED AS COMBINATION DE-WATERING AND VENT PIPE SHALL BE SIZED ONE FULL PLUMBING PIPE SIZE LARGER THAN SIZE REQUIRED FOR VENT PIPING ONLY.
2. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-00, BLACK PLASTIC PVC OR PE PRESSURE-SENSITIVE CORROSION PREVENTIVE TAPE.

COMBINATION DEWATERING AND VENT PIPE

berger PARTNERSHIP
1721 8th Ave N
Seattle WA 98109
206 325 6877
bergerpartnership.com

MAUL FOSTER ALONGI
400 EAST MILL PLAIN BLVD
SUITE 400
VANCOUVER, WA 98660
PHONE: 360-694-2691

CMH / Astoria School District Sports Fields

Astoria, OR

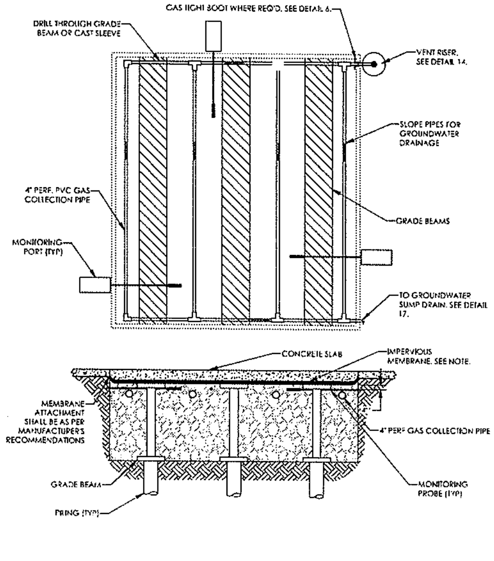
REGISTERED PROFESSIONAL ENGINEER OREGON STACY F. FROST

RENEWS:

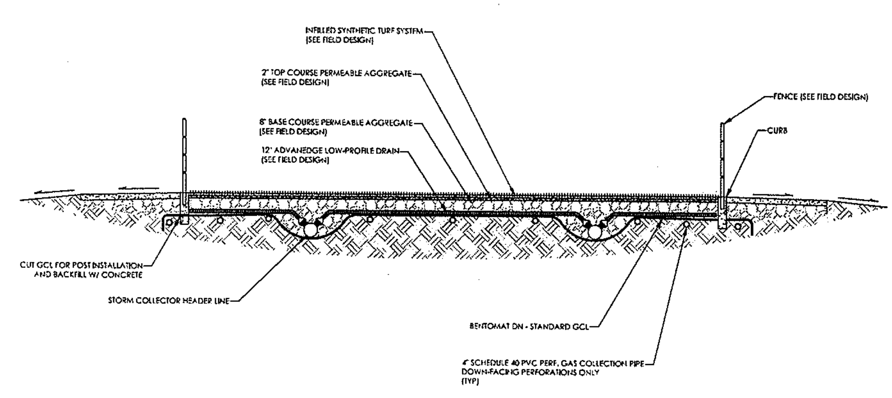
95% CONSTRUCTION DOCUMENTS
07.17.13

M. REITER / S. FROST
GAS COLLECTION DETAILS

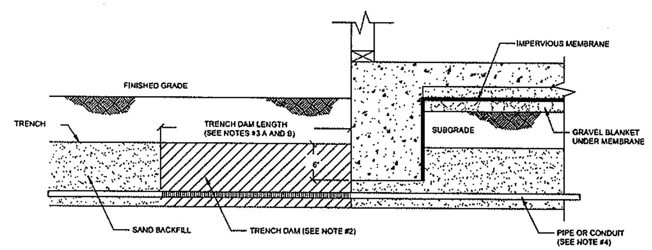
C7.13



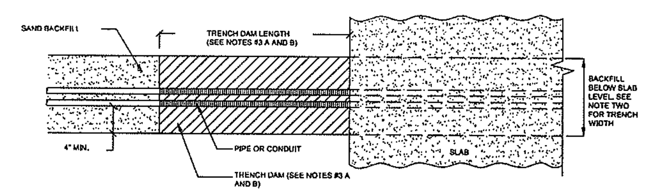
BELOW SLAB METHANE MITIGATION - GRADE BEAM FOUNDATION



SUB-FIELD GAS COLLECTION SYSTEM TYPICAL SECTION



SECTION:

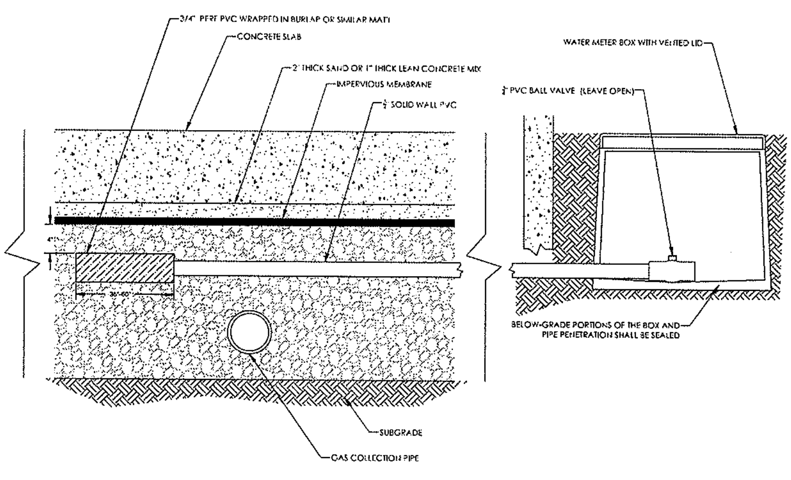


PLAN VIEW:

NOTES: TRENCH DAMS

1. ALL TRENCH DAMS SHALL BE INSTALLED IN TRENCHES CONTAINING PIPING AND CONDUIT.
2. THE WIDTH OF A TRENCH DAM SHALL BE ONE HALF THE LENGTH.
3. TRENCH DAMS SHALL BE CONSTRUCTED OF ONE OF THE FOLLOWING:
   A. BENTONITE CEMENT SLURRY THREE FEET LONG: A MIXTURE OF 4% TYPE II CEMENT, AND 2% POWDERED BENTONITE.
   B. COMPACTED NATIVE SOILS BACKFILL FIVE FEET LONG: NATIVE SOILS SHALL BE COMPACTED AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES.
   C. CONCRETE MIXES OTHER THAN BENTONITE CEMENT SLURRY MAY BE USED PROVIDED CONDUIT OR PIPING IS WRAPPED WITH HIGH DENSITY PVC FOAM TAPE, CLOSED CELLS, ADHESIVE BACKED, 1/4" THICK BY ½" WIDE SHALL BE APPLIED TO CLEAR SURFACE WITH ENDS BUTTED TOGETHER AT MOST VISIBLE LOCATIONS IN TRENCH DAM.
4. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE-SENSITIVE CORROSION PREVENTIVE TAPE.

TRENCH DAM



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400 EAST MILL PLAIN BLVD SUITE 400 VANCOUVER, WA 98660 PHONE: 360-694-2691

CMH / Astoria School District Sports Fields

Astoria, OR

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RENEWS:

95% CONSTRUCTION DOCUMENTS
07.17.13

M. REITER / S. FROST
GAS COLLECTION DETAILS
C7.14

APPENDIX A

LANDFILL GAS BUILDING SYSTEMS DESIGN GUIDE

MAUL FOSTER ALONGI

MEMORANDUM

To: Tim Spencer, DEQ

Date: August 7, 2013

From: Jacob Faust, PE

Project: 0097.02.03

RE: Astoria Landfill—Landfill Gas Building Systems Design Guide

This document is being prepared in conjunction with the Astoria Landfill Closure Plan (Maul Foster & Alongi, Inc. [MFA], 2013b) to provide guidance on landfill gas (LFG) control systems required for redevelopment of the Astoria Landfill as an institutional public use. The proposed development for which this guidance is formulated is a multi-use sports complex with a synthetic turf field, paved pedestrian walkways, vehicular parking and access infrastructure, aboveground and subsurface utilities, and various structures. Structures proposed for the site include covered dugouts, locker rooms, open frame bleachers, and a grandstand with open air spectator seating and enclosed storage, concession stands, and restrooms.

This document applies only to the proposed development as described herein. The attached details and the recommendations provided in this document may be referenced or utilized for other development at the site; however, changes in end use, including structures and overall land use, will require separate approval by the Oregon Department of Environmental Quality (DEQ).

Landfill Gas Concerns

Two primary concerns with LFG apply to the development. The first concern is collection of methane gas at an elevated concentration that has potential to ignite and cause an explosion. Confined spaces could include enclosed buildings, sealed utility vaults, pipes or conduits, junction boxes, and other structures. Methane also has the potential to settle in depressions or low-lying areas when mixed with other gases; the potential for this occurrence is low, as no other gases that could cause this effect have been detected at the site; however, the potential may still exist. The second concern is the collection of LFG (methane or other potential gases) in an enclosed space, asphyxiating any human occupying that space.

Proper design and installation of LFG control and detections systems, as well as regular monitoring, will mitigate concerns associated with development on the landfill.

Landfill Gas Production

LFG is still produced in measurable quantities at the site, although rates have decreased (and likely will continue to decrease) since initial closure in 1986 because of aging of the landfill. Recent site

investigations show that gas concentrations in soil are high enough to warrant control measures for site uses that allow public access to the site and that involve construction of enclosed structures (GeoEngineers, 2012; MFA, 2013a). As a result of development of the site, LFG production characteristics at the site may change from current conditions. Factors that could potentially alter the LFG production may include, but are not limited to, the following:

- Installation of impervious surfaces will reduce the amount of infiltrated water contact with waste.
- Diversion of stormwater run-on may decrease elevation of groundwater, which would also decrease the contact of water with waste.
- Consolidation or settling may occur as a result of installation placement of fill, installation of structures, and hardscape surfaces at the site.
- Driving of structural support piles for buildings may consolidate or shift buried wastes.

It is unclear if or how LFG characteristics at the site will be altered by development. LFG facilities will be designed and installed to handle current volumes and allow basic modifications for a higher handling capacity. Basic modifications will consist of electronic blowers for conversion from passive venting system to an active venting system.

LFG Control Components

LFG control components are required for any confined space that may be susceptible to collection and concentrating of gas. These spaces include enclosed structures (interior and below-slab controls), large impervious surfaces (lined or paved areas), and utility conduits and appurtenances. Most controls and details are derived from the City of Los Angeles Department of Building Services, which has compiled an extensive library of control standards to address naturally occurring subsurface methane.

The attached details have been customized to the site-specific development. Specific details used for construction in the architectural and civil engineering plans may differ slightly once final design is completed. All design plans will be submitted to DEQ for final approval before construction.

Buildings—Subsurface

Building slabs and foundations present a barrier for direct LFG release to the atmosphere. Cracks or penetrations in building slabs provide a pathway for LFG to enter a structure and concentrate in enclosed areas. Buildings with enclosed interior rooms will be equipped with collection and removal systems below solid floor slabs to remove trapped LFG and reduce the potential for intrusion to enclosed buildings.

Buildings with enclosed rooms at the site will be supported by steel piles and structural grade beams overlain with a concrete slab. Buildings with no enclosed rooms will have a concrete slab-on-grade.

The subsurface collection system will consist of a low-permeability liner installed over a layer of open graded gravel. The gravel will have a network of perforated pipes connected to an aboveground vent stack. Spacing of perforated collection pipes will vary, depending on floor area and grade beam orientation (where applicable). Vent stacks will be routed to a discharge point above the roof line.

Buildings—Interior

Enclosed buildings installed over the landfill may contain and concentrate LFG by preventing direct release to the atmosphere if pathways develop through the building slab. Small enclosed areas such as closets or other similar rooms present elevated risk due to small room volumes creating higher concentrations with equivalent volumes of gas. Venting and detection systems will be installed in enclosed buildings to prevent danger from elevated interior gas concentrations.

Building interiors will generally be designed to allow air passage throughout. Ventilation systems or exhaust fans may be installed to increase airflow through the structure as well. Detection and alarm systems will be installed in smaller enclosed areas to provide a warning system for elevated interior concentrations. Special attention will be paid to smaller enclosed areas such as closets, where small room volumes would require only small amounts of LFG to increase concentrations to dangerous levels.

Details for the interior detection and alarm systems are included in Details 2, 3, and 4.

Athletic Field Liner

The athletic field will be equipped with a low-permeability liner in addition to the compacted soil cap to increase stormwater removal efficiency (to mitigate for low overland slopes) and to provide protection from potential LFG releases. The field liner will consist of a geosynthetic clay liner (GCL) installed over a gravel leveling course. GCL has been demonstrated to reduce methane flow rate four to five times more than a compacted clay layer (Trauger and Lucas, 1995).

The collection system beneath the liner will consist of a network of perforated pipes installed in the gravel leveling course. The perforated pipes will be routed to solid wall header pipes at the upgradient perimeter of the liner, which will then lead to a vent stack. Multiple vent stacks may be used if other subsurface utilities interfere with header pipe locations.

Utility Structures and Conduits

When installed over the landfill, subsurface utility structures and conduits may serve as collection points for LFG. Gas may intrude through unsealed or improperly sealed pipe joints, structure segments, or conduit penetrations and become concentrated without free-flowing ventilation.

Sewer structures will utilize sealed penetrations and gasketed connections to prevent potential for gas intrusion to the drainage system. Manhole lids and inlet structure grates will not be sealed, to allow passive venting of the system.

Electrical service lines, conduits, and junction boxes will be installed aboveground where practical; however, some buried conduits are anticipated. Conduit seals will be installed in all locations where electrical service lines emerge from trenches and before conduits enter a building. A conduit seal detail is shown in Detail 13.

Utility Trenches

Utility trenches present a possible pathway for LFG migration. Pipe backfill and bedding materials commonly consist of pea gravel, sand, or other fine-grained / low-cohesion materials that have higher void space percentage, giving gases an open pathway. Trench dams will be installed at the edge of waste and in all utility trenches at the edge of building foundations. Trench dams are sections of trench backfilled with high-density, low-permeability materials such as bentonite mixes or controlled-density fill. The dense backfill material prevents gas from migrating out of the trench where the pipes daylight or enter a building.

A typical trench dam detail is included in Detail 15.

LFG Venting

LFG vents will be routed to locations above the typical breathing zone. The breathing zone will be defined as a vertical height of 6 feet at any point where a human could be located (ground surface, inside a building, seating areas). All LFG vents should be installed to a vertical height of no less than 4 feet above the breathing zone at any location on the site. Vents may be affixed to or integrated with fence posts, flag poles, buildings (above roof level), or other structures that may be tall enough to provide the minimum vertical clearance. Vents will not be located within 10 feet horizontally of any other vent system (plumbing, exhaust, smokestack, etc.), and 25 feet from any air intake system (air handlers, etc.).

Landfill Gas Monitoring

An LFG monitoring plan will be established upon completion of the final development design. The monitoring program will provide the required monitoring points and an established schedule of monitoring events. Monitoring events will be conducted by a trained City employee using a hand-held methane meter. Methane and oxygen will be the directly monitored, although additional analysis for hydrogen sulfide and carbon dioxide may be included if site observations or other factors indicate that these gases may be present (i.e. high methane levels, low oxygen levels, odor). At a minimum the following points will be included for monitoring:

- Each interior room of all enclosed buildings constructed over and adjacent to the landfill (including Western Oregon Waste transfer station).
- Interiors of other (not fully enclosed) buildings such as dugouts or covered seating areas.
- Inside all stormwater and sanitary sewer manholes and cleanouts.
- Inside stormwater catchment structures.

- Low points in exterior depressions such as rain gardens or ditches.
- Inside other vaults (aboveground and below grade).
- Inside electrical junction boxes.
- All monitoring probes for building slabs.
- Locations along and immediately outside the site property boundary; locations may be determined by wind direction at the time of monitoring.
- Predetermined locations over the athletic field and around the site as necessary.

Monitoring events will be conducted quarterly. Minimum information recorded for each monitoring event will include weather conditions (temperature, wind, precipitation, etc.), date of event, time increments for sampling, equipment used, detected presence of methane (and concentration as applicable), name of inspector, and other pertinent site observations. Events should be completed when the site is vacant of other uses. Results for each event will be reported to DEQ.

REFERENCES

GeoEngineers. 2012. Site investigation, Astoria Landfill. Prepared for Oregon Department of Environmental Quality. February 6.

MFA. 2013a. Letter (re: landfill gas investigation: Astoria Landfill site, 1790 Williamsport Road, Astoria, Oregon) to J. Harrington, City of Astoria, from A. Hughes and K. Roslund, Maul Foster & Alongi, Inc., Portland, Oregon. January 17.

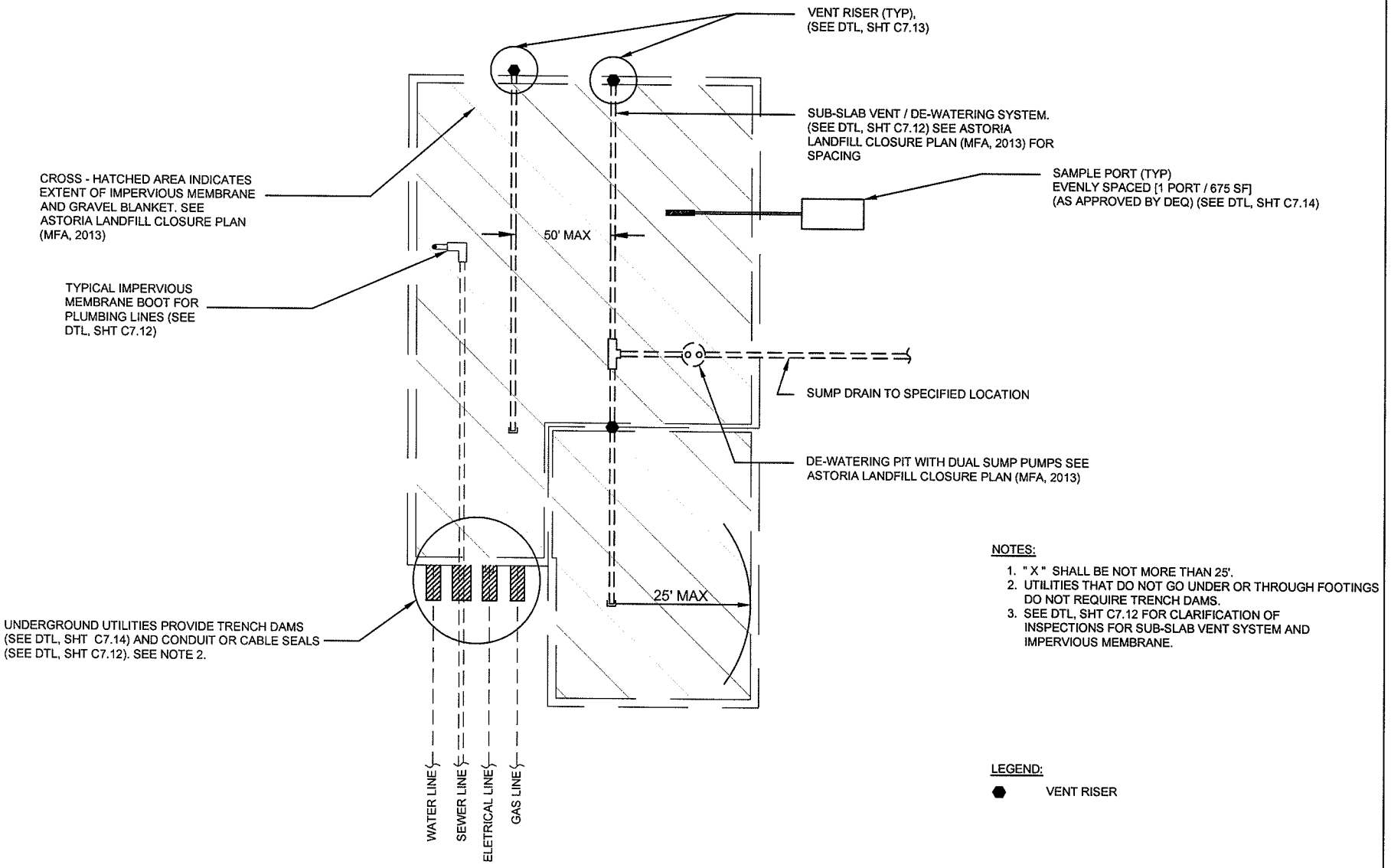
MFA. 2013b. Astoria Landfill closure plan update. Prepared for City of Astoria. Maul Foster & Alongi, Inc., Portland, Oregon. July.

Trauger, R. J., and H. L. Lucas. 1995. Determining the flow rate of landfill gas constituents through a geosynthetic clay liner. Geosynthetics '95 Conference Proceedings, Industrial Fabrics Association International, pp. 1085-1096.

Attachments: Details 1—23

ATTACHMENT

DETAILS 1—23



NOTES:

1. " X " SHALL BE NOT MORE THAN 25'.
2. UTILITIES THAT DO NOT GO UNDER OR THROUGH FOOTINGS DO NOT REQUIRE TRENCH DAMS.
3. SEE DTL, SHT C7.12 FOR CLARIFICATION OF INSPECTIONS FOR SUB-SLAB VENT SYSTEM AND IMPERVIOUS MEMBRANE.

LEGEND:

⬢ VENT RISER

SCALE: NOT TO SCALE

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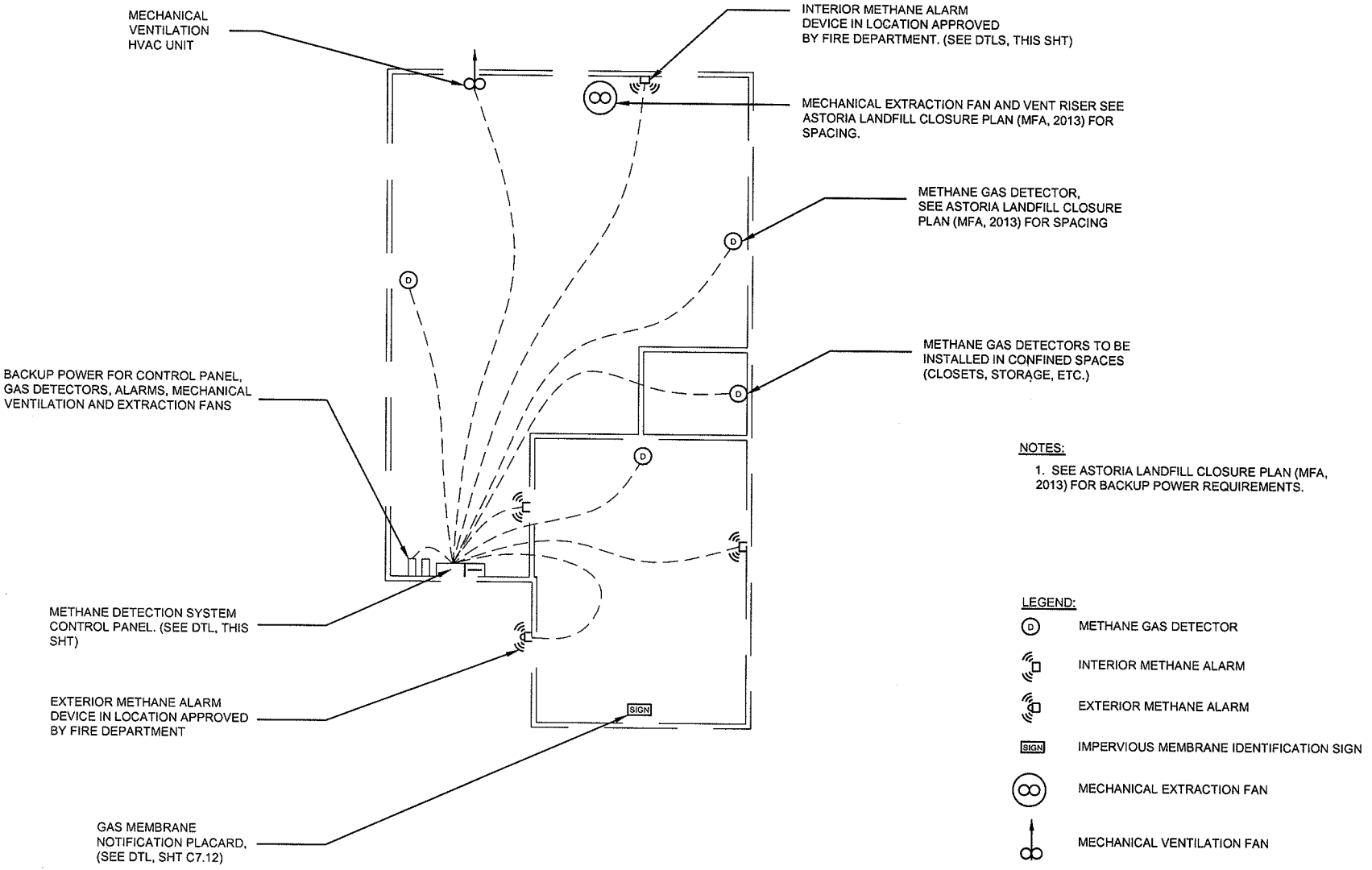
SAMPLE PLAN FOR BELOW SLAB METHANE MITIGATION COMPONENTS

LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA

ASTORIA, OR

DETAIL 1



NOTES:

1. SEE ASTORIA LANDFILL CLOSURE PLAN (MFA, 2013) FOR BACKUP POWER REQUIREMENTS.

LEGEND:

- METHANE GAS DETECTOR
- INTERIOR METHANE ALARM
- EXTERIOR METHANE ALARM
- IMPERVIOUS MEMBRANE IDENTIFICATION SIGN
- MECHANICAL EXTRACTION FAN
- MECHANICAL VENTILATION FAN

SCALE: NOT TO SCALE

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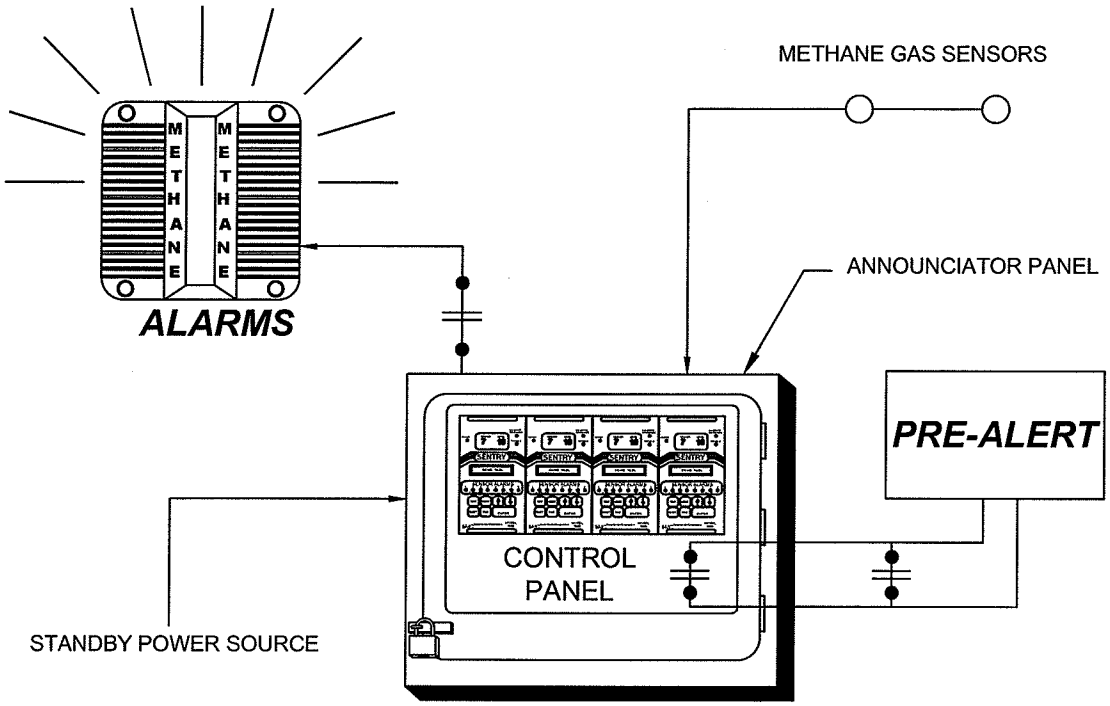
SAMPLE PLAN FOR ABOVE SLAB METHANE MITIGATION COMPONENTS

LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
ASTORIA, OR

DETAIL 2



NOTES:

1. THE METHANE DETECTION SYSTEM SHALL OPERATE 24 HR./DAY CONTINUOUSLY.
2. ALL BUILDING STROBE/ALARMS TO SOUND SIMULTANEOUSLY UPON ANY HIGH GAS DETECTION IN BUILDING.
3. AUTO DIALER SHALL BE REQUIRED.
4. STANDBY POWER SHALL PROVIDE SUFFICIENT POWER TO THE METHANE GAS SENSORS FOR 24 HOURS.

SCALE: NOT TO SCALE

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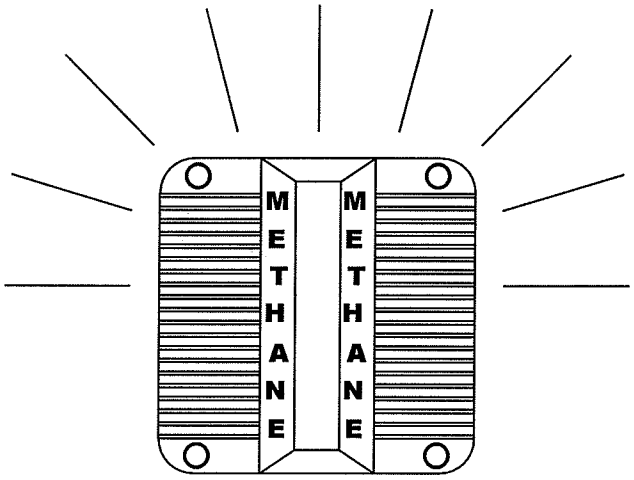
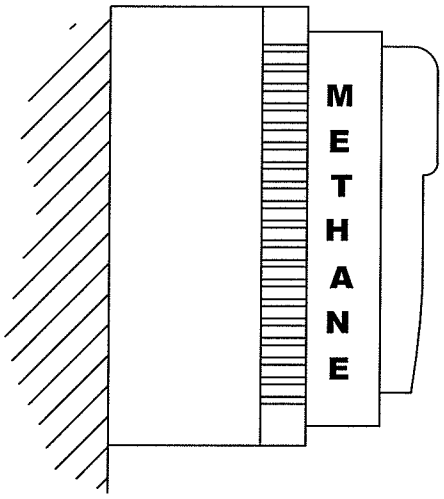
METHANE DETECTION SYSTEM
LANDFILL GAS
BUILDING SYSTEMS DESIGN
CITY OF ASTORIA
ASTORIA, OR

DETAIL 3



STROBE



WALL

SURFACE MOUNT HORN/STROBE

SIDE VIEW - HORN AND STROBE DEVICE

SCALE: NOT TO SCALE

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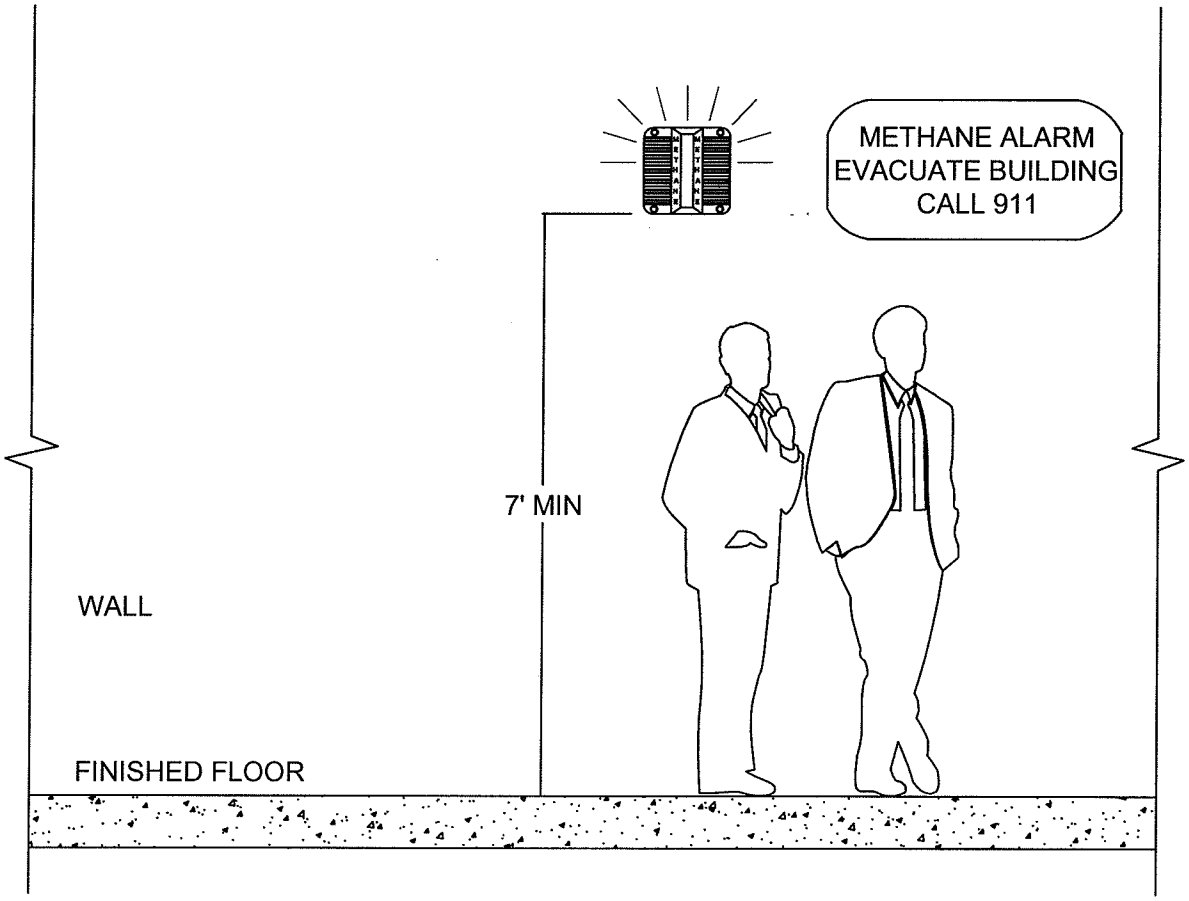
METHANE ALARM DEVICE - HORN AND STROBE

LANDFILL GAS
BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
ASTORIA, OR

DETAIL 4



NOTE:

1. ALL METHANE AUDIO/VISUAL ALARMS SHALL BE INSTALLED ABOVE THE FLOOR AT A STANDARD HEIGHT OF 7 FEET WITH ADJACENT SIGNAGE (AS SHOWN) UNLESS OTHERWISE NOTED.

2. PREFERENCE SHALL BE GIVEN TO SMALL ENCLOSED SPACES FOR LOCATING DETECTORS.

SCALE: NOT TO SCALE

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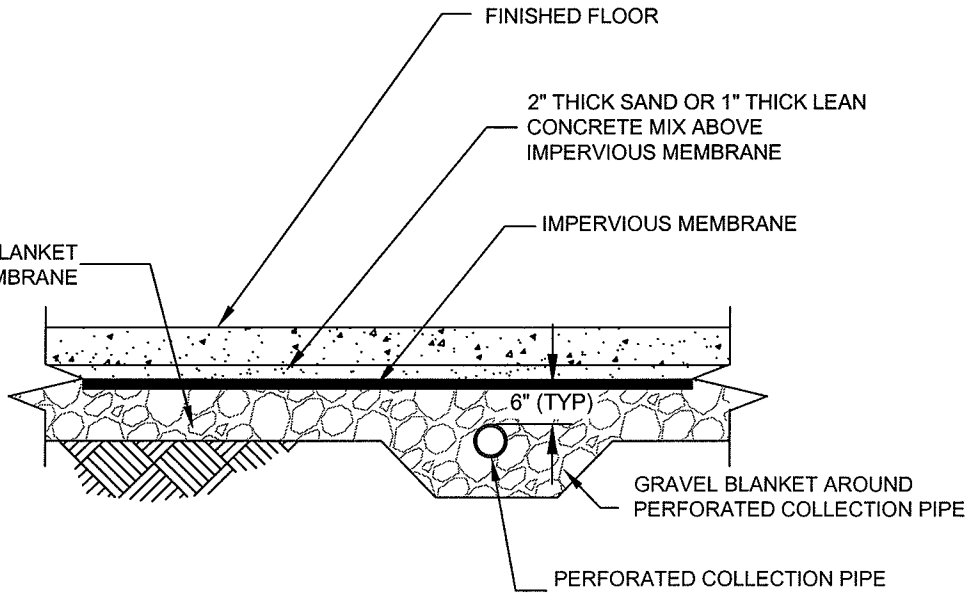
METHANE ALARM DEVICE MOUNT
LANDFILL GAS
BUILDING SYSTEMS DESIGN
CITY OF ASTORIA
ASTORIA, OR

DETAIL 5



NOTE: IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET,GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

SCALE: NOT TO SCALE

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SUB-SLAB VENT SYSTEM

LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
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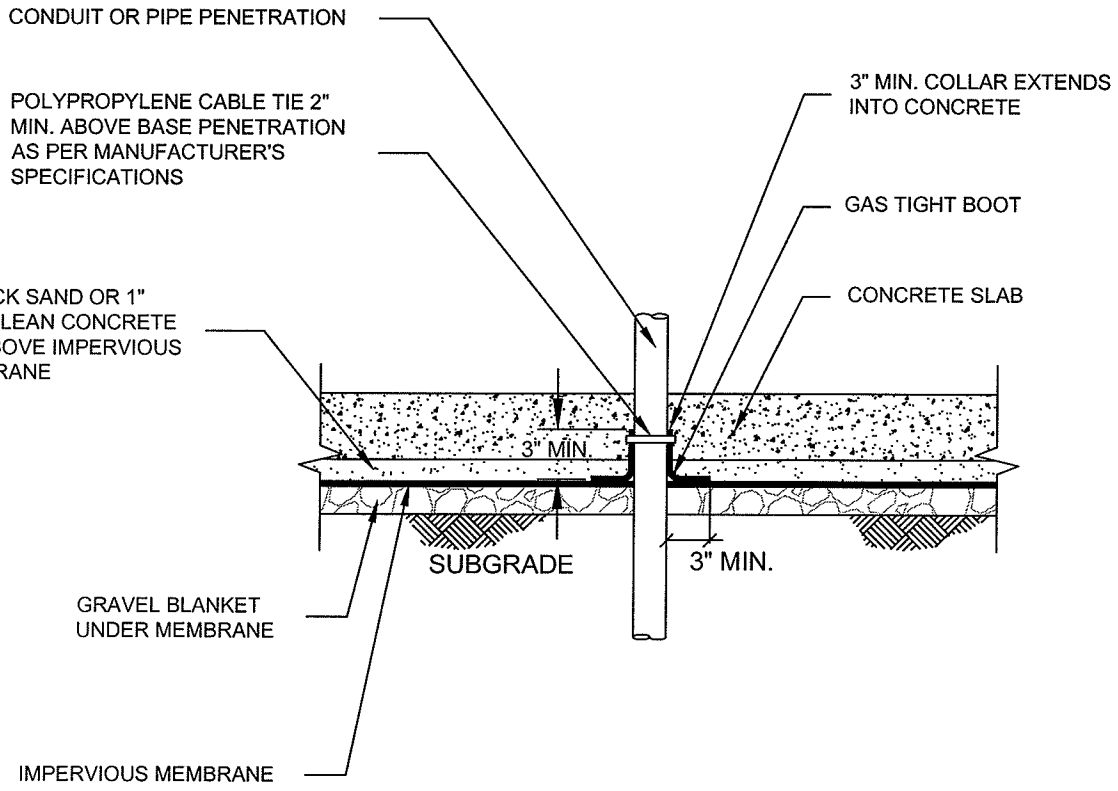
DETAIL 6



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SCALE: NOT TO SCALE

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MEMBRANE BOOT
LANDFILL GAS
BUILDING SYSTEMS DESIGN
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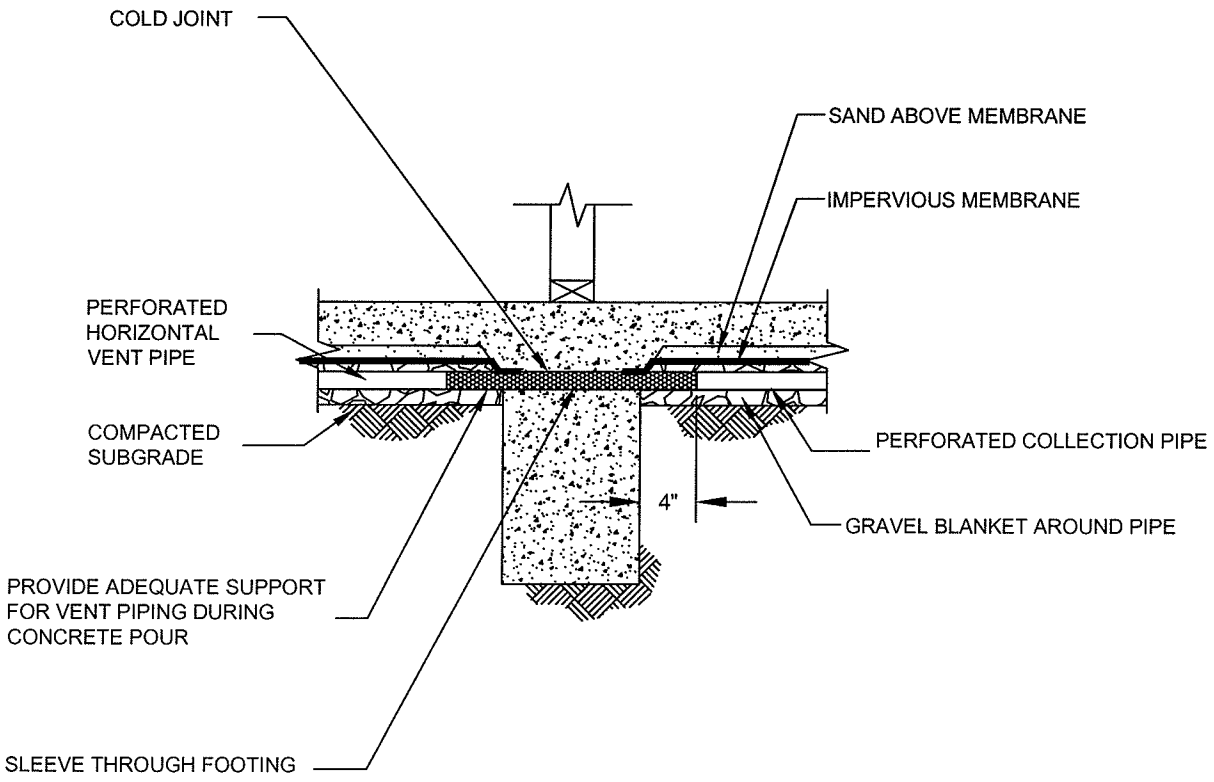
DETAIL 7



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VENT PIPE AT INTERIOR FOOTING
LANDFILL GAS
BUILDING SYSTEMS DESIGN
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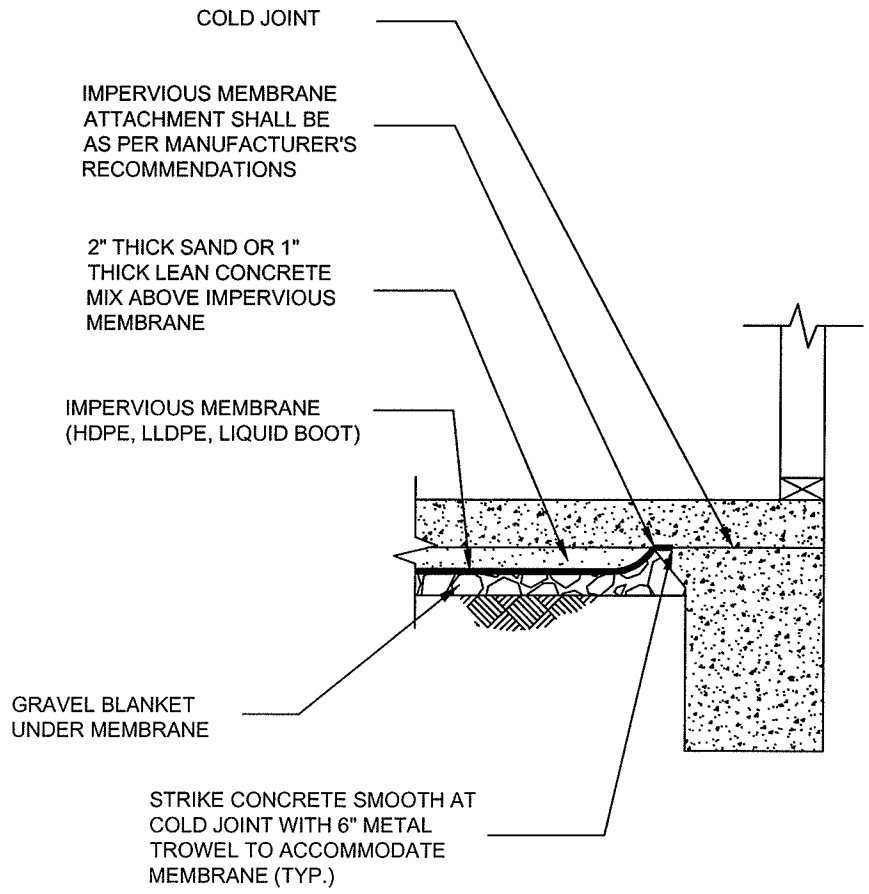
DETAIL 8



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SCALE: NOT TO SCALE

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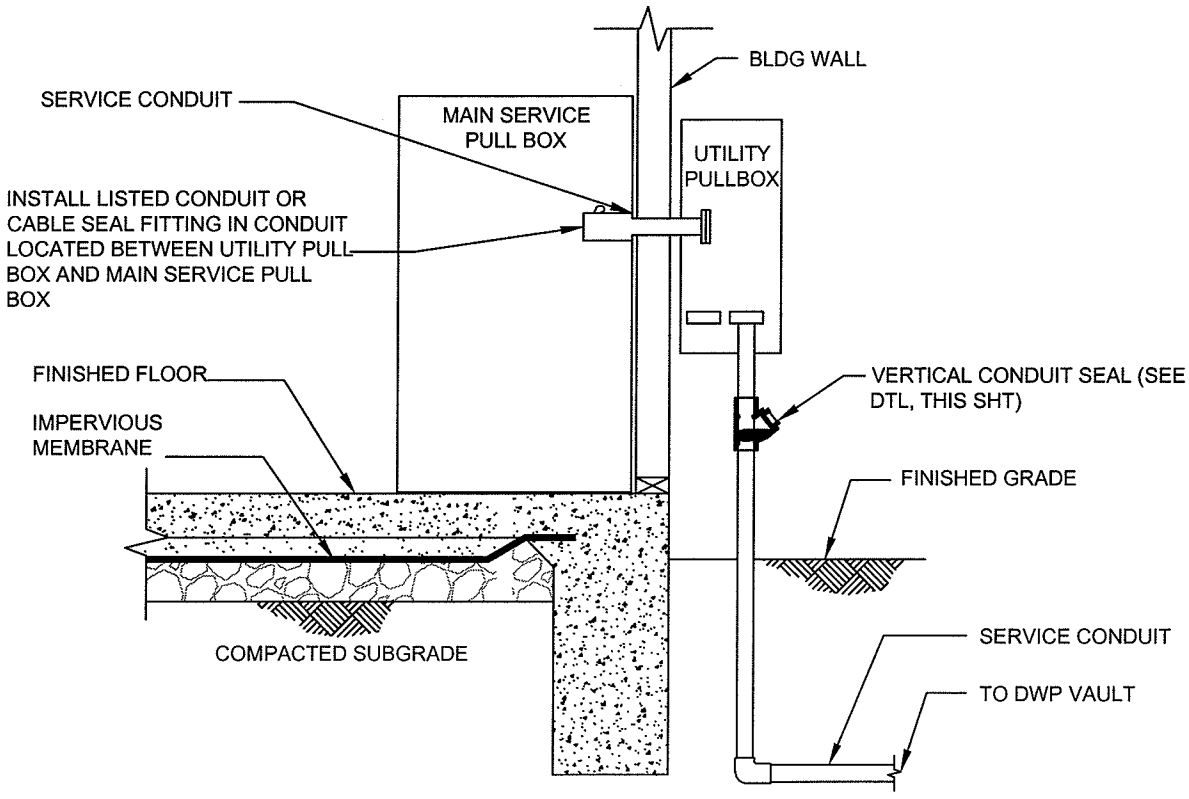
MEMBRANE TERMINATION AT EXT FTG
LANDFILL GAS BUILDING SYSTEMS DESIGN
CITY OF ASTORIA
ASTORIA, OR

DETAIL 9



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NOTE:

1. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE - SENSITIVE CORROSION PREVENTIVE TAPE.
2. IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET,GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE

SCALE: NOT TO SCALE

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CONDUIT OR CABLE SEAL FITTINGS
LANDFILL GAS
BUILDING SYSTEMS DESIGN
CITY OF ASTORIA
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DETAIL 10

WARNING

THIS BUILDING IS PROTECTED WITH A METHANE GAS CONTROL BARRIER. ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE BUILDING OFFICIAL AND INSPECTION BY AN ENGINEER.

NOTES:

1. THIS NOTIFICATION IS TO BE PERMANENTLY STAMPED OR ETCHED IN THE SURFACE OF THE SLAB OR OTHER LOCATION APPROVED BY THE BUILDING INSPECTOR AT THE TIME OF CONSTRUCTION.
2. ALL LETTERS 1/2" (MIN.) IN HEIGHT.
3. AT LEAST ONE REQUIRED PER BUILDING.
4. THIS NOTIFICATION SHALL BE POSTED AND MAINTAINED AT THE FRONT ENTRANCE OF THE BUILDING, EXCEPT RESIDENTIAL BUILDINGS.

SCALE: NOT TO SCALE

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GAS MEMBRANE NOTIFICATION PLACARD

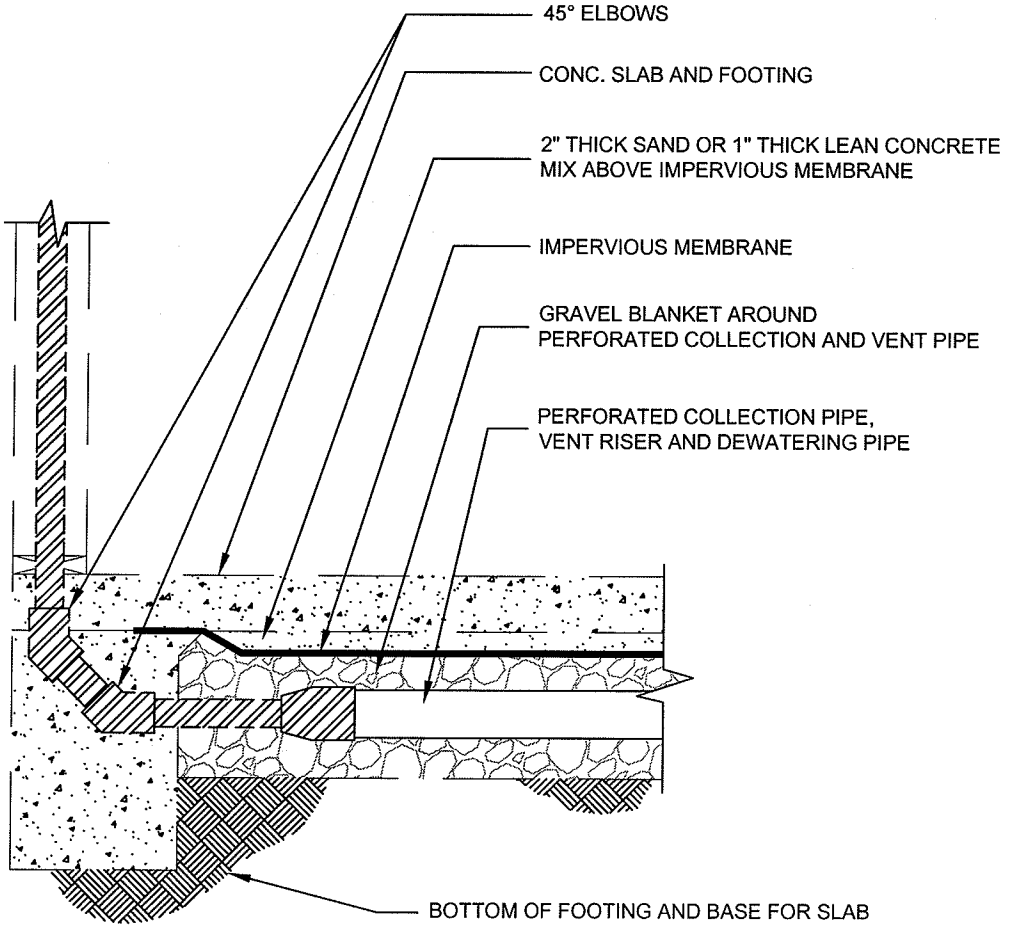
LANDFILL GAS

BUILDING SYSTEMS DESIGN

CITY OF ASTORIA

ASTORIA, OR

DETAIL 11



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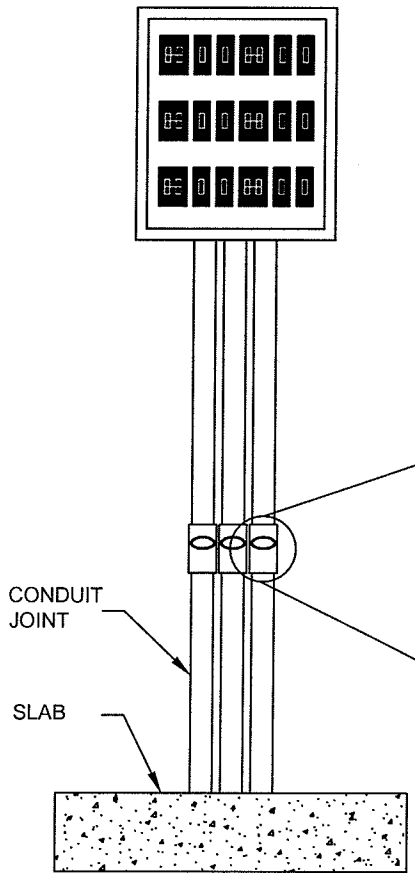
INSPECTION REQUEST TERMINOLOGIES

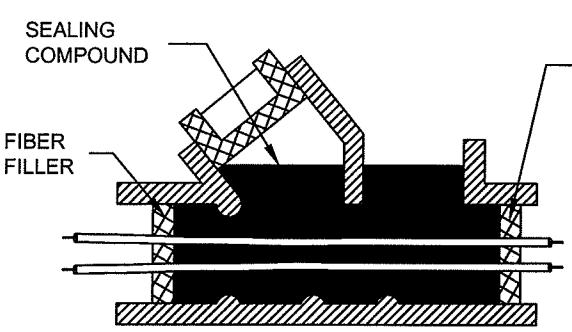
LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
ASTORIA, OR

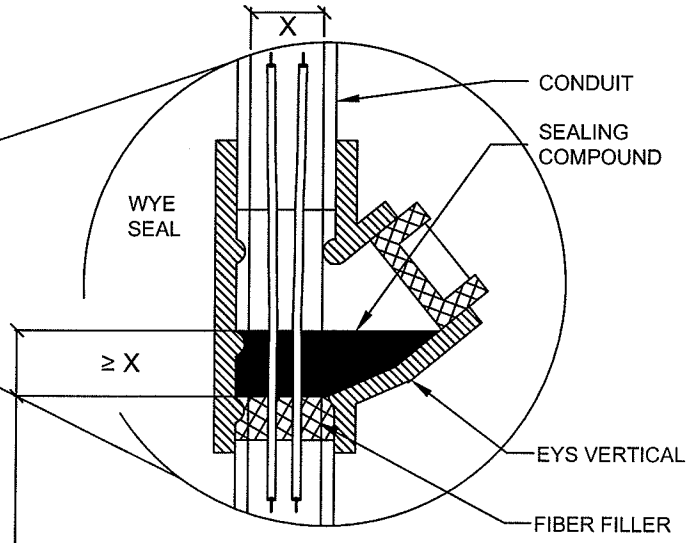
DETAIL 12

EXTERIOR ELECTRICAL PULL BOX





HORIZONTAL CONDUIT SEAL



FILL THICKNESS EQUAL TO CONDUIT DIAMETER NOT LESS THAN 5/8"

VERTICAL CONDUIT SEAL

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CONDUIT SEAL
LANDFILL GAS BUILDING SYSTEMS DESIGN
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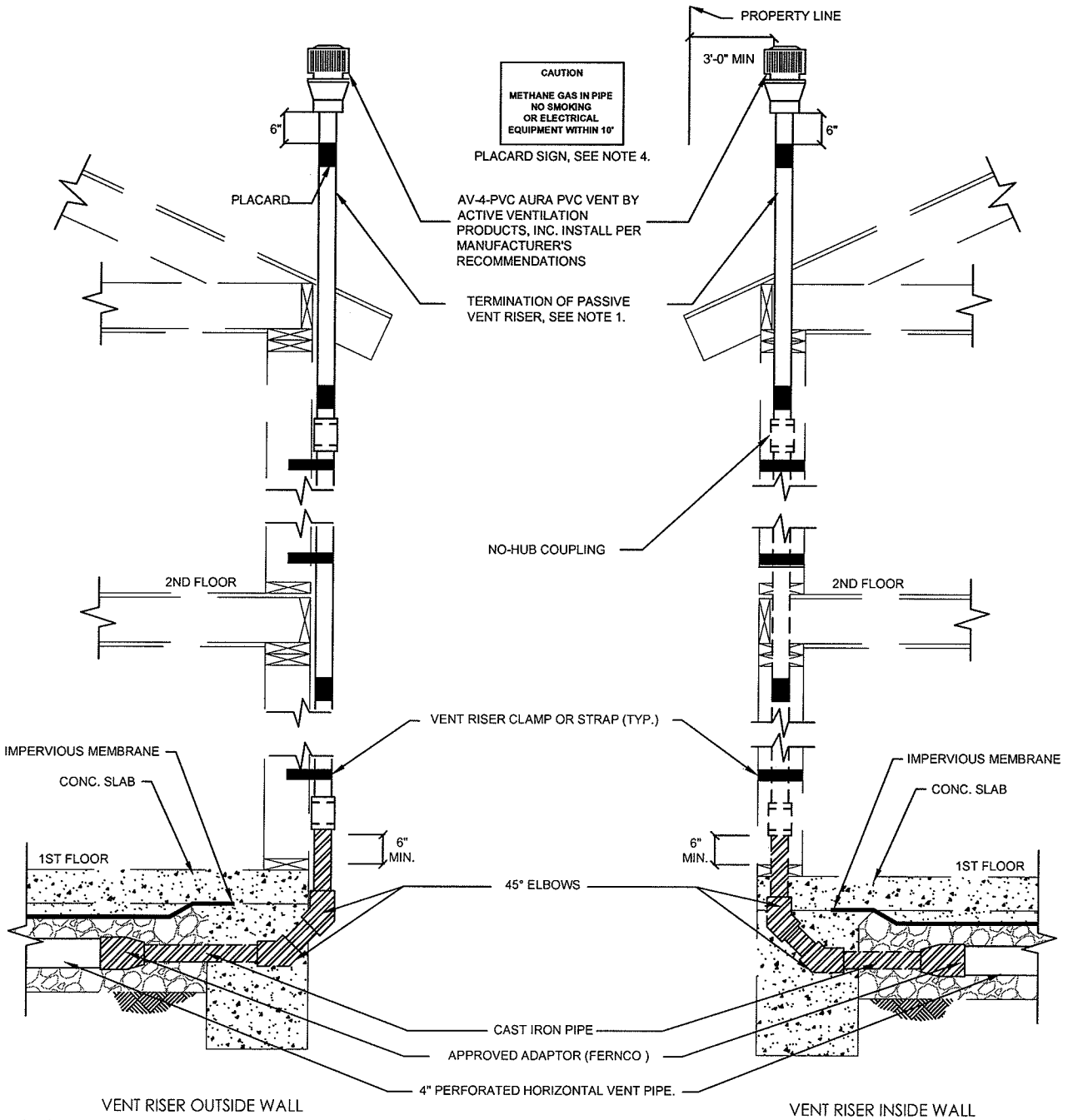
DETAIL 13



NOTES:

1. TERMINATION OF PASSIVE VENT RISER SHALL BE AS FOLLOWS:
   A. 10' MIN. AWAY FROM, OR AT LEAST 3' ABOVE ANY OPENABLE WINDOW, DOOR, OPENING OR AIR INTAKE, OR VENT SHAFT.
   B. 3' MIN. IN EVERY DIRECTION FROM ANY LOT LINE, ALLEY, AND STREET.
   C. EXTEND THROUGH THE VENT FLASHING, 6" MIN. ABOVE THE ROOF, AND 1' MIN. FROM ANY PARAPET OR BUILDING WALL.
2. WRAP ALL PIPING WITH APPROVED MATERIAL THROUGH CONCRETE SLAB OR FLOOR.
3. THE PIPING OF THE VENTING SYSTEM SHALL BE TESTED WITH AIR IN ACCORDANCE WITH THE 2009 UNIFORM PLUMBING CODE.
4. PLACARD SIGN SHALL BE 3" HIGH X 4" WIDE, MADE OF PLASTIC WITH ADHESIVE BACKING, AND HAVE 1/4" HIGH BLACK LETTERS ON WHITE BACKGROUND
5. RESIDENTIAL BUILDINGS UP TO 2 STORIES MAY USE PVC, CAST IRON, GALVANIZED STEEL, BLACK IRON OR PVDF PIPES AS VENT RISER. FOR ALL OTHER BUILDINGS, VENT RISER SHALL BE OF GALVANIZED STEEL PIPE.

SCALE: NOT TO SCALE

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VENT RISER
LANDFILL GAS
BUILDING SYSTEMS DESIGN
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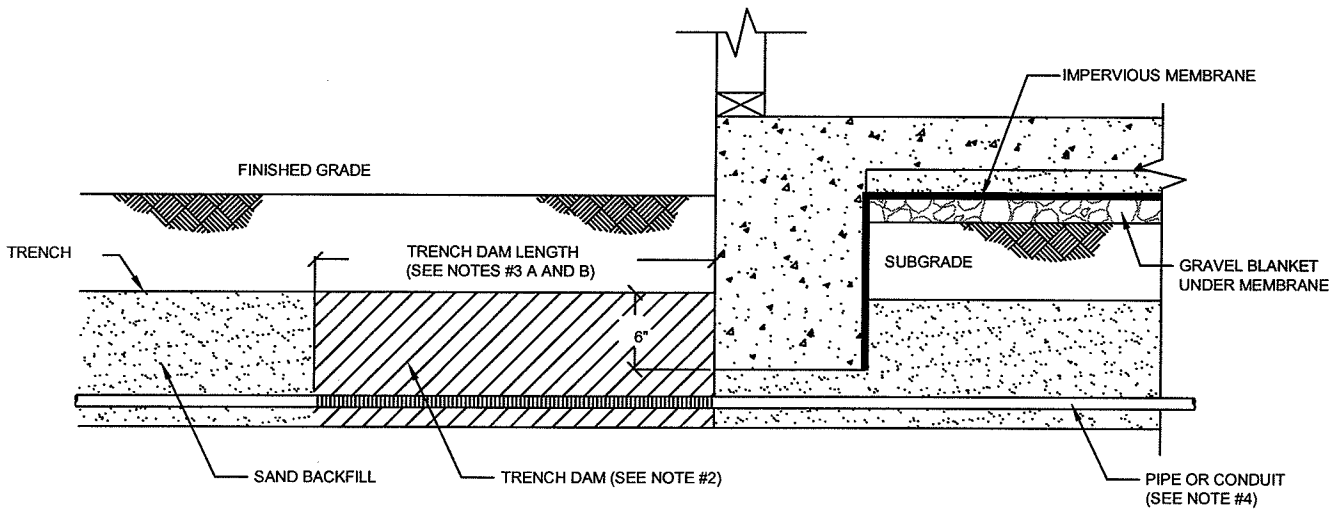
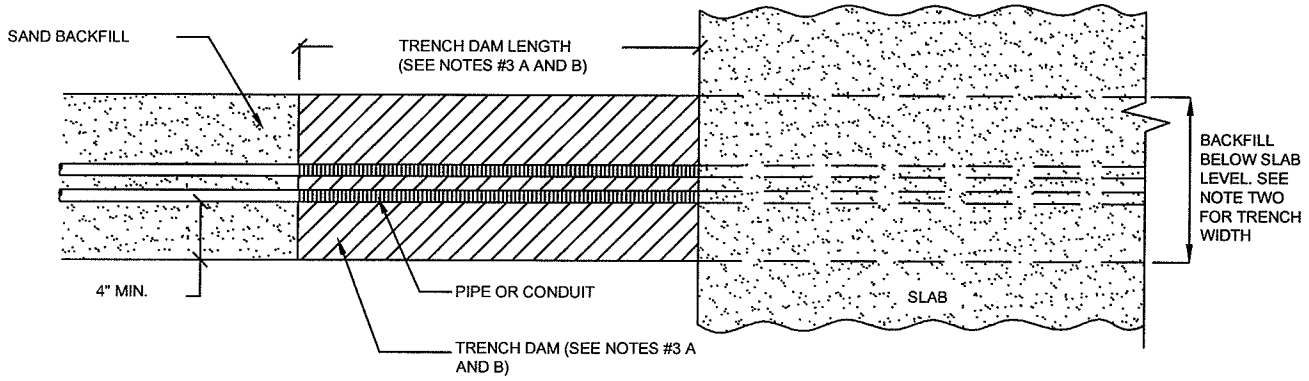
DETAIL 14



SECTION:



PLAN VIEW:

NOTES: TRENCH DAMS

1. ALL TRENCH DAMS SHALL BE INSTALLED IN TRENCHES CONTAINING PIPING AND CONDUIT.
2. THE WIDTH OF A TRENCH DAM SHALL BE ONE HALF THE LENGTH.
3. TRENCH DAMS SHALL BE CONSTRUCTED OF ONE OF THE FOLLOWING:
   A. BENTONITE CEMENT SLURRY THREE FEET LONG: A MIXTURE OF 4% TYPE II CEMENT, AND 2% POWDERED BENTONITE.
   B. COMPACTED NATIVE SOILS BACKFILL FIVE FEET LONG: NATIVE SOILS SHALL BE COMPACTED AT LEAST 90% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 TESTING PROCEDURES.
   C. CONCRETE MIXES OTHER THAN BENTONITE CEMENT SLURRY MAY BE USED PROVIDED CONDUIT OR PIPING IS WRAPPED WITH HIGH DENSITY PVC FOAM TAPE, CLOSED CELLS, ADHESIVE BACKED, 1/4" THICK BY ½" WIDE SHALL BE APPLIED TO CLEAR SURFACE WITH ENDS BUTTED TOGETHER AT MOST VISIBLE LOCATIONS IN TRENCH DAM.
4. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE-SENSITIVE CORROSION PREVENTIVE TAPE.

SCALE: NOT TO SCALE

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TRENCH DAM
LANDFILL GAS
BUILDING SYSTEMS DESIGN
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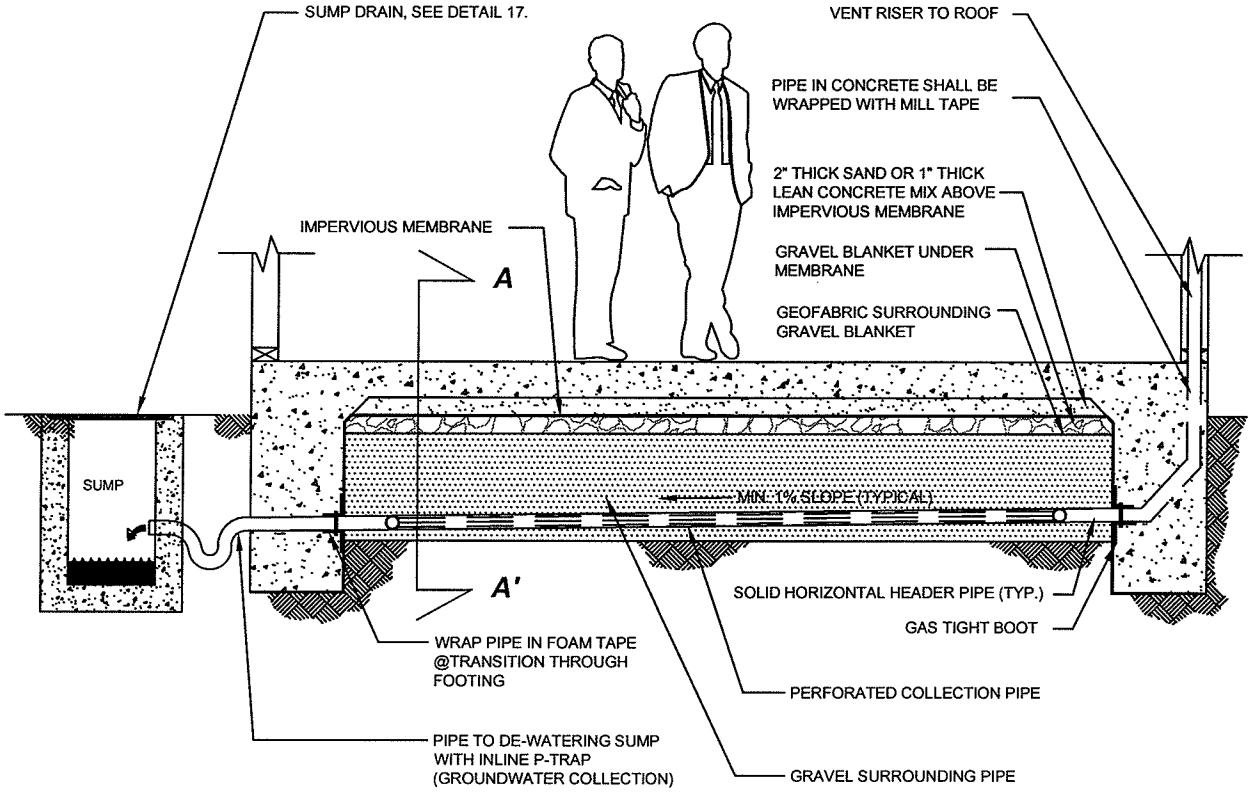
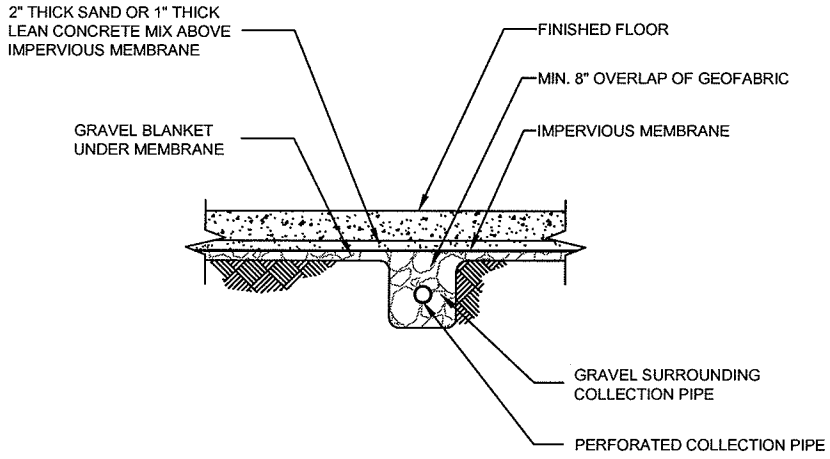
DETAIL 15





SECTION A - A'

NOTES:

1. PERFORATED HORIZONTAL PIPE USED AS COMBINATION DE-WATERING AND VENT PIPE SHALL BE SIZED ONE FULL PLUMBING PIPE SIZE LARGER THAN SIZE REQUIRED FOR VENT PIPING ONLY.
2. PIPING AND CONDUIT SHALL BE PROTECTED FROM CORROSION AND STRUCTURAL SETTLEMENT AS FOLLOWS:
   A. TAPE SHALL BE APPLIED ON CONDUIT AND PIPING ENCASED IN CEMENT SLURRY OR CONCRETE.
   B. TAPE SHALL BE PS-37-90, BLACK PLASTIC PVC OR PE PRESSURE-SENSITIVE CORROSION PREVENTIVE TAPE.

SCALE: NOT TO SCALE

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COMBINATION DE-WATERING AND VENT PIPE
LANDFILL GAS BUILDING SYSTEMS DESIGN
CITY OF ASTORIA
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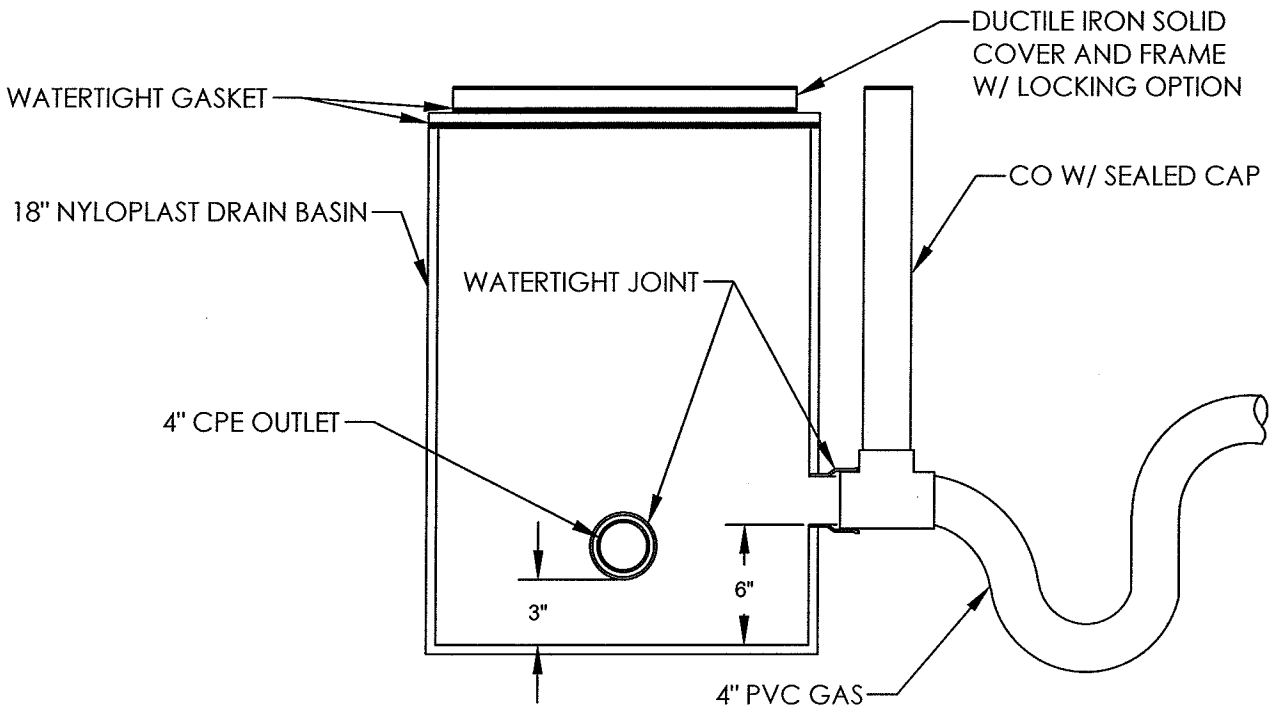
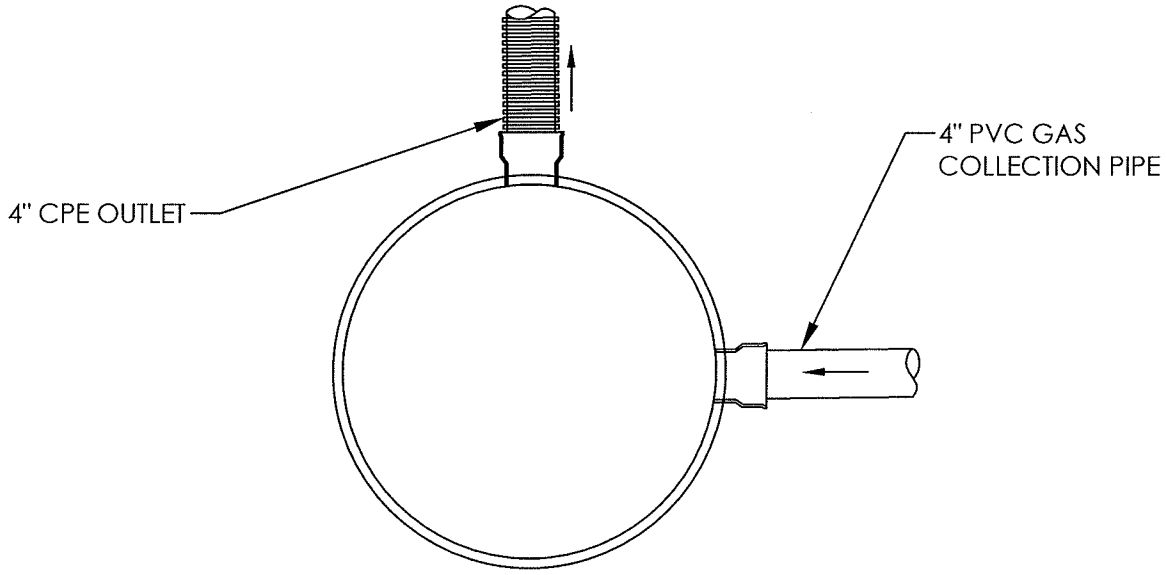
DETAIL 16





NOTE:

1) GAS COLLECTION HEADER PIPE SHALL BE SOLID PIPE WITHIN 2' OF GROUNDWATER SUMP DRAIN.

SCALE: NOT TO SCALE

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GROUNDWATER SUMP DRAIN

LANDFILL GAS BUILDING SYSTEMS DESIGN

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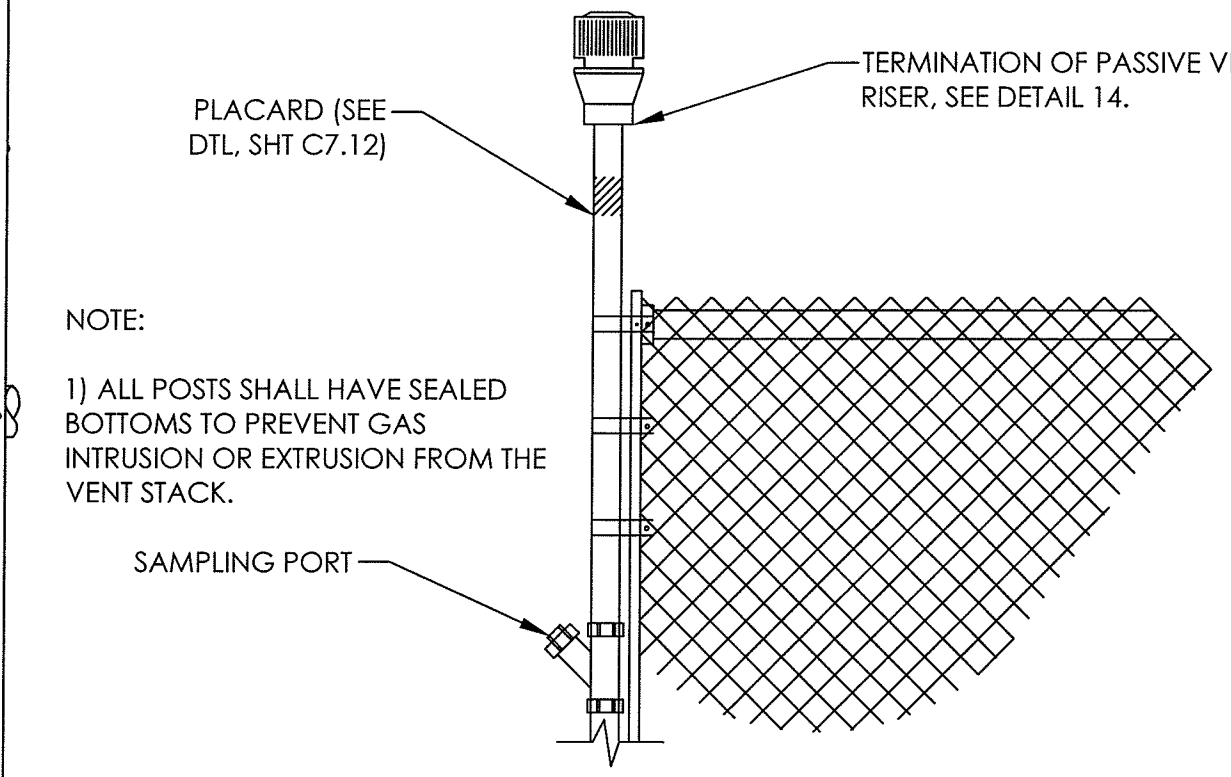
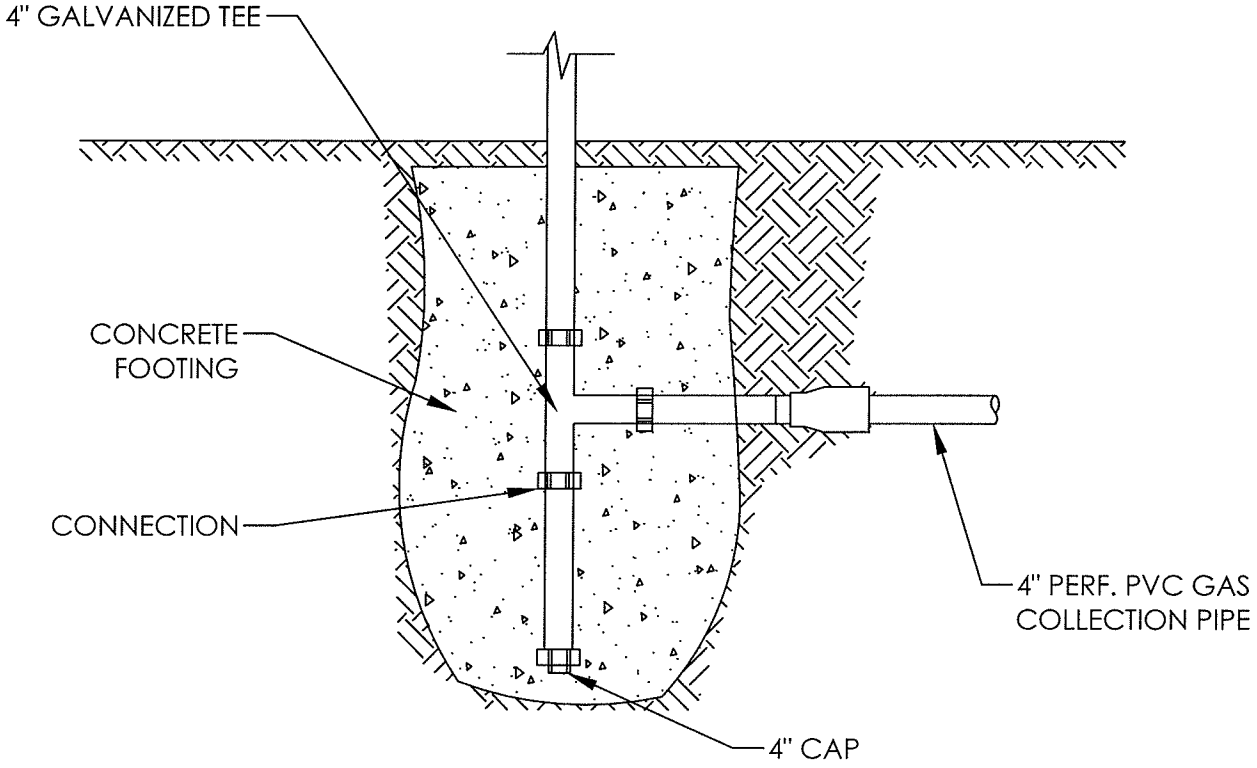
DETAIL 17



NOTE:

1) ALL POSTS SHALL HAVE SEALED BOTTOMS TO PREVENT GAS INTRUSION OR EXTRUSION FROM THE VENT STACK.



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VENT RISER - CHAIN LINK FENCE BACKSTOP

LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
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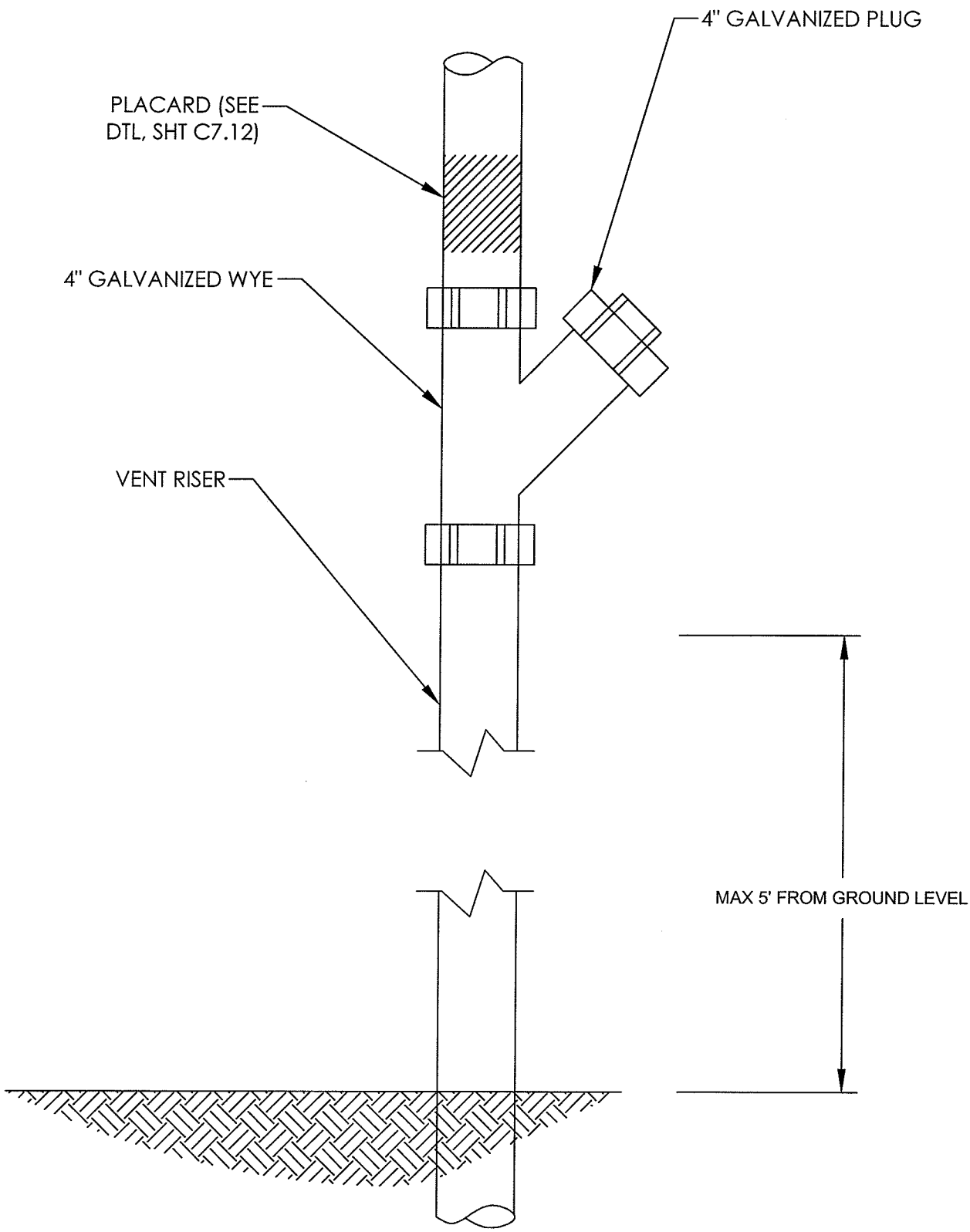
DETAIL 18



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EXTERIOR VENT STACK
LANDFILL GAS
BUILDING SYSTEMS DESIGN
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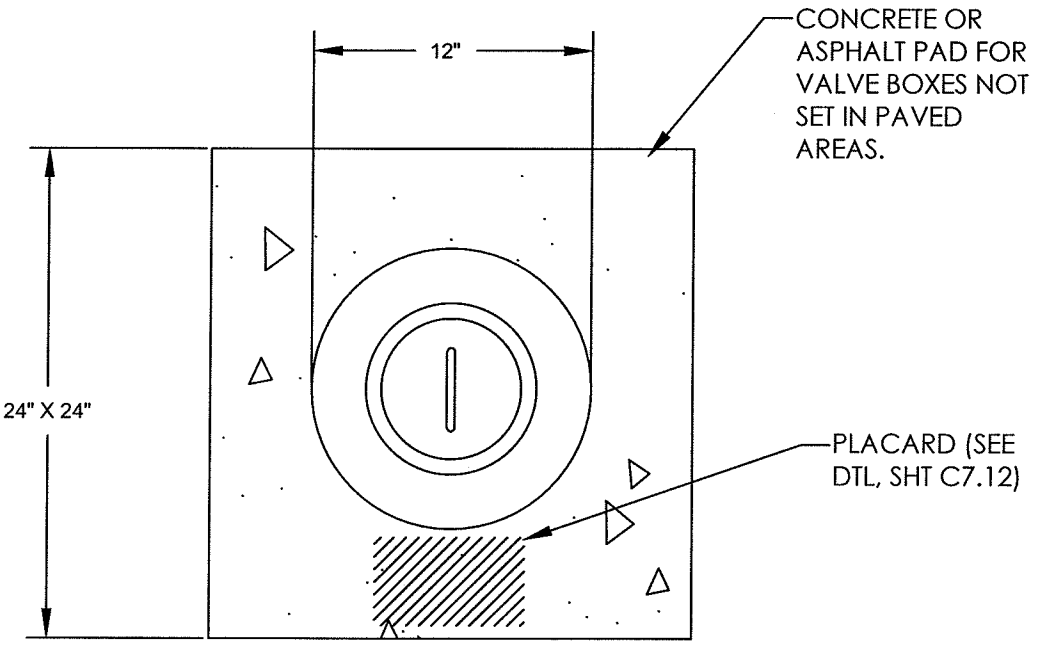
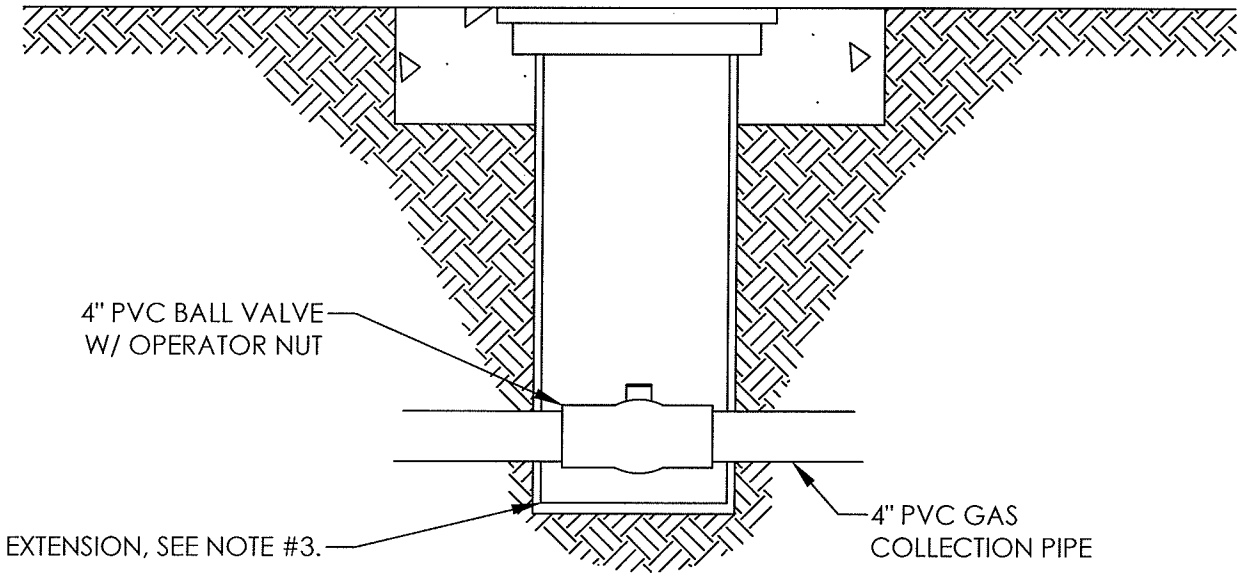
DETAIL 19





NOTE:

1) GAS COLLECTION PIPE SHALL BE SOLID PIPE WITHIN 2' OF VALVE BOX.
2) VALVE BOX SHALL BE U.S. FILTER/PACIFIC WATER WORKS NO. 910 OR EQUAL.
3) EXTENSIONS SHALL BE 8" PVC PIPE WITH SEALED BOTTOM.
4) PIPE PENETRATIONS SHALL BE SEALED.

SCALE: NOT TO SCALE

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VALVE BOX

LANDFILL GAS BUILDING SYSTEMS DESIGN

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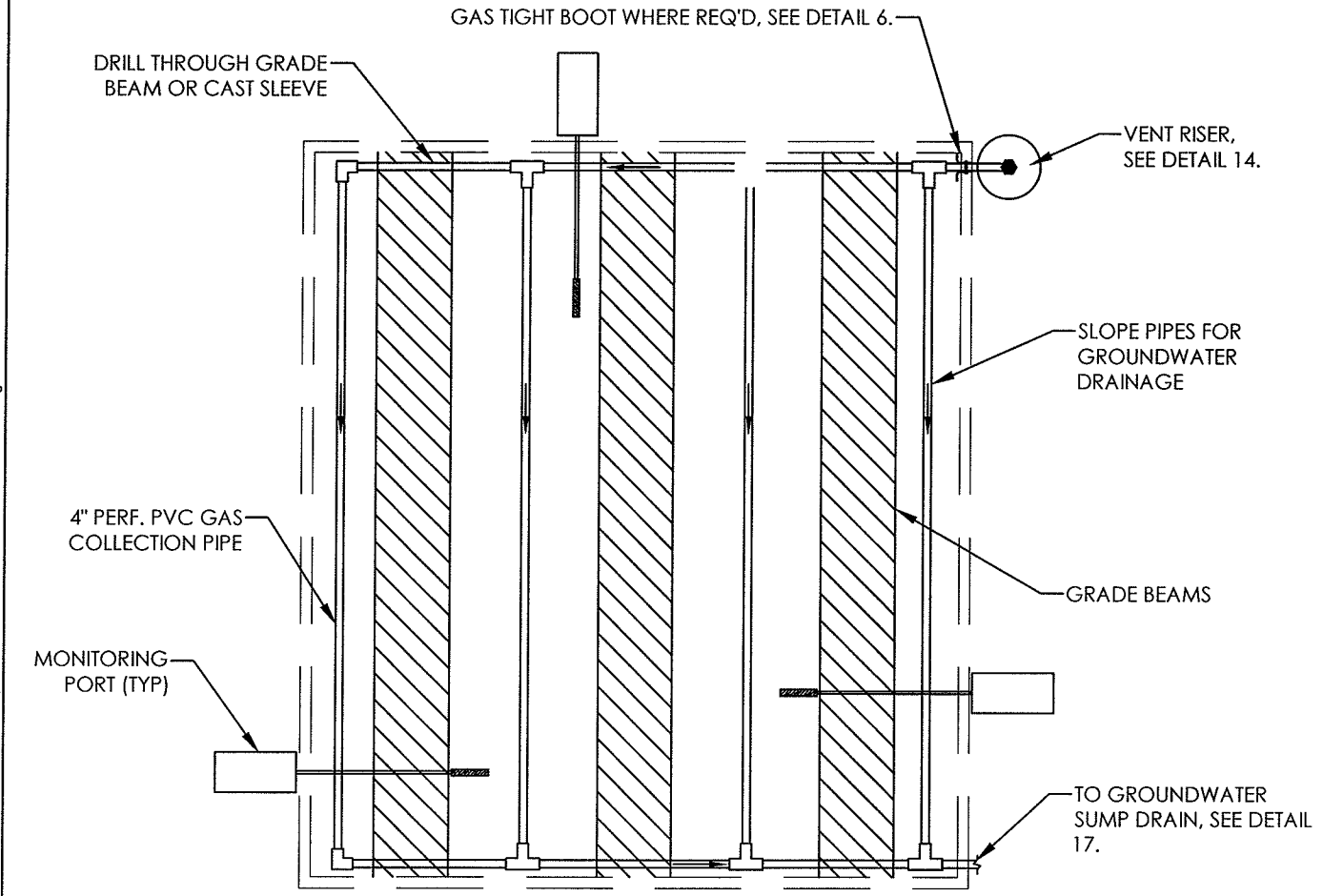
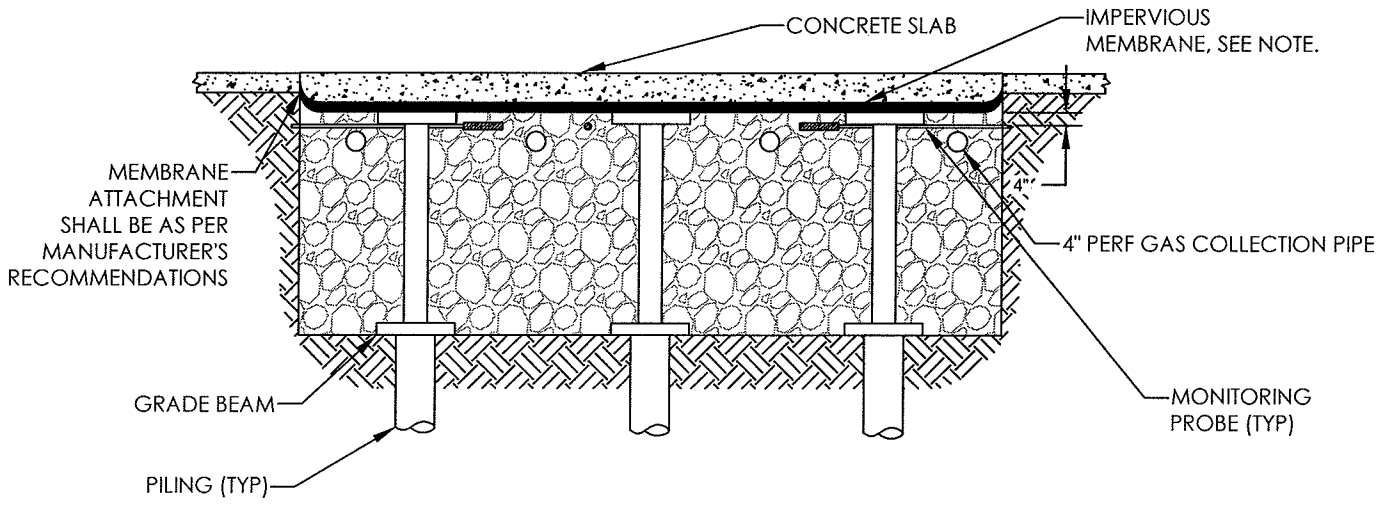
DETAIL 20





NOTE: IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET,GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

SCALE: NOT TO SCALE

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BELOW SLAB METHANE MITIGATION - GRADE BEAM FOUNDATION

LANDFILL GAS BUILDING SYSTEMS DESIGN

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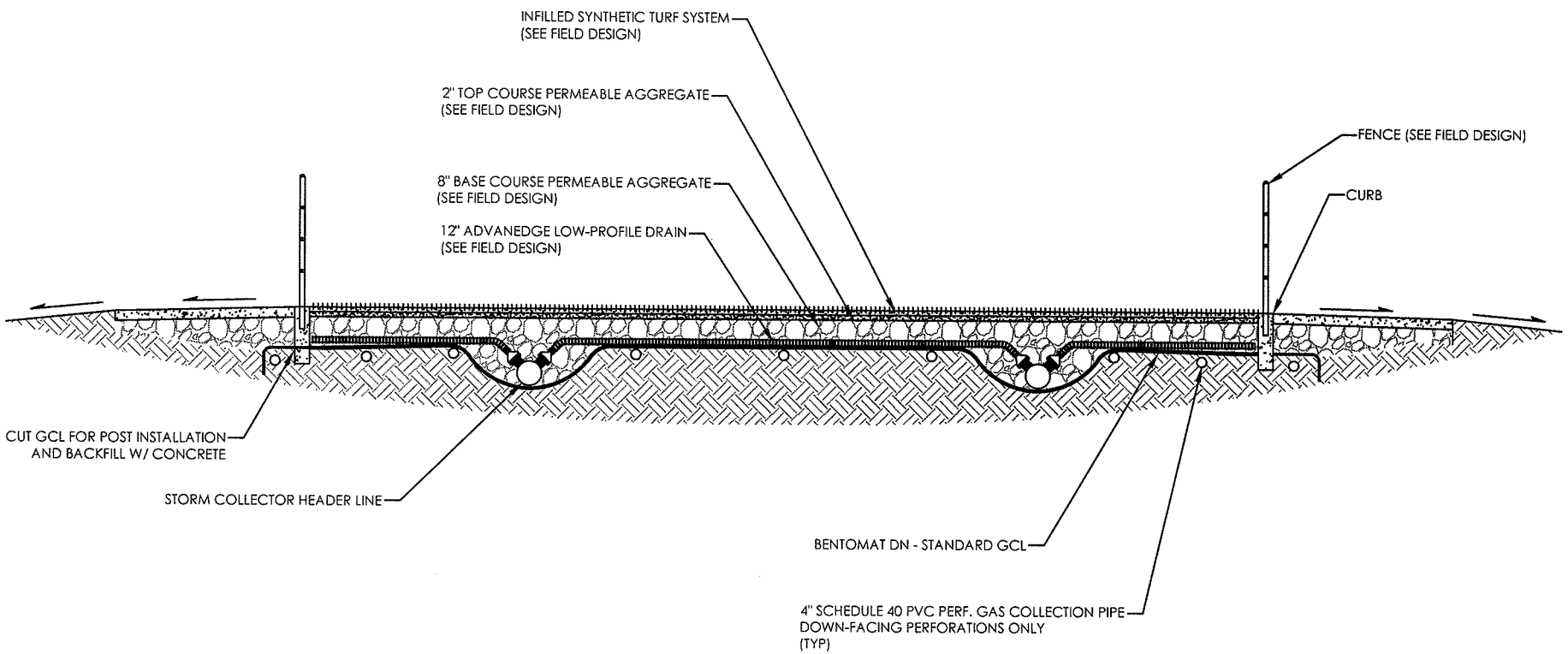
DETAIL 21



NOTE: IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET,GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

SCALE: NOT TO SCALE

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METHANE MITIGATION - FIELD SECTION

LANDFILL GAS BUILDING SYSTEMS DESIGN

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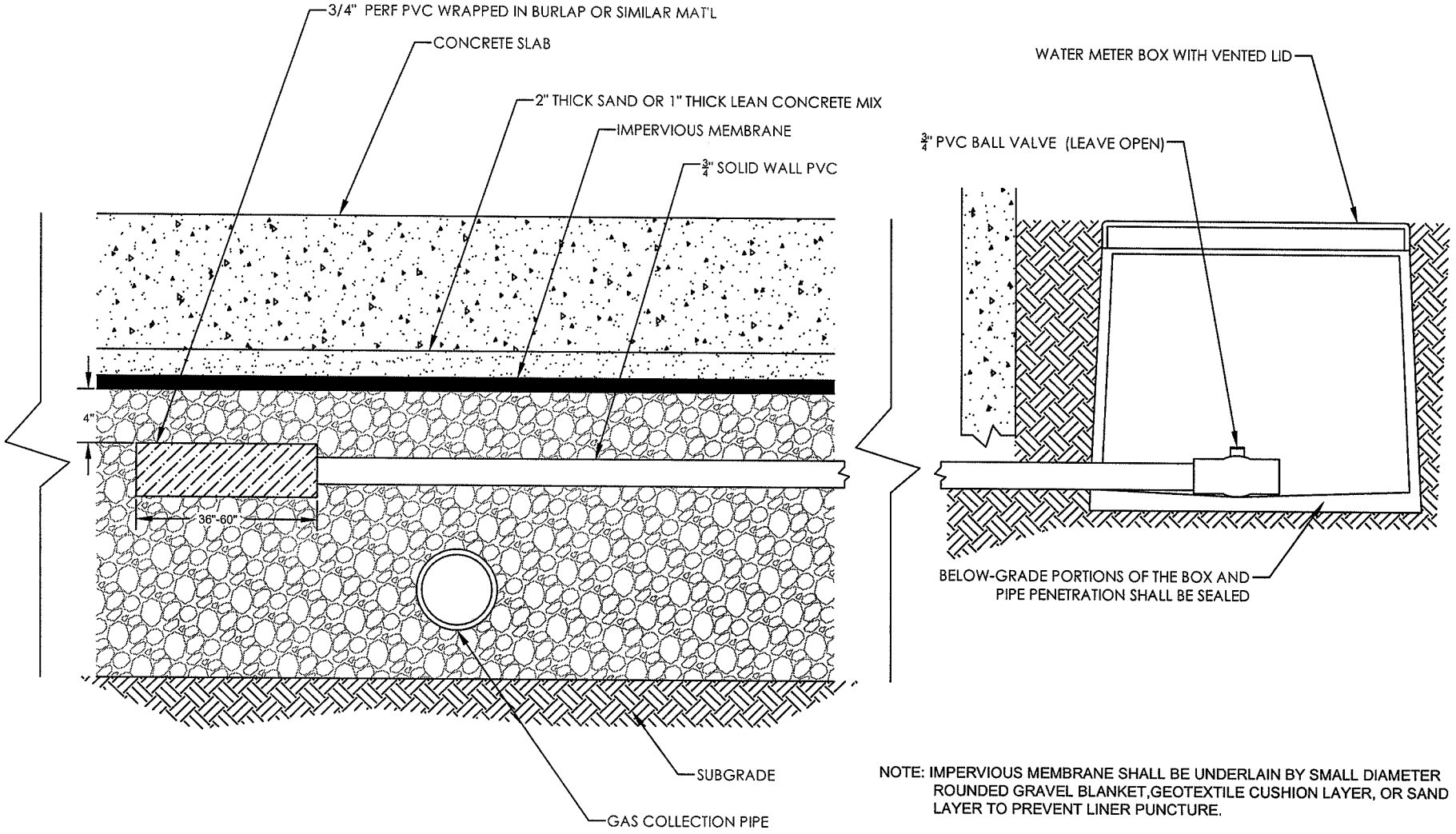
ASTORIA, OR

DETAIL
22



NOTE: IMPERVIOUS MEMBRANE SHALL BE UNDERLAIN BY SMALL DIAMETER ROUNDED GRAVEL BLANKET,GEOTEXTILE CUSHION LAYER, OR SAND LAYER TO PREVENT LINER PUNCTURE.

SCALE: NOT TO SCALE

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MONITORING PORT AND MONITORING PROBE

LANDFILL GAS BUILDING SYSTEMS DESIGN

CITY OF ASTORIA
ASTORIA, OR

DETAIL 23

APPENDIX B

STUDY: FLOW RATE OF LANDFILL GAS THROUGH GEOSYNTHETIC CLAY LINER

DETERMINING THE FLOW RATE OF LANDFILL GAS CONSTITUENTS THROUGH A GEOSYNTHETIC CLAY LINER

A landfill cover system is designed to minimize the amount of water that can infiltrate into the waste and generate leachate. It can also function as a barrier to stop landfill gasses leaving the landfill and entering the atmosphere. Geosynthetic Clay Liners (GCL's) are known to have extremely low hydraulic conductivities, but much less is known about a GCL's effectiveness to function as an effective gas barrier.

In this study a circular GCL specimen was placed in a testing chamber where a known concentration of methane gas was introduced on the source side of the GCL and sampling ports on the receiver side of the GCL monitored the increase in gas concentration over time. With this information, the rate of flow of gas could be calculated.

Three separate tests were completed. In test number one, the flow of methane was measured for a period of 7 days. In test number two, the source gas was benzene. The last test specimen involved measuring the methane permeance of the GCL at different moisture contents.

Test results indicate that the methane flow rate of a GCL is 4 to 5 orders of magnitude less than that of a compacted clay layer when comparing these test results previous studies with a compacted clay layer.

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Determining the Flow Rate of Landfill Gas Constituents Through a Geosynthetic Clay Liner

R.J. Trauger
Colloid Environmental Technologies Co, USA

H.L. Lucas
Lucas Laboratory Inc, USA

ABSTRACT

The primary design objective for a landfill cover system is to minimize the infiltration of precipitation, thereby minimizing the generation of leachate which could eventually threaten groundwater quality. Another cover system design objective, however, is to minimize the emission of gases generated during microbial decomposition of the underlying waste. Geosynthetic clay liners (GCLs) are known to be highly effective hydraulic barriers, yielding hydraulic conductivity values of approximately 1×10^{-11} m/sec when fully hydrated. But much less is known about their effectiveness as gas barriers. To address this issue, a series of tests was performed to quantify the flow of certain gases through a fully hydrated GCL. Similar tests were then performed to determine the moisture content at which the GCL ceases to function as an effective gas barrier. The results indicate that a hydrated GCL is a highly effective methane gas barrier and that benzene gas is actually sorbed by the GCL to the extent that it was not possible to determine a flow rate. Furthermore, it was found that the GCL can withstand significant moisture loss before the gas flow rate increases.

INTRODUCTION

The primary function of a landfill final cover system is to limit the infiltration of precipitation, so as to minimize the production of leachate that could eventually migrate offsite. While much research has been performed to investigate the ability of various barrier materials to minimize infiltration, there has been little emphasis on the design and construction of landfill cover systems as gas barriers. These two goals are not necessarily exclusive, but there should be some verification that an effective hydraulic barrier is also an effective gas barrier. The objectives of this study were to determine the rate of flow of certain landfill gas constituents through a GCL and to assess the GCL's effectiveness as a gas barrier in comparison to that of a compacted soil liner.

The composition of landfill gas generated during microbial degradation of municipal solid waste varies widely, although the principal constituents are almost always methane and carbon dioxide. Ham and Barlaz (1987) describe the typical landfill gas as 55 percent methane and 45 percent carbon dioxide, along with trace quantities of hydrogen sulfide and organic gases such as benzene, toluene, organic acids, and esters (Farquhar, 1990).

There are several reasons why a landfill cover system should contain an effective gas barrier:

1. To prevent nuisance odors from escaping the landfill. These odors are caused by the trace constituents listed above. Emissions of these trace gases may also be regulated as point sources for which air monitoring and/or permitting is required.

2. To mitigate the potential for gas-related explosions or unsafe atmospheres at the surface of a landfill. The methane fraction of the landfill gas, while odorless, represents a significant explosion hazard in the presence of sufficient oxygen.

3. To prevent the intrusion of oxygen during active gas extraction. Excessive quantities of oxygen will dilute the energy value of the collected gas and may also create an explosive atmosphere as described above.

4. To maximize the total volume of gas collected for conversion to electrical or heat energy. Many landfills with active gas collection systems can sell the energy to local utilities or industries, thus providing an economic incentive to minimize gas escape.

5. To achieve compliance with applicable air quality regulations. Federal (U.S.) landfill criteria require only that methane concentrations at the site boundary cannot exceed 25 percent of the lower explosive limit. Individual states, however, may require compliance with concentration-based criteria for certain other gases emanating from the landfill.

6. To minimize contributions to the "greenhouse effect." Landfills are responsible for approximately 10 percent of the total global methane emissions (Crutzen, 1991). Methane is a major greenhouse gas and is 20 times more sensitive to infrared absorption than carbon dioxide (Luning and Tent, 1993).

The barrier components of most modern landfill cover systems consist of either a low-permeability soil layer, a geomembrane, a geosynthetic clay liner (GCL), or virtually any combination thereof. In recent years, GCLs have often been used as substitutes for the low-permeability soil components of landfill cover systems. GCLs offer the advantages of more consistent physical properties, lower leakage rates, faster installation, and reduced construction quality assurance (CQA) requirements. Nevertheless, it is important to evaluate whether the GCL is an effective gas barrier, especially in comparison to a low-permeability soil liner.

Gas Flow Through Soil Liners. To the author's knowledge, only one study has been conducted to evaluate compacted soil liners as gas barriers. Figueroa and Stegmann (1991) performed several field tests on a soil cover 0.6 m in thickness installed at a German landfill (Table 1).

Table 1. Properties of the soil liner evaluated for gas flow by Figueroa and Stegmann (1991).

Parameter	Value
Thickness, m	0.6
Proctor Density, g/cm^3	2.0
Plasticity Index	6.5
Optimum Moisture Content, percent	9.7
Moisture content of samples taken	10.5 to 12.9
Hydraulic Conductivity, m/s	1×10^{-9}
Composition, percent	
Clay	17
Silt	23
Sand	60

Gas collection devices consisting of boxes with open bottoms were positioned at various depths within the soil layer to collect gas flow generated from beneath the cover system. By measuring the gas density, viscosity and pressure differential over a known depth interval within the soil liner, it was possible to calculate a flow rate using Darcy's Law:

$$Q = k_o \, i \, A \, \mu, \qquad (1)$$

where:

Q = gas flow rate (m^3/m^2/s)
k_o = intrinsic permeability of soil (m^2)
i = pressure gradient (N/m^2)
A = cross-sectional area of flow collection box (m^2)
μ = gas viscosity (N-s/m^2)

This formula is the same Darcy's Law for calculating hydraulic flow through a porous medium, except for modifications necessary to account for the physical properties of the landfill gas. Figueroa and Stegmann found that the landfill gas flow rates at this site ranged from 5.2×10^{-6} to 9.6×10^{-5} m^3/m^2/s. Assuming a 55 percent methane concentration at this site, the methane flow rate would therefore range from 2.8×10^{-6} to 5.3×10^{-5} m^3/m^2/s. This flow rate through the soil liner was found to be roughly equal to the quantity of gas that was being collected by a gas extraction system at the site. Figueroa and Stegmann also recognized there could be significant increases in this flow rate if the soil liner were to become cracked due to desiccation or differential settlement.

GCL TESTING

A geosynthetic clay liner is defined by the American Society for Testing and Materials (ASTM) and the Geosynthetic Research Institute (GRI) as a factory-manufactured hydraulic barrier typically consisting of bentonite clay or other very low permeability materials supported by geotextiles and/or geomembranes, which are held together by needling, stitching, or chemical adhesives. The GCL used in these experiments was Bentomat®, which is comprised of a nonwoven needlepunched geotextile that is needlepunched again through a 4.9 kg/m^2 layer of sodium bentonite clay into a woven, slit-film geotextile. The overall thickness of the GCL is approximately 10 mm when hydrated. The hydraulic conductivity of this GCL is approximately 1×10^{-11} m/sec and is used as a partial or complete substitute for compacted soil liners in landfill bottom liner and cover applications.

Because GCLs are commonly used in landfill cover systems, it was desired to determine whether a GCL would be as effective as a soil liner in mitigating the flow of gas. A laboratory-scale system was used to measure gas flow through the GCL. The GCL's thinness, its anticipated low rate of flow, and the problem of constructing a gas-tight collection system would make it extremely difficult to measure flow using collection boxes as done by Figueroa and Stegmann. Therefore, it was necessary to devise a more controllable method by which gas flow through the GCL could be measured.

A series of three testing chambers were utilized for this study. The interior of each chamber was divided by a septum containing a circular GCL specimen. A known quantity of gas could be introduced into the "source side" of the chambers, and sampling ports on the "receiver side" of the chambers were used to collect the gas that flowed through the GCL. By monitoring the increase in gas concentration over time, the rate of flow can be calculated. For this study, a pressure differential of approximately 1 mbar was used to simulate that which exists across a "typical" landfill cover system (Farquhar, 1990). Previous research (Daniel, 1991; Shackelford, 1992) has shown that diffusion is the dominant transport mechanism, rather than advection as was the case with the soil liner evaluated by Figueroa and Stegmann. Therefore, the applied gas pressure in this experiment is likely exert little influence the overall gas flow rate.

Three tests were performed using methane and benzene as test gases. Methane was selected because of its large contribution to the total volume of landfill gas and because of its hazard potential. Benzene was selected because it is a representative volatile organic component of landfill gas and also because it is desirable to demonstrate adequate containment of this carcinogenic chemical. The first two tests involved the determination of the diffusive flow of methane and benzene through a hydrated GCL specimen. In the last test, flow rates were determined as a function of GCL moisture content. The objective of this final test was to determine the moisture content at which the GCL fails to perform as an effective gas barrier.

EXPERIMENTAL PROCEDURES

In order to minimize bentonite loss during the GCL preparation and mounting process, the uncut GCL was lightly wetted with deionized water. Circular GCL specimens 240 mm in diameter were cut with scissors or a sharp utility knife and were then placed into compression rings which clamped around the perimeter of the specimens (Figure 1).

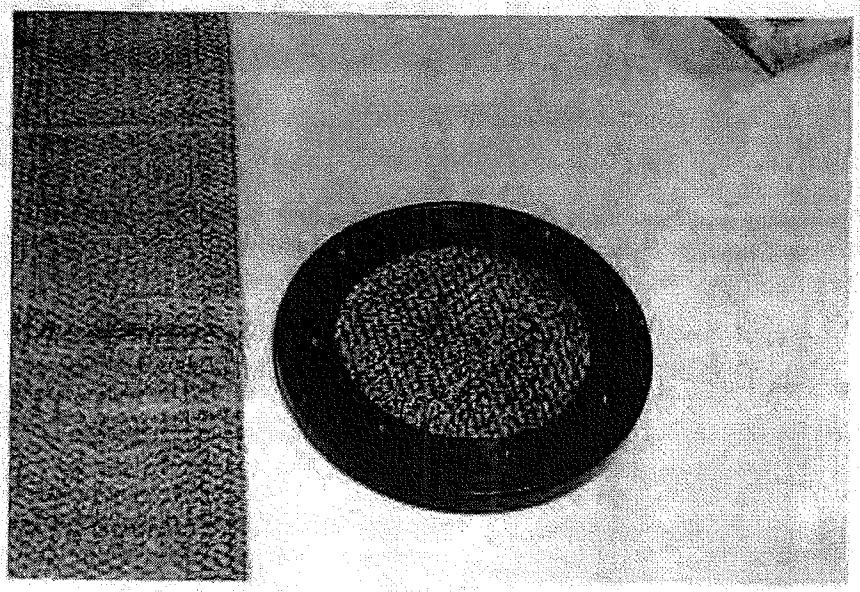

Figure 1. The GCL sample mounted in its ring holder, prior to placement in the test chamber.

O-ring seals were installed around the perimeter of the compression rings. The ring holders were designed to provide a gas-tight barrier between the source and receiver sides of the chamber. The mounted specimens were then immersed in deionized water for two days in order to hydrate. No confining stress was applied to the specimens during the hydration process. In the absence of confining stress, the bentonite in the GCL swells relatively freely, and previous testing has demonstrated that low confining stresses yield higher hydraulic conductivity values as the bentonite's porosity increases. Therefore, this hydration method represented "worst-case" gas-flow conditions.

After hydration, the GCL specimens were installed between the source and receiver sides of each chamber. The source sides of the chambers were provided with an inlet port for the introduction of the gases and an outlet port to allow the gas to cascade to the other two test chambers. The configuration of the test chambers in series allowed simultaneous testing of all

three GCL specimens under identical conditions. Both sides of the chambers were equipped with sampling ports. All samples were obtained with 26-gage hypodermic needles and gas-tight syringes. The sampling ports had stopcocks between the chamber wall and the sampling septa, and the stopcocks were closed between sampling events in order to prevent diffusive gas loss through the sample port septa.

After assembly was completed, the experimental apparatus was checked for leakage by pressurizing each chamber with air at 0.1 m water head for 2-3 hours. The chambers were disassembled and reassembled as necessary until no pressure loss was observed. The fully assembled system is shown in Figure 2.

The source gases (methane and benzene) were obtained from tanks at known, certified concentrations of 23,600 and 460 parts per million (ppm), respectively, and were introduced into the chambers simultaneously. The flow rate of the source gases was kept between 3×10^{-5} and 3×10^{-4} m^3/min using a calibrated metering valve. Exhaust source gas was bubbled through water to provide a continuous, positive visual verification of flow into the source side of the chambers.

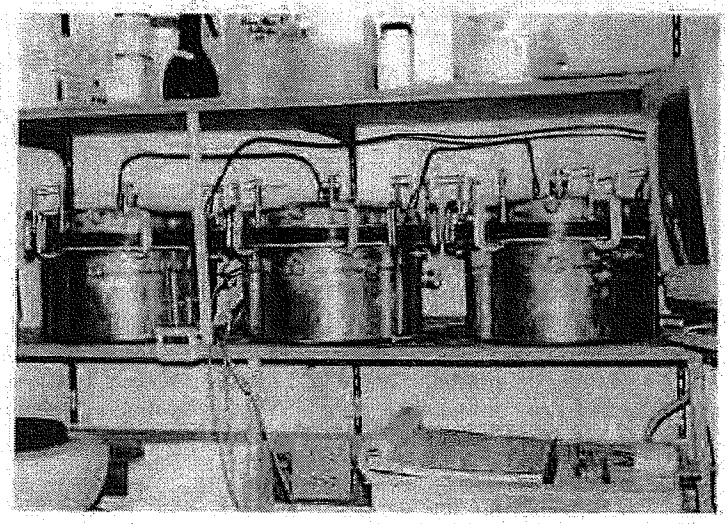

Figure 2. Fully assembled GCL test chambers.

The concentrations of methane on the receiver side of the chambers were determined with a gas chromatograph coupled with a flame ionization detector. Benzene concentrations were determined using a photoionization detector because of its superior sensitivity and selectivity for this chemical. All samples were collected from the chambers with gas-tight syringes.

RESULTS

Methane Flow. After a brief equilibration period following system start-up, the concentrations of the gases in the receiver side of each chamber were monitored for a period of 7 days. Figure 3 shows that there was a linear increase in methane concentration over time, and that a similar relationship was observed in all three chambers.

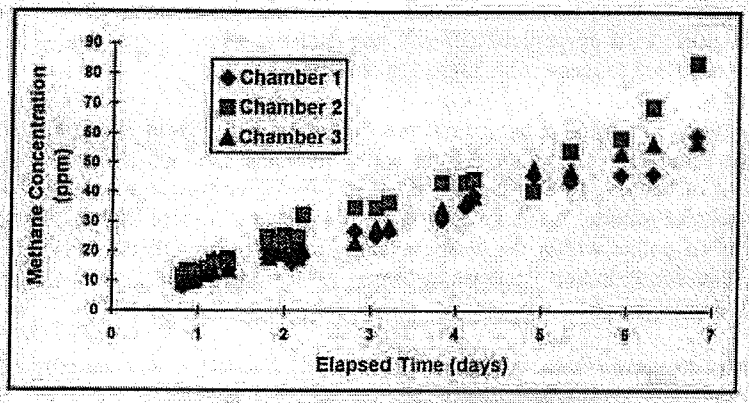

Figure 3. Methane concentration in the three test chambers as a function of exposure time.

The slopes of the lines connecting the data points represent rates of concentration change in parts per million per day. These values were determined by linear regression and were then used to determine the GCL's methane permeance as shown below:

$$P = \frac{S\ V_r}{C_s\ A} \qquad (2)$$

where:

P	=	permeance, m/s
S	=	rate of gas concentration change (slope) = 8.4×10^{-5} to 1.2×10^{-4} ppm/d
V_r	=	volume of receiver side = 0.0126 m^3
C_s	=	concentration of source gas = 23,600 ppm
A	=	cross-sectional area of GCL specimen = 0.04547 m^2

The slopes of the regression lines from the three sets of data gives a permeance values ranging from 9.8×10^{-10} to 1.4×10^{-9} m/s. It should be noted that permeance is not comparable to hydraulic conductivity or to diffusive mass flux as described by Fick's second law. Nevertheless, the permeance values can be used to calculate methane flow rates as shown below:

$$Q = C_s P A \quad (3)$$

where:

Q	=	Overall gas flow rate, $m^3/m^2/s$
C_s	=	Fractional concentration of methane in gas sample
P	=	Permeance, m/s
A	=	Area over which gas is flowing, m^2

Thus, if a landfill gas is 55 percent methane, the data suggests that the areal flow through the GCL may be expected to range from 5.4 to 8.0×10^{-10} $m^3/m^2/s$.

Benzene Testing. The same experimental procedures were followed when the source gas was benzene, but remarkably different results were obtained. In all three test chambers, the concentrations of benzene in the receiver side decreased over time at a rate of at least 1.5 to 2 percent per contact minute. Leakage tests were conducted to ensure that an adequate seal was maintained at all points within the testing system, and it was confirmed that no leakage was occurring. The concentration decrease appeared to be attributable instead to sorption of the benzene onto the GCL.

In order to more conclusively determine whether sorption was actually occurring, gas flow was stopped and the seal isolating the source and receiver sides of one of the chambers was released. This allowed the source gases to flow freely into each side of the chamber. The initial methane and benzene concentrations were determined and then were periodically monitored over two days. A steady decrease again was observed, confirming that benzene sorption was occurring. Little, if any, concentration decrease was observed with methane (Table 2).

Table 2. Comparison of benzene and methane concentrations in unsealed test chamber.

Elapsed Time (days)	Benzene Concentration (ppm)	Methane Concentration (ppm)
0.01		23,900
0.17	159	24,000
0.27		22,900
0.94	5.8	24,300
1.17	2.6	24,300
1.91	0.12	21,900

Methane Flow vs. GCL Moisture Content. The third series of tests involved determining the variation in gas flow with GCL moisture content. GCL specimens were prepared and hydrated as previously described but were exposed to low-humidity air for varying times before being tested. When the GCL is in an unconfined state as in these tests, it is more susceptible to desiccation cracking than when a normal stress (typically in the form of soil cover) is provided in field use. Therefore, GCL specimens were repeatedly exposed to dry air, sealed in the testing chambers, and allowed to equilibrate until the approximate desired moisture content was reached. Gas flow rate testing was then conducted on the partially dried samples.

Methane permeance values were obtained for GCL samples at full saturation and at several reduced moisture contents. As shown in Figure 4, the methane flow rate is low until an apparent break is reached at 90 percent moisture. At moisture contents below 90 percent, the methane flow rate increases significantly.

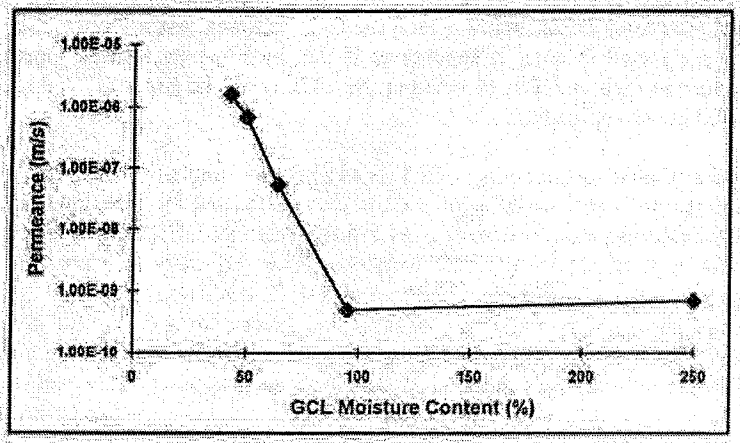

Figure 4. Variation in methane permeance with GCL moisture content.

DISCUSSION

The experimental data presented above indicate that the hydrated GCL appears to be an effective barrier to the flow of methane and benzene gases. The methane flow rates in a fully hydrated GCL specimen range from 5.4 to 8 x 10^{-10} $m^3/m^2/s$, whereas the flow rates for methane through the compacted soil layer investigated by Figueroa and Stegmann ranged from 2.8 x 10^{-6} to 5.3 x 10^{-5} $m^3/m^2/s$. Thus, the methane flow rate through the GCL appears to be 4 to 5 orders of magnitude less than through the compacted soil liner.

indicate that the soil may have contained cracks or other preferential flow pathways. These secondary features could have caused higher leakage rates than a soil containing more clay and greater plasticity.

Another interesting finding was that benzene concentrations decreased within the test chamber. Further testing provided evidence that this decrease was attributable to sorption. Bentonite contains little or no organic matter which would facilitate physical/chemical sorption, but Boyd (1988) has demonstrated that bentonite does have a limited ability to absorb benzene vapor. It is also possible that there was some sorption of benzene onto the rubber O-rings or other plastic surfaces of the test apparatus. A third potential explanation for the observed sorption is that biodegradation of the benzene occurred within the bentonite. However, the rate of sorption appears to have been too rapid for microbial assimilation to have occurred. The actual benzene sorption mechanism may be any one or perhaps a combination of these phenomena.

In the tests where gas flow was measured at various moisture GCL contents, it was clear that a lower moisture limit exists, below which the GCL is much less effective as a gas barrier. From the work performed to date, it appears as if this moisture content is approximately 90 percent. The question then arises as to whether the GCL could be expected to desiccate to this extent in a landfill cover application.

Based on available information, a GCL is unlikely to become desiccated. Research on the actual moisture retention capability of a GCL was performed by GeoSyntec (1989). This study involved monitoring the moisture loss of a fully hydrated GCL buried under 200 mm of sand and placed in a climate-controlled chamber. After 90 days of exposure to daytime temperatures of 35° C and nighttime temperatures of 21° C, there was essentially no decrease in the GCL moisture content. Considering that the cover layer over a GCL is likely to be much thicker than 200 mm, and considering that it has the ability to draw moisture from the subgrade (Daniel, 1993), it is unlikely that the GCL would become desiccated in a real landfill cover application. Desiccation may occur, however, in certain secondary containment applications when little cover is provided, and in especially arid areas where rehydration by natural rainfall may not occur for several months.

CONCLUSIONS

Some preliminary conclusions can be made from the results of these experiments:

1. GCLs are likely to be as effective as compacted soil liners in limiting the migration of principal landfill gas constituents such as methane. Considering the large difference in observed gas flow rates between the GCL and a soil liner, the GCL could be considered "equivalent" to the soil liner with respect to its ability to impede gas flow.

2. GCLs may also present a favorable environment for the chemical or microbial sorption of benzene.

3. A GCL has been shown to be an effective gas barrier at moisture contents ranging from full saturation (over 250 percent in the unconfined state) down to approximately 90 percent.

4. Additional research would be beneficial to more accurately quantify the gas flow rates for both GCLs and compacted soil liners, and to determine the mechanism(s) responsible for benzene sorption onto the GCL.

REFERENCES

Boyd, S. A., et. al. (1988) "Sorption Characteristics of Organic Compounds on Hexadecyltrimethylammonium-Smectite", Soil Science Society of America Journal, Vol. 52, No. 3, pp. 652-657.

Crutzen, P. J. (1991) "Methane's Sinks and Sources", Nature, Vol. 350, pp. 380-381.

Daniel, D. E., H. Y. Shan and J. D. Anderson (1993) "Effects of Partial Wetting on the Performance of the Bentonite Component of a Geosynthetic Clay Liner", Geosynthetics '93 Conference Proceedings, Vancouver, British Columbia, Canada, pp. 1483-1496.

Daniel, D. E. (1991) "Clay Liners and Covers for Waste Disposal Facilities", (Unpublished Seminar Proceedings), University of Texas at Austin, Austin, TX.

Farquhar, G. J. (1990) "Controlling Methane Gas Migration" (Unpublished Seminar Proceedings), Sanitary Landfill Design, University of Wisconsin, Madison, Wisconsin.

Figueroa, R. A. (1993) "Methane Oxidation in Landfill Top Soils", Proceedings Sardinia '93, Fourth International Landfill Symposium, S. Margherita di Pula, Cagliari, Italy, pp. 701-715.

Figueroa, R. A. and R. Stegmann (1991) "Gas Migration Through Natural Liners", Proceedings Sardinia '91, Third International Landfill Symposium, S. Margherita di Pula, Cagliari, Italy, pp. 167-177.

GeoSyntec Consultants, Inc. (Formerly GeoServices, Inc.) (1989) Unpublished Report on Moisture Retention Tests, Project P1138.

Ham, R. K., and M. A. Barlaz (1987) "Measurement and Prediction of landfill Gas Quality and Quantity", Presented at ISWA International Symposium, "Process, Technology, and Environmental Impact of Sanitary Landfills", Cagliari, Italy.

Luning, L. and J. Tent (1993) "Gaseous Emission of Landfill Sites", Proceedings Sardinia '93, Fourth International Landfill Symposium, S. Margherita di Pula, Cagliari, Italy, pp. 657-668.

Shackelford, C D. (1992) "Performance-Based Design of Soil Liners", Proceedings of the Mediterrancan Conference on Environmental Geotechnology, Cesme, Turkey.

CITY OF ASTORIA
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August 13, 2013

M E M O R A N D U M

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: SALE OF EXCESS CITY PROPERTY - PROCEDURES

DISCUSSION/ANALYSIS

At the August 5, 2013 meeting, the City Council directed staff to identify excess City property that would be marketed by Area Properties, and authorized the Mayor to sign a contract with the firm.

An initial list of potentially salable properties has been prepared by staff, including a map showing their location and detailed description of the zoning, geologic and utility issues (see attachment). The process for sale of the properties would involve 3 phases:

1. Area Properties would begin the marketing program immediately (part of the marketing approach would be to notify adjacent property owners of the potential sale).

2. Potential buyers would make offers on selected properties and would be notified that acceptance is contingent on Council approval in accordance with the procedures identified below.

3. The offers would be presented to the Council in accordance with the City's Real Property Sale Procedures, City Code Section 1.500 through Section 1.510.

These code sections require that the City Manager submit a report to Council of any proposed sale. A public hearing would be scheduled for a subsequent meeting, with advertisement in a newspaper not less than fourteen days prior to the hearing and the notice sent to all property owners who reside within 200 feet of the property. A staff report presented at the hearing would include information on property values, geologic hazards, utilities, access and other issues. The Council can, after hearing public testimony, approve or reject the sale of the property.

RECOMMENDATION

It is recommended that the City Council approve the marketing of the attached properties with the understanding that the procedures outlined above will be followed for any offers that are brought to the City by Area Properties.

Submitted By Ken P. Cook
Ken P. Cook, Public Works Director

Prepared By MIKE MORGAN
Mike Morgan, Special Projects Consultant

CITY OWNED PROPERTIES FOR POTENTIAL SALE

August 8, 2013

	A	B	C	D	E
1	Location	Map/Tax Lot	Acreage	BLI Acreage	Issues
2					
3	1st & W Grand	7DD 12700	0.23	0.077	steep with donut area of minimal potential development; City sewer line on nw corner; adjacent owner has expressed interest in a portion of the lot
4	100 Block W Exchange	7DC 3800	0.17	not listed	property to the south encroaches onto lot with yard and parking
5	100 Block W Franklin	7DC 3805	0.11	not listed	property to the east encroaches onto lot with landscaping
6	38th to 40th, Lief Erikson to Land Reserve	9 100	46.69	16.42	forested area on east end of Grand/Kensington/Irving. major portion of lot is in LR Zone outside UGB and not buildable. There are large areas that could be developed. There is a recorded access easement on the existing driveway/road.
7	200 Block Commercial	7DA 10800	0.11	not listed	
8	400 Block 3rd	7DD 600	0.11	0.11	existing driveway crosses the lot connecting Exchange and 3rd Street
9	400 Block Pleasant	18BA 7500	0.45	not listed	potentially would block neighbors' views
10	600 Block 46th	10BD 6900	0.74	0.45	
11	600 Block Exchange	8CC 400	0.11	not listed	
12	600 Block McClure	17CB 4600	1.29	1.29	sewer would be more difficult but not impossible
13	700 Block 45th	10BD 5300	0.44	0.44	
14	700 Block 46th	10BD 5100	0.57	0.57	
15	900 Block 36th	9DB 8900	0.23	0.23	driveway encroachment by adjacent property owner on half of site
16	1500 Block 8th, east side	17BC 9800	0.66	0.32	
17	1500 Block 8th, west side	17BC 9700	0.49	0.35	
18	1500 Block 9th	17BC 10600	0.17	0.08	
19	1600 Block 5th & McClure	18DA 400	0.96	not listed	utility easements reduce buildable space but still some buildable area; only a portion would be sold

CITY OWNED PROPERTIES FOR POTENTIAL SALE

August 8, 2013

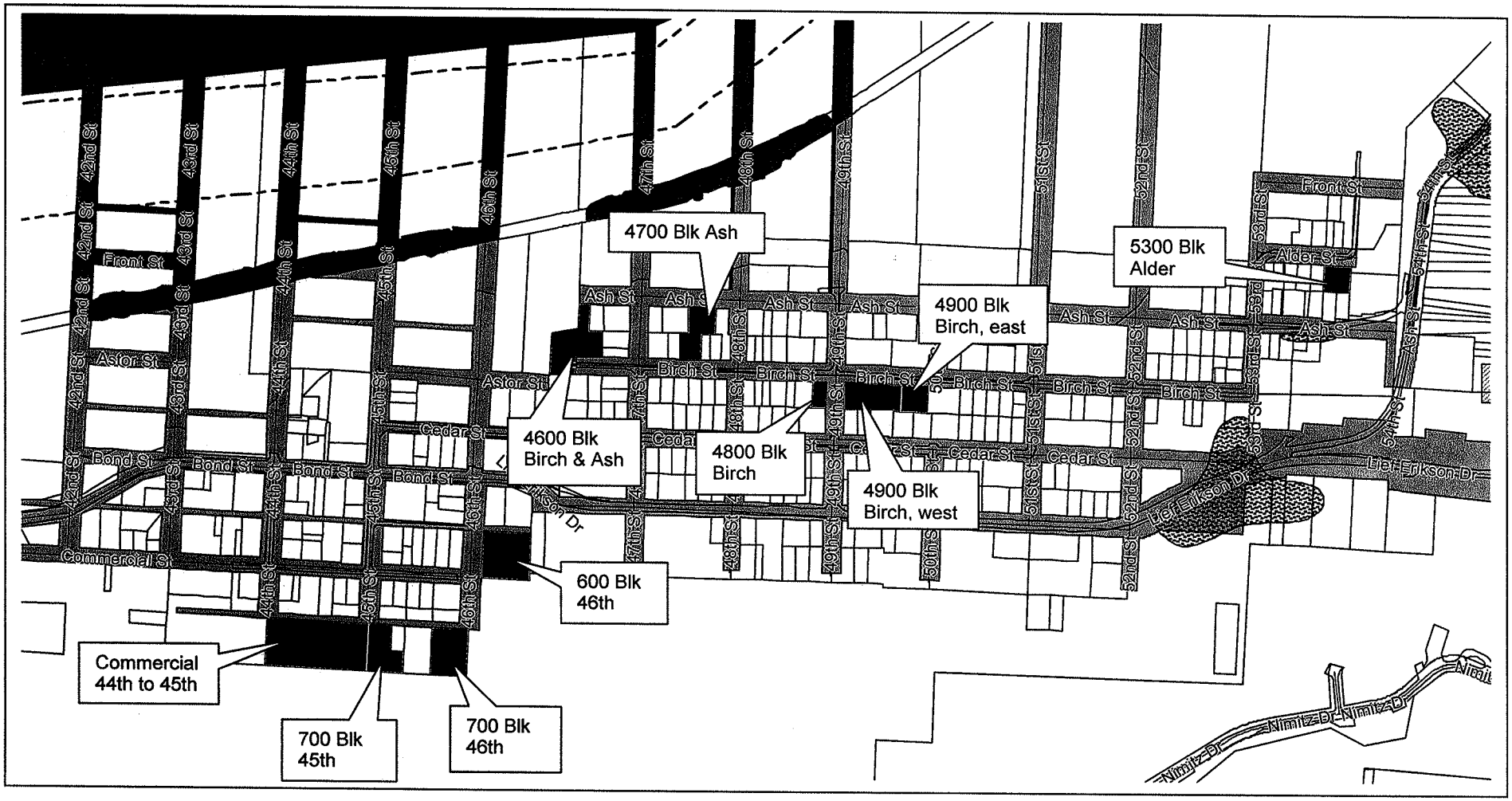
	A	B	C	D	E
20	1600 Block 7th & McClure	17CB 1400	1.91	1.14	forested area on the east side of 7th Street between Clatsop and McClure
21	1600 Block 10th	17CB 3300	0.34	not listed	good site but has access issues to resolve
22	1700 Block 8th, east side	17CB 4100	1.91	1.14	LTO in McClure right-of-way
23	1840 4th	18DA 6500	0.11	0.11	SFD with basement water damage; to be sold "as is"; water still drains into basement
24	2200 Block Irving	8DD 3700	0.34	0.31	
25	2700 Block Grand	9CC 4300	1.13	0.9	house on the property to west encroaches into Lot 3
26	2700 Block Irving	9CC 5200	1.55	1.12	west half of parcel is a slide; east portion is located behind a house that encroaches into the lot with yard area; only portion of lot would be sold
27	2800 Block Grand	9CB 5400	0.22	not listed	access would be better from 29th across adjacent vacant privately owned property
28	2900 Block Irving &Harrison	9CA 18300	1.89	0.23	lease for existing garage; only portion of lot would be sold
29	4600 Block Birch & Ash	10BA 1800	0.96	not listed	City sewer facility, access easements and flood zone; may get a SFD lot out of it; only a portion of lot would be sold
30	4700 Block Ash	10BA 1300	0.41	0.41	most of lot is in flood zone; may get a SFD lot out of it
31	4800 Block Birch	10AB 2600	0.11	not listed	portion of lot in flood zone
32	4900 Block Birch, west	10AB 3200	0.48	0.48	possible yard encroachment by adjacent property to south at 4924 Cedar
33	4900 Block Birch, east	10AB 3300	0.23	0.23	possible encroachment of building and/or parking area by adjacent property to east at 5007 Birch
34	5300 Block Alder	10AA 900	0.23	0.23	
35	Commercial 44th to 45th	10BC 2800	1.55	1.55	adjacent property to east has yard encroachment in 44th Street right-of-way
36	Irving, 35th to 38th	9DB 8200	5.36	4.22	
37	W Niagara & 1st	18AD 13100	5.94	5.86	

CITY OWNED PROPERTIES FOR POTENTIAL SALE

August 8, 2013

	A	B	C	D	E
38	Mill Pond Pier Lots; 2710 to 2760 Mill Pond Lane	9CB 6882, 6883, 6884, 6885, 6886, 6887	0.28	0.28	platted piers with six building sites; access and utilities would be down a central easement
39	Mill Pond Pier Lots; 2440 to 2490 Mill Pond Lane	9CB 6888, 6889, 6890, 6891, 6892, 6893	0.29	0.29	platted piers with six building sites; access and utilities would be down a central easement
40					

CITY-OWNED PROPERTIES FOR SALE
August 8, 2013
Alderbrook



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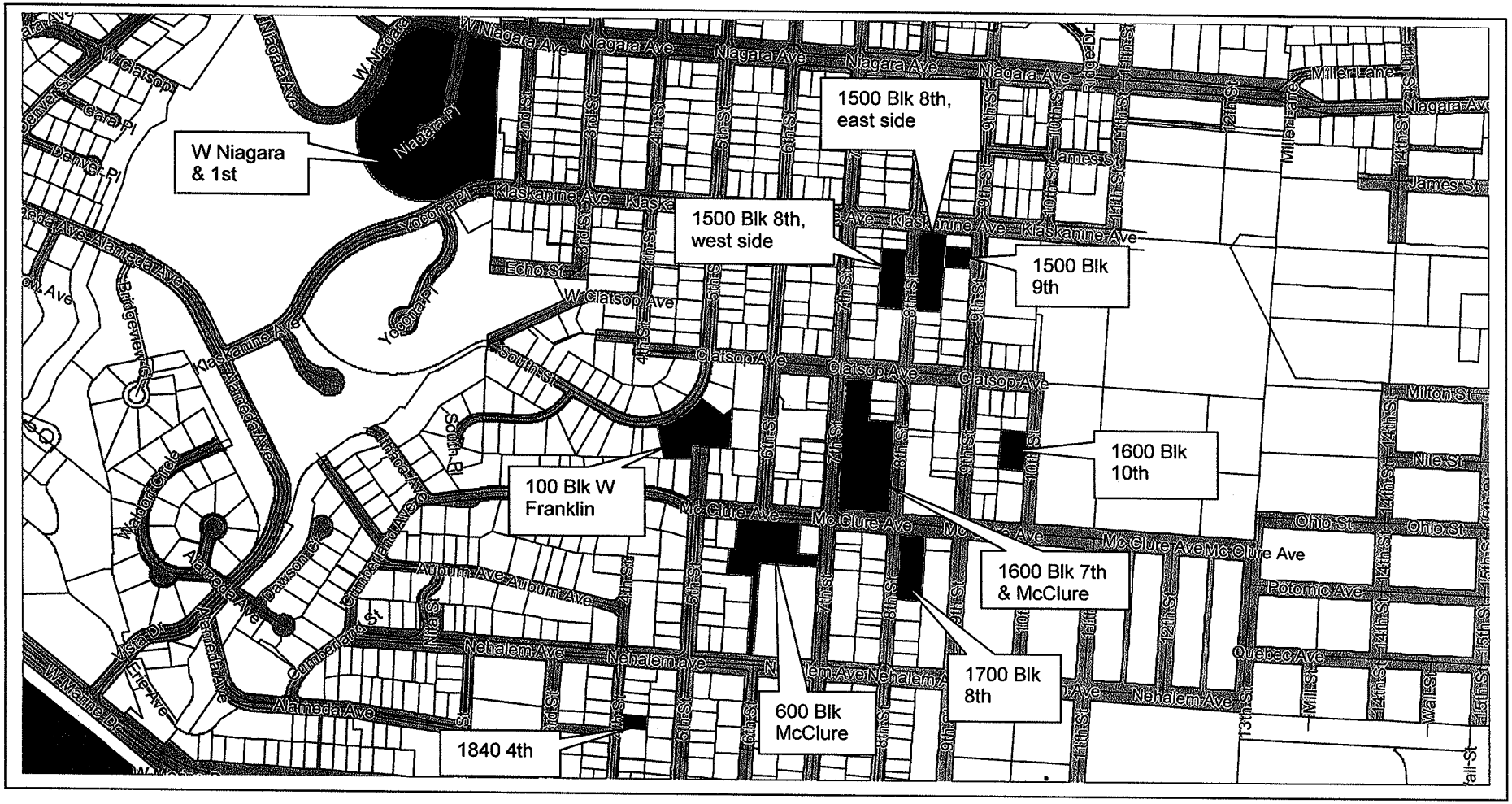
CITY-OWNED PROPERTIES FOR SALE
August 8, 2013
South Slope



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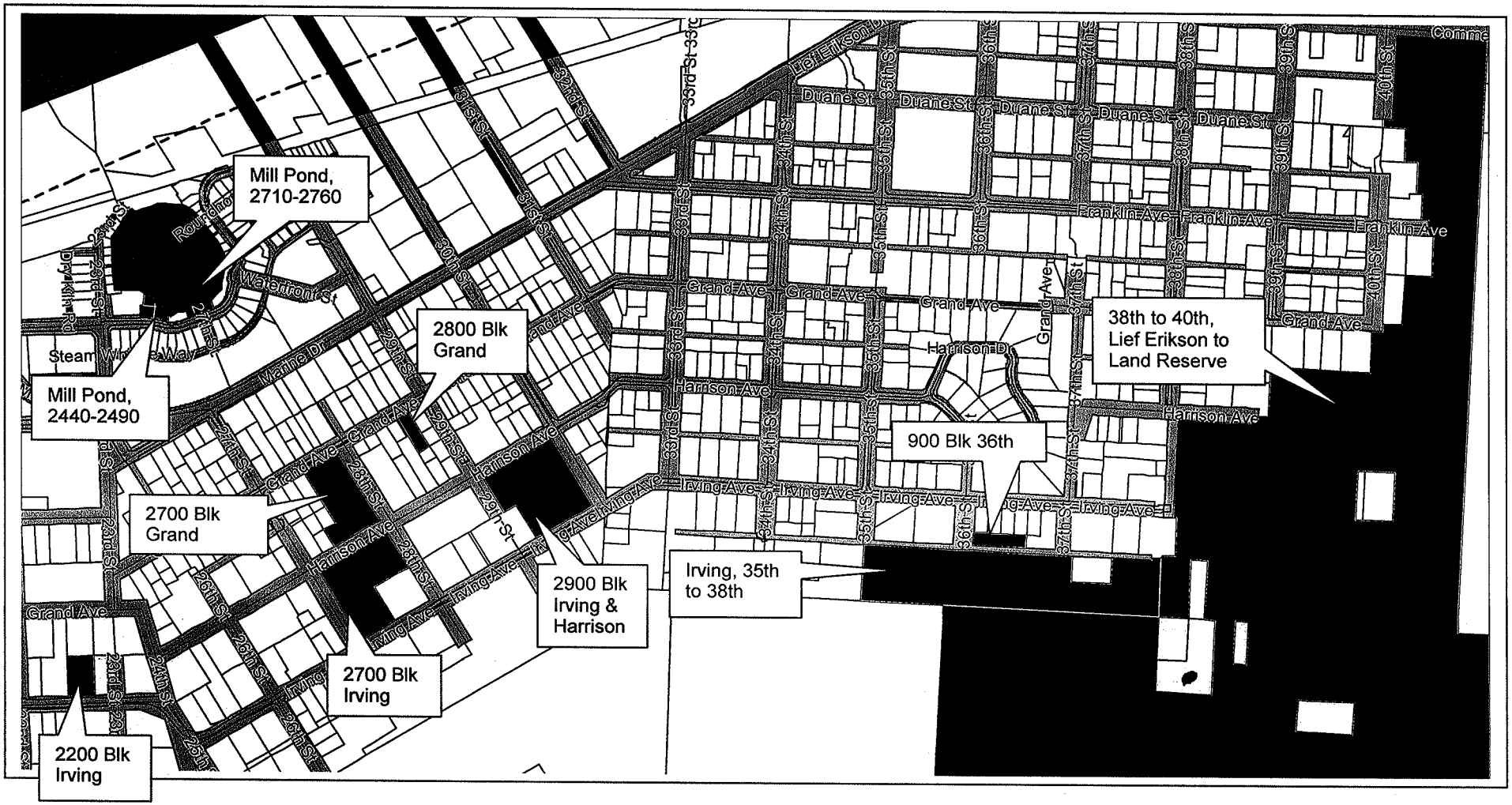
CITY-OWNED PROPERTIES FOR SALE
August 8, 2013
Uppertown



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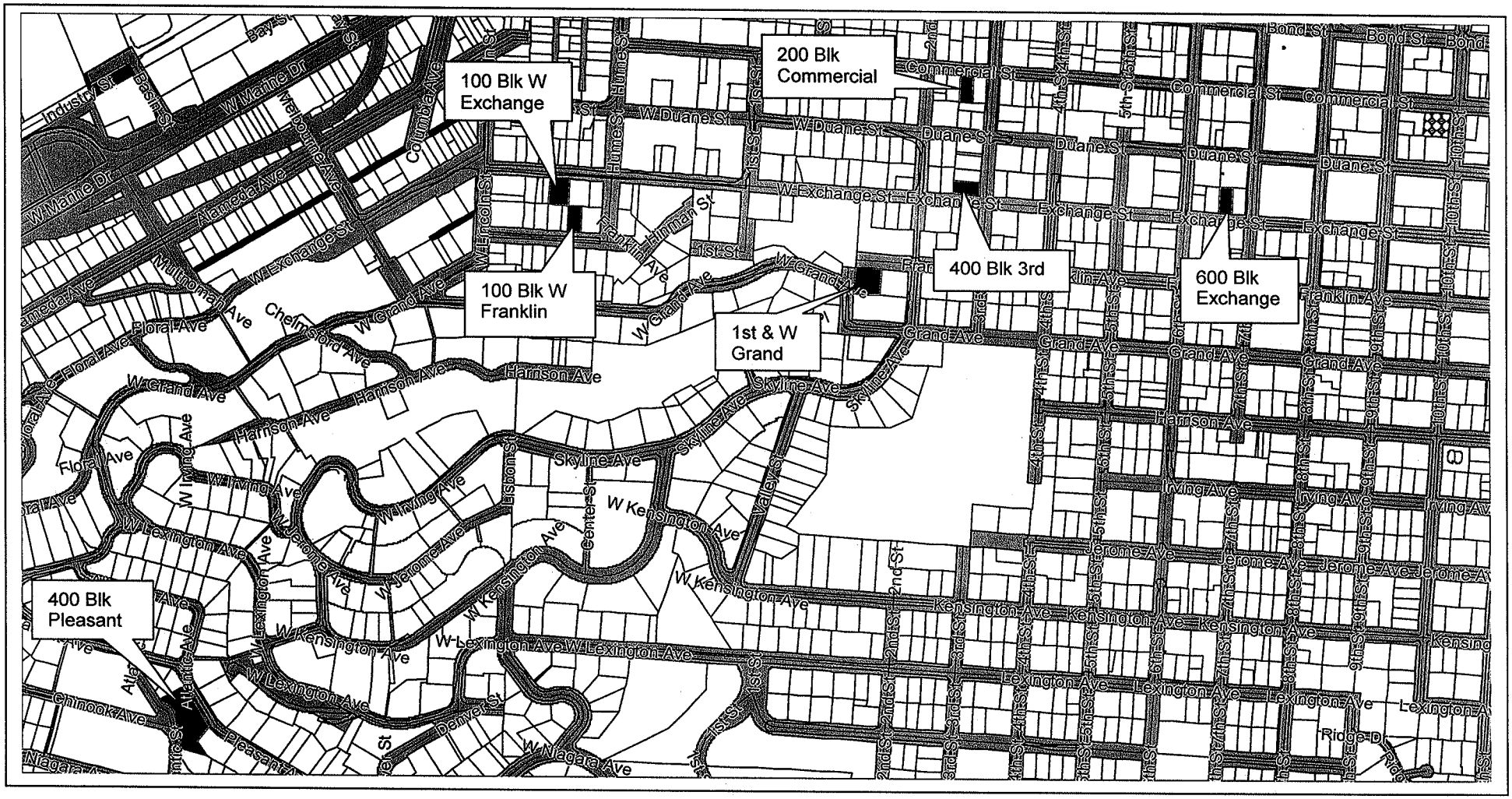
CITY-OWNED PROPERTIES FOR SALE
August 8, 2013
West End



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CITY OF ASTORIA
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COMMUNITY DEVELOPMENT

MEMORANDUM

DATE: August 14, 2013

TO: CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: PHASE 2 HERITAGE SQUARE DESIGN GRANT

DISCUSSION

The City has an opportunity to apply for a grant from the Ford Family Foundation to fund architectural and structural engineering work on Phase 2 of Heritage Square. This would include the amphitheater and plaza area east of the Garden of Surging Waves. Under the Foundation's Public Gathering Space Program, the Heritage Square design and construction could meet the Foundation's criteria, based on conversations with Foundation staff.

The Ford staff were impressed with the City's work on the Garden of Surging Waves, particularly the extent of local and regional contributions and wide support. The Ford grant would, if approved, provide detailed architectural and structural engineering plans for the next phase of construction when the City Council chooses to move forward. If awarded and accepted, it would also complement the $400,000 EPA Brownfield grant should any remediation work be required to address environmental concerns. Remediation could include the installation of a soil cap that could also be constructed to align with future design of the amphitheater and plaza. It is anticipated that the Ford Foundation Board would review the application in November, with funds being available in 2014. No City match would be proposed with this application.

RECOMMENDATION

It is recommended that the City Council authorize the preparation of a Ford Family Foundation application not to exceed $250,000 for the design of Heritage Square, Phase 2.

By: Mike Morgan / SC
Mike Morgan, Special Projects Planner

Through:
Brett Estes, Community Development Director/ Assistant City Manager

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bestes@astoria.or.us • www.astoria.or.us

CITY OF ASTORIA
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August 14, 2013

MEMORANDUM

TO: MAYOR AND CITY COUNCIL

FROM: PAUL BENOIT, CITY MANAGER

SUBJECT: **11th STREET CSO SEPARATION –INTERSECTION AND STREET IMPROVEMENT**

At the start of the Combined Sewer Overflow (CSO) program City Council direction to staff was to ensure that streets in poor condition that were being impacted by CSO work be repaired and/or reconstructed and brought to City standards. Following that direction, the construction plans for the 11th Street CSO project incorporated details for the reconstruction of impacted intersections and substandard road sections.

As plans and contract documents were being prepared, staff acted to include impacted intersections and street sections in order to completely reconstruct the substandard and failing intersections and street sections rather than to only repave the pipeline trenches. Repaving the pipeline trenches and leaving the surrounding pavement in an as-is condition, will produce an inferior end product, and would be contrary to Council direction. Left unimproved, this situation also can contribute to greater on-going maintenance requirements and future costs for the City. A minimum of 20 intersections and 4 blocks of streets will be fully repaired with the reconstruction work.

As described above, the intersection and street section reconstruction was included in the contractor's work, and is shown in the construction plans. However, due to a staff technical error, the bid form and list of contract unit prices inadvertently did not incorporate provisions for bidding and payment of the reconstruction work. Although the reconstruction work is included as part of the contractor's scope and was always fully expected to be performed, an adjustment to the contract is required for payment purposes. The adjustment will include provisions for approximately 8,000 square yards of reconstruction including:

- Excavation and the haul off of existing failed pavement and underlying soil
- Placement of 9 inches of aggregate base rock (6 inches of 1-1/2"-0 and 3 inches of ¾"-0 crushed rock)
- Final grading prior to paving

The reconstruction work is anticipated to cost within a range of $275,000 to $350,000, and the work would be funded from the budgeted project contingency. The current project contingency balance is $747,786.71. Staff has a high degree of confidence that the second half of the 11th St. CSO project will not present as numerous unforeseen challenges as the first half. This is due to the fact that the majority of the underground work in the congested (both above and below ground) downtown area has been completed, with the exception of 9th St. from Exchange to Irving.

RECOMMENDATION

Request that Council authorize a payment allocation for the 11th Street CSO project in the not to exceed amount of $350,000, for the planned reconstruction of failing intersections and street sections.

Submitted By: _____
Ken P. Cook, Public Works Director

Prepared By: _____
Cindy D. Moore, City Support Engineer

NO DOCUMENTATION IS INCLUDED FOR THIS AGENDA ITEM