

# ACTION PLAN FOR RETROFITTING STRUCTURAL BEST MANAGEMENT PRACTICES



HONOLULU INTERNATIONAL AIRPORT  
NPDES PERMIT No. HI S000005



Prepared For:  
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## 1.0 INTRODUCTION

The State of Hawaii Department of Transportation, Airports Division (DOTA) has completed this action plan for retrofitting permanent best management practices (BMPs) at the Honolulu International Airport (HNL) in accordance with the National Pollutant Discharge Elimination System (NPDES) Small Municipal Separate Storm Sewer System (MS4) permit HI S000005, Part D.1.f.(1)(iv). This plan includes the identification of specific retrofit projects, justification for their selection, and an implementation schedule.

### 1.1 Background

Previously, DOTA had completed a Retrofit Feasibility Study (Feasibility Study) dated August 2010, which identified and ranked potential permanent BMP projects at HNL. The Feasibility Study was prepared with information available at the time; however, there have been several new construction projects and rules that have been revealed. As a result, DOTA has re-evaluated projects from the initial Feasibility Study and included some new projects where applicable.

The initial projects from the Feasibility Study have been re-evaluated to include restrictions set by the Federal Aviation Administration (FAA) in regards to safety for active airports. FAA rules prohibit building wildlife habitats due to the hazards that birds may pose to aircraft safety. Specifically, the inclusion of green areas in construction projects has been prohibited since it could attract wildlife and lead to increased potential for bird strikes.

### 1.2 Performance Goal Summary

Storm water retrofitting involves the redesign and installation of storm water BMPs in areas of existing development to meet a retrofit goal. These goals were taken from the Feasibility Study and applied to the projects described in this plan (Table 1).

**TABLE 1: RETROFIT PERFORMANCE GOALS**

<b>DESCRIPTION</b>	<b>PRIMARY PERFORMANCE GOALS</b>
Pollutant Removal	Retrofits/BMPs shall achieve an overall reduction from existing, on-site total phosphorus loads for areas treated by retrofit/BMPs to the extent achievable. Provide retrofit/BMP designs that also address removal of sediment as well as oil and grease loads as priority pollutants.
Trap Trash and Floatables	Retrofits/BMPs shall achieve an overall reduction from existing, on-site trash and other floatables to the extent achievable.
Reduce Runoff Volumes	Retrofits shall promote infiltration and overall reduction in runoff volume to the extent achievable.
Education and Outreach	Provide outdoor learning and community outreach opportunities on DOTA land.
<b>DESCRIPTION</b>	<b>SECONDARY BENEFITS</b>
Quick Implementation Projects	Identify quick implementation projects (constructed within 1 year) based on existing CIP projects, availability of funds, projects underway, etc.
Specific Problems	Identify retrofits for problem areas such as Ualena Street tenants, Baseyard sweeper rubbish, and the triturators.

## **2.0 IDENTIFICATION OF RETROFITS**

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The August 2010 Feasibility Study identified and evaluated potential retrofit projects within the property boundary of HNL. Since the completion of the Feasibility Study, several previously identified retrofit BMPs have been classified as not feasible based on safety concerns and current redevelopment activities at the airport as identified below:

- **Bird Strike.** FAA restricts any project that includes additional green areas since it has the potential to attract wildlife. Therefore, examples of BMP types that must now be excluded include, but are not limited to, constructed wetlands, large grassy swales, green roofs, planters, rain gardens, and bioretention systems. Projects that pose the threat of bird strike are now delisted from the Feasibility Study and are detailed in the table below.
- **Project Site No Longer Available.** The airport has undergone many changes since the development of the Feasibility Study in 2010 and several areas previously identified are now unavailable. Specifically, Ualena Street tenants have been asked to move to accommodate the new rail system and as a result the source of potential pollutants has been removed. The cell phone waiting lot (D10-7) has been closed and will be incorporated into another project.
- **Tenant Space.** It was discovered that DOTA needed to restrict retrofit projects to areas directly under DOTA control, which excludes tenant areas due to lease agreements. In order to manage storm water concerns at tenant spaces, tenants are required by DOTA to have annual storm water training, implement best management practices for their activities, and are regularly inspected for storm water concerns. Further, tenants are able to implement their own permanent BMPs as feasible. Therefore, projects for VIP Trans (D16-3), Rental Car Kalewa Street Lot (A1-1), and those on Ualena Street have been delisted.
- **Potential Pollutants Contained.** The Maintenance Baseyard was previously identified as an area for retrofit due to concerns about the management of their sweeper wastes. However, personnel have changed their practices and have developed another way to contain the pollutants. Specifically, a concrete pad with berms is used to dump the wastes and then they are transferred to a truck for disposal at the landfill. Any vehicle washing occurs at the airport wash racks. Therefore, since potential pollutants are adequately contained with these methods, the proposed retrofit has been delisted.

### **2.1 Updated List of Retrofit BMPs**

The Feasibility Study used a systematic approach to rank potential projects. A desktop analysis identified 84 potential sites via mapping technologies. The potential locations were then inspected by field crews and a list of the 24 potential retrofits identified. Based on the considerations described in the previous section as well as the new development projects currently underway at the airport, DOTA has revised the list of retrofits in the table below. These will be implemented at the airport to reduce the discharge of potential pollutants and meet the performance goals. The entire Feasibility Study can be found online at: <http://hidot.hawaii.gov/airports/doing-business/engineering/environmental/construction-site-runoff-control-program/>.

**TABLE 2: UPDATED LIST OF RETROFIT BMP PROJECTS**

<b>PROJECT DESCRIPTION</b>	<b>BMP TYPE</b>
Various Storm Drains (Table 5)	Filtration Products
Triturator	Redesign for Containment
A9-3 Lagoon Drive Parking Lot	Permeable Pavers
D10-1 Access "A" Canal	Canal Stabilization
D14-1 Kaloaloha Canal	Canal Stabilization
<i>New Projects</i>	
New Employee Parking Lot	Pervious Concrete
South Ramp Fuel Rack	Oil Water Separator
New Hawaiian Hangar	CDS Units
Widening of Taxiways G&L, Phase I	CDS Units
Diamond Head Site Improvement	CDS Units
Diamond Head Commuter Terminal	CDS Units
CONRAC Phase 2B (Rental Car Facility)	Detention Basin
New Mauka Concourse	Detention Basin

### 2.1.1 Storm Drain Retrofits

The Feasibility Study included a list of storm drains ranked based on the amount of debris removed by the maintenance contractor. This plan will include the implementation of those 25 drains ranked as a "5," which means that they have accumulated the greatest amounts of debris. Maps of drain locations have been included in Appendix A and specific map numbers are included in the table below. Note: EIDs 4580, 7553, and 7513 were removed since they are not drain inlets. EID 9937 and 4364 were added due to their proximity to the tritulators.

**TABLE 3: STORM DRAIN INLETS**

<b>BASIN</b>	<b>EID</b>	<b>MAP SHEET</b>
D15	4598	2
A2	4632	3
A6	4703	6
A6	5748	6
B9	5522	15
B10	4140	15
B10	9937	15
D2	5096	17
D4	5121	17
D4	5123	17
D4	5132	17
D4	7466	17
D4	7520	17
D4	7525	17
D6	7465	17
D6	7534	17

<b>BASIN</b>	<b>EID</b>	<b>MAP SHEET</b>
D6	10197	17
D6	10217	17
D6	10255	17
D17	5147	17
D10	4366	24
D10	4319	25
D10	4336	25
D10	4364	25
D10	10227	25

### **2.1.2 Triturator**

HNL has two triturator units that are designed to capture sanitary waste from aircraft and deposit it into the City and County of Honolulu sanitary sewer system. The current configuration of the tritulators allows for any spilled materials to runoff to nearby storm drains. A proposed retrofit of these two stations would include permanent berms around each triturator pit so that spills would pool in the area rather than flow. This design would be in addition to the temporary BMPs currently installed in the nearby drains and training provided to lavatory truck drivers.

### **2.1.3 Lagoon Drive Parking Lot (A9-3)**

Although the design for the Lagoon Drive parking lot originally included bioretention, the retrofit could still be incorporated with only the permeable pavers. This would decrease the impervious area at the airport and provide a good public education tool since this area is not within the secured area.

### **2.1.4 Canal Stabilization (D10-1, D14-1)**

There has been some erosion noted within the Kaloaloa Canal as well as the Access “A” Canal. Stabilizing these canals would prevent the discharge of sediment from the drainageways to Keehi Lagoon.

### **2.1.5 New Employee Parking Lot**

The design included pervious concrete and bioswales in the new employee parking lot construction to minimize the impervious area being added. Additionally, since many employees will use the lot on a regular basis, it will provide an excellent opportunity for public education.

### **2.1.6 South Ramp Fuel Rack**

The South Ramp Fuel Rack includes an oil water separator (OWS) that will be effective in trapping any fuel that may spill during operations at the site.

### **2.1.7 CDS Units**

The new Hawaiian Airlines Hangar, Widening Taxiways G&L, and the Diamond Head Site Improvements projects include continuous deflective separation (CDS) units that will aid in removing particles such as sediment and trash as well as oil and grease from the storm water runoff.

### **2.1.8 Detention Basins**

The designs have identified detention basins as via alternative permanent BMP that will not attract wildlife. These systems will also save on the limited space available at the airport. They are designed to capture and hold the storm water and allow it to infiltrate into the ground. This method will effectively capture all potential pollutants that may be generated on a site.

### **2.2 Retrofit Ranking**

The 2010 Feasibility Study had previously used a ranking system which evaluated pounds of total phosphorous (TP) removed, cost effectiveness (per pound of TP treated), runoff reduction, public education, available for quick implementation, addressing a specific problem, maintenance burden, permitting issues, and site constraints. However, the new list of retrofit projects has not been ranked because they will all be implemented on a timeline that is more heavily influenced by the airport construction schedule.

### **3.0 ACTION ITEMS**

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These specific actions will be conducted in order to implement the identified retrofit projects. These steps will include planning, funding, designing, managing the installation, and conducting or overseeing long term maintenance for the retrofit BMPs. Per the NPDES permit, at a minimum two (2) retrofit projects will be completed per year for five (5) years and the status reported in the annual report.

#### **3.1 Planning, Funding, and Designing**

The seven new projects identified by this plan have already been planned and funded. They are currently either being designed or under construction. The five projects that were included from the 2010 Feasibility Study would need to be budgeted. Then, when the budget is secured, an engineering designer can prepare the construction plans.

#### **3.2 Installation**

Once construction plans have been created and approved, construction contractors will be retained. The installation will be overseen by the DOTA Environmental Section per the Storm Water Management Program Plan (SWMPP) Section C and D.

#### **3.3 Long Term Maintenance**

Contractors will be required to provide an Operations and Maintenance (O&M) manual for the permanent BMPs when they are constructed. This manual will detail the required maintenance frequency and procedures. Then, the District Maintenance Section will be responsible for performing the maintenance or issuing a contract for the required maintenance. The DOTA Environmental Section will keep the maintenance records as a part of the annual NPDES report.

**TABLE 5: RETROFIT SCHEDULE\***

Retrofit BMP Project Description	BMP Type	Year 1	Year 2	Year 3	Year 4	Year 5
		2015	2016	2017	2018	2019
New Employee Parking Lot	Pervious Concrete	X				
South Ramp Fuel Rack	Oil Water Separator	X				
New Hawaiian Hangar	CDS Units		X			
Widening of Taxiways G&L, Phase I	CDS Units		X			
Diamond Head Site Improvement	CDS Units			X		
Diamond Head Commuter Terminal	CDS Units			X		
CONRAC Phase 2B (Rental Car Facility)	Detention Basin					X
New Mauka Concourse	Detention Basin					X
Various Storm Drains (Table 5)	Filtration Products				X**	
D10-1 Access "A" Canal	Canal Stabilization				X	
D14-1 Kaloaloe Canal	Canal Stabilization	To be determined				
Triturator	Redesign for Containment	To be determined				
A9-3 Lagoon Drive Parking Lot	Permeable Pavers	To be determined				

\* Based on construction start dates and may be subject to change. Timeframes are based on calendar years.

\*\* Storm drain retrofits may also be included as an addition to other projects and will be subject to their construction schedule. At least one of the storm drain retrofits will be completed by this date.

#### 4.0 REFERENCES

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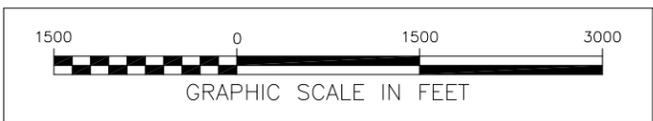
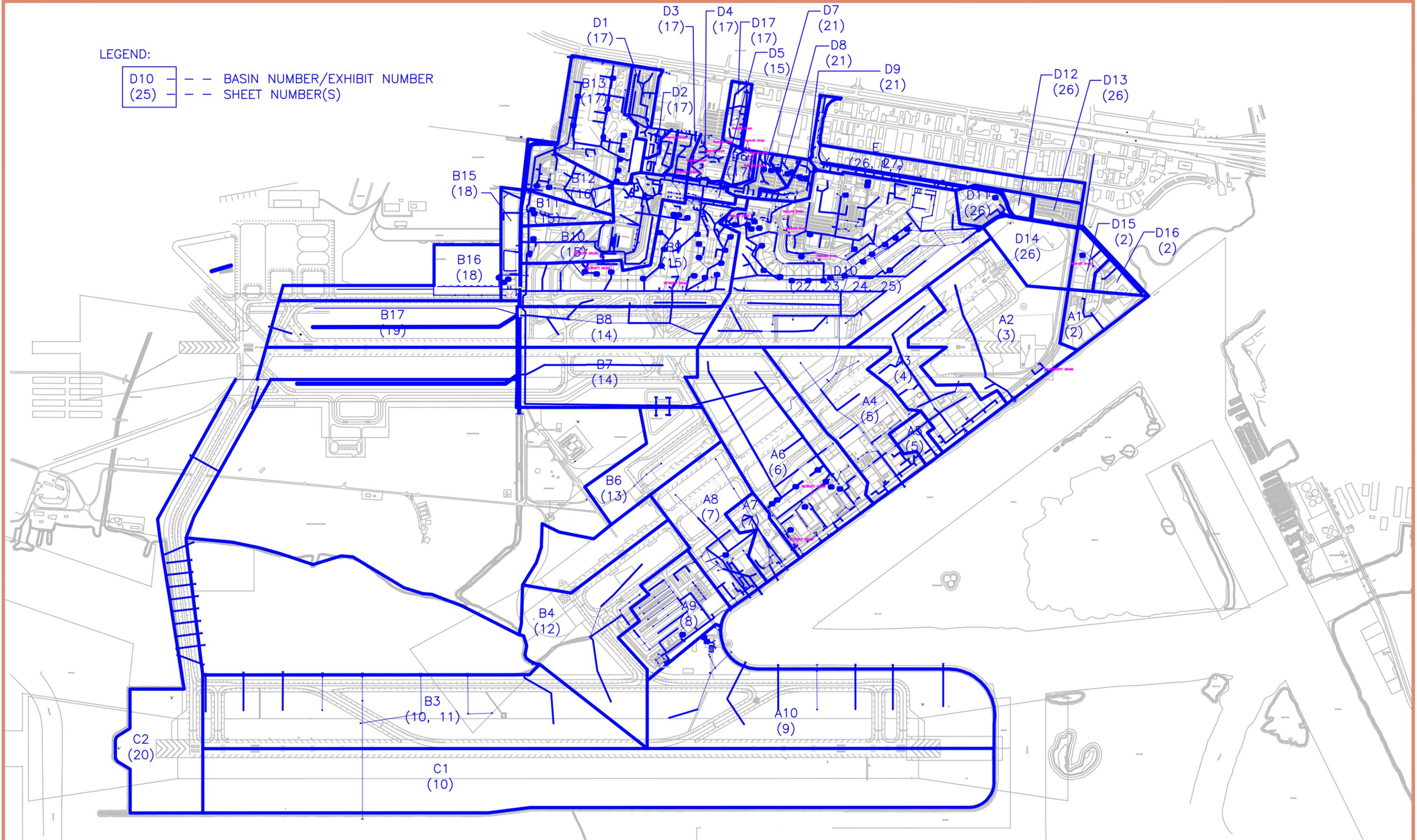
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## **APPENDIX A**

### *Storm Drain Retrofit Maps*

LEGEND:

- D10 (25) --- BASIN NUMBER/EXHIBIT NUMBER
- (25) --- SHEET NUMBER(S)



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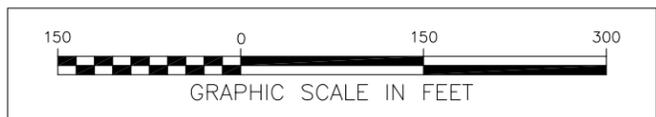
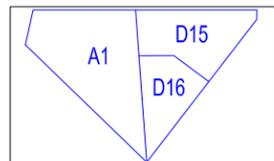
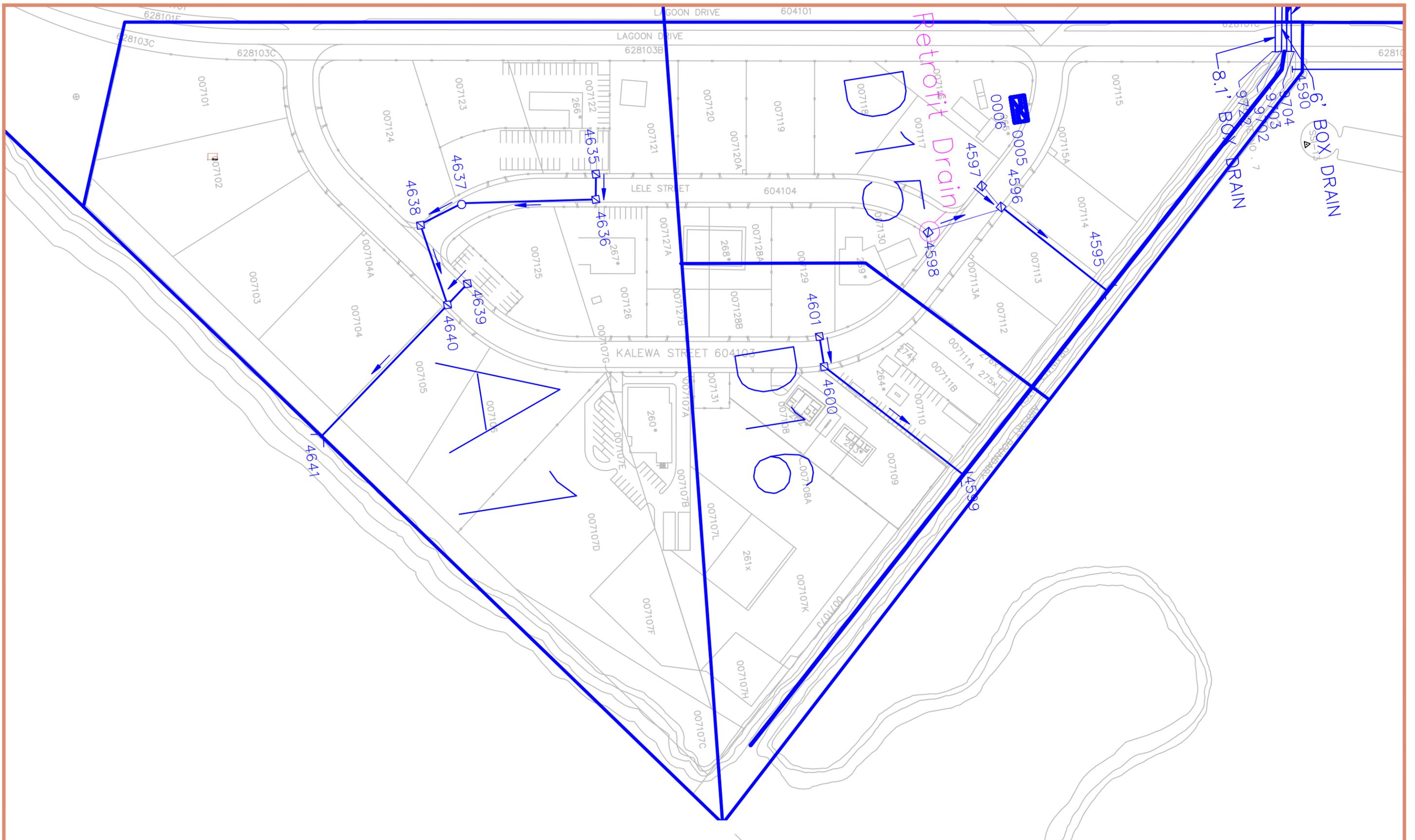
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Date : DECEMBER 2012

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Airports Division

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Date : JUNE 2011

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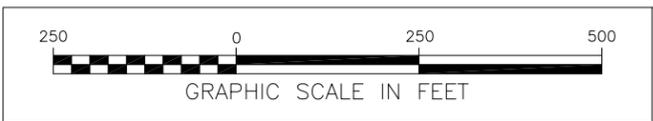
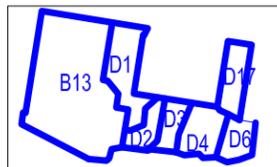
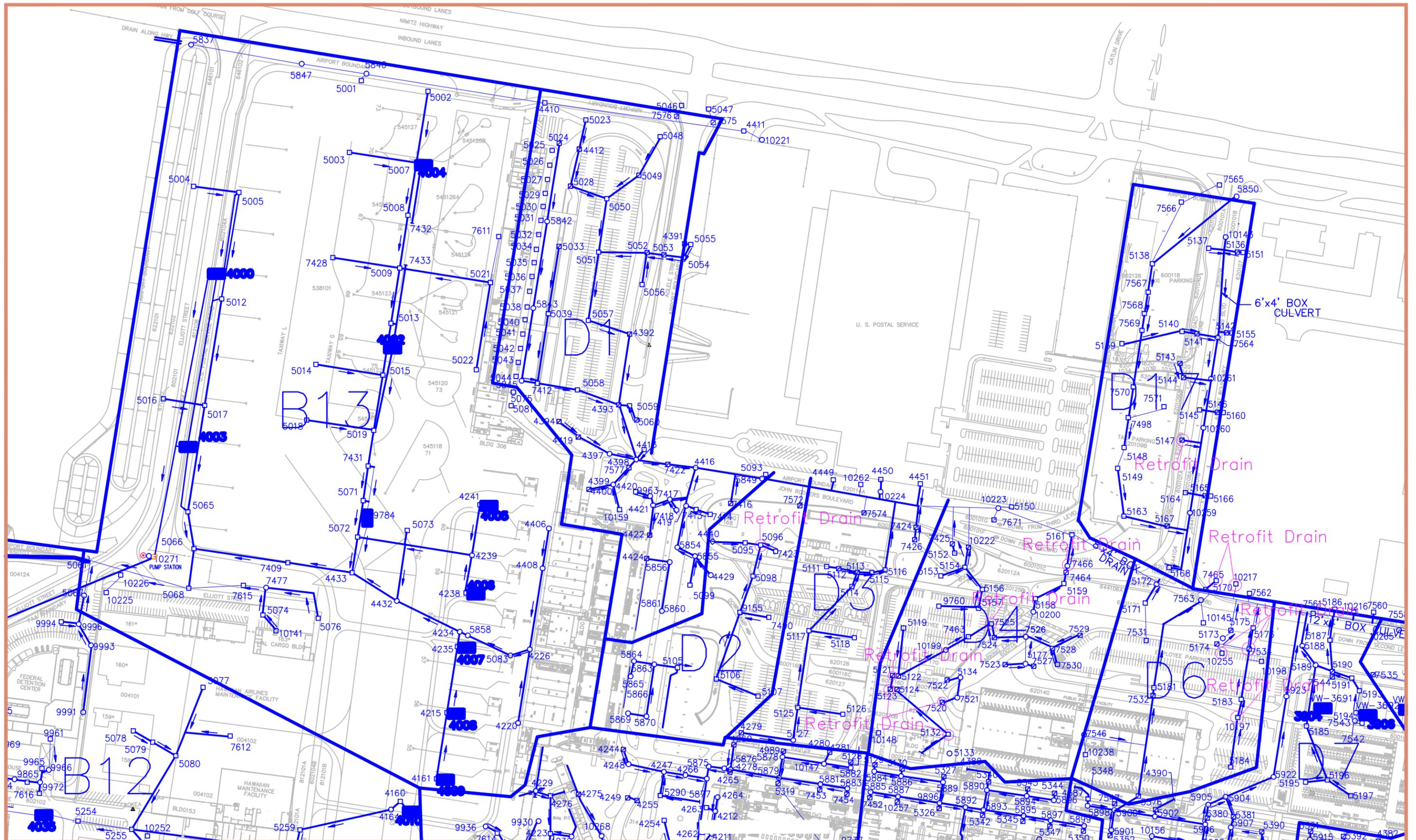
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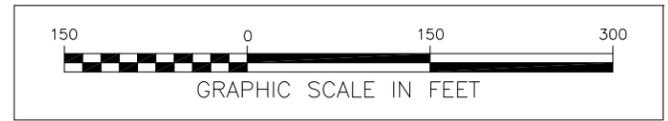
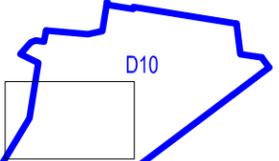
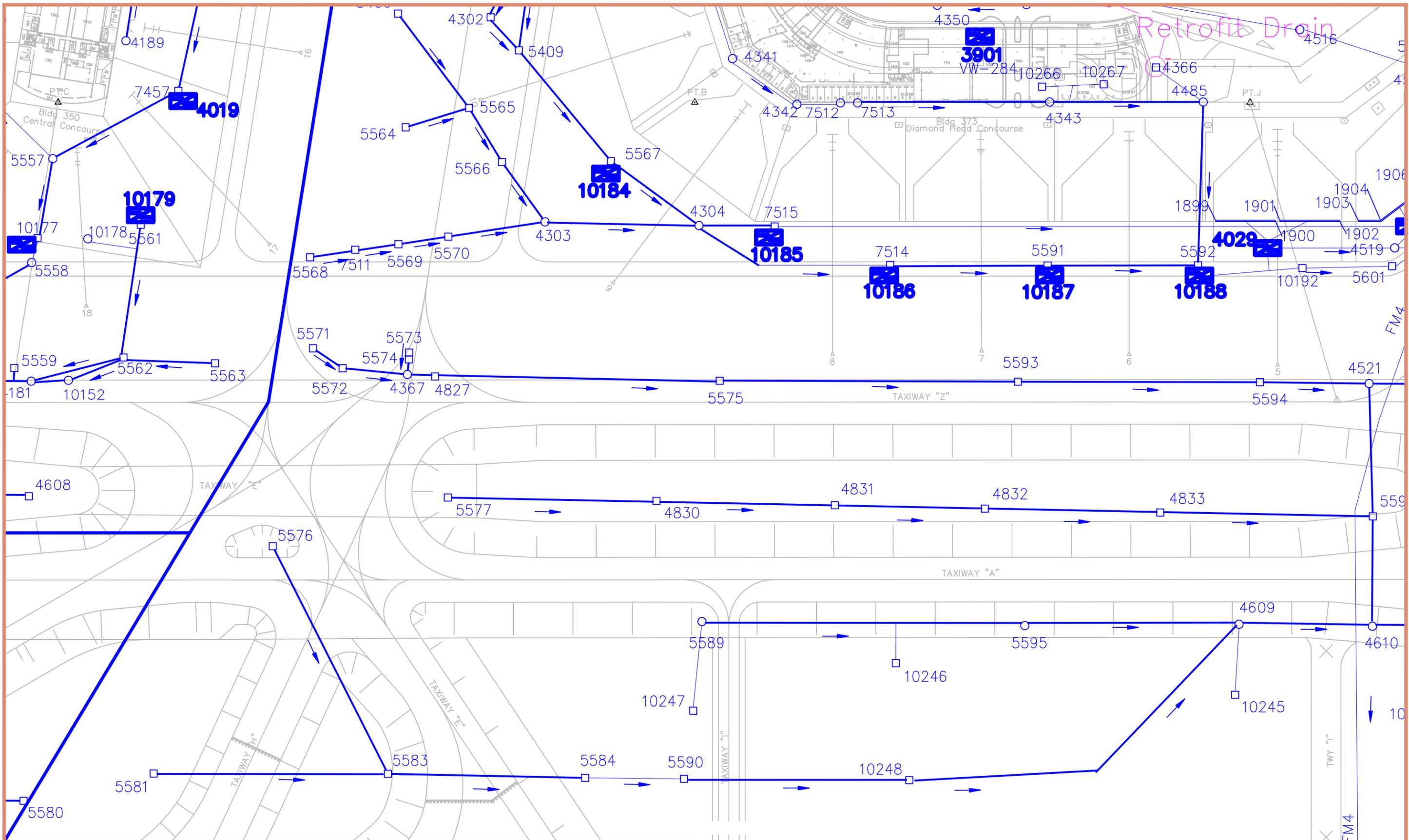
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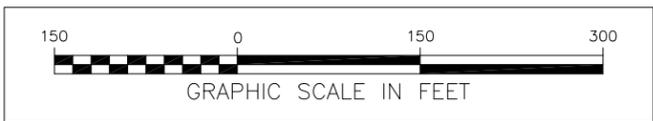
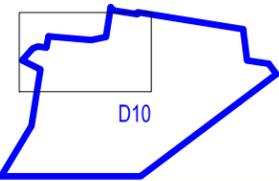
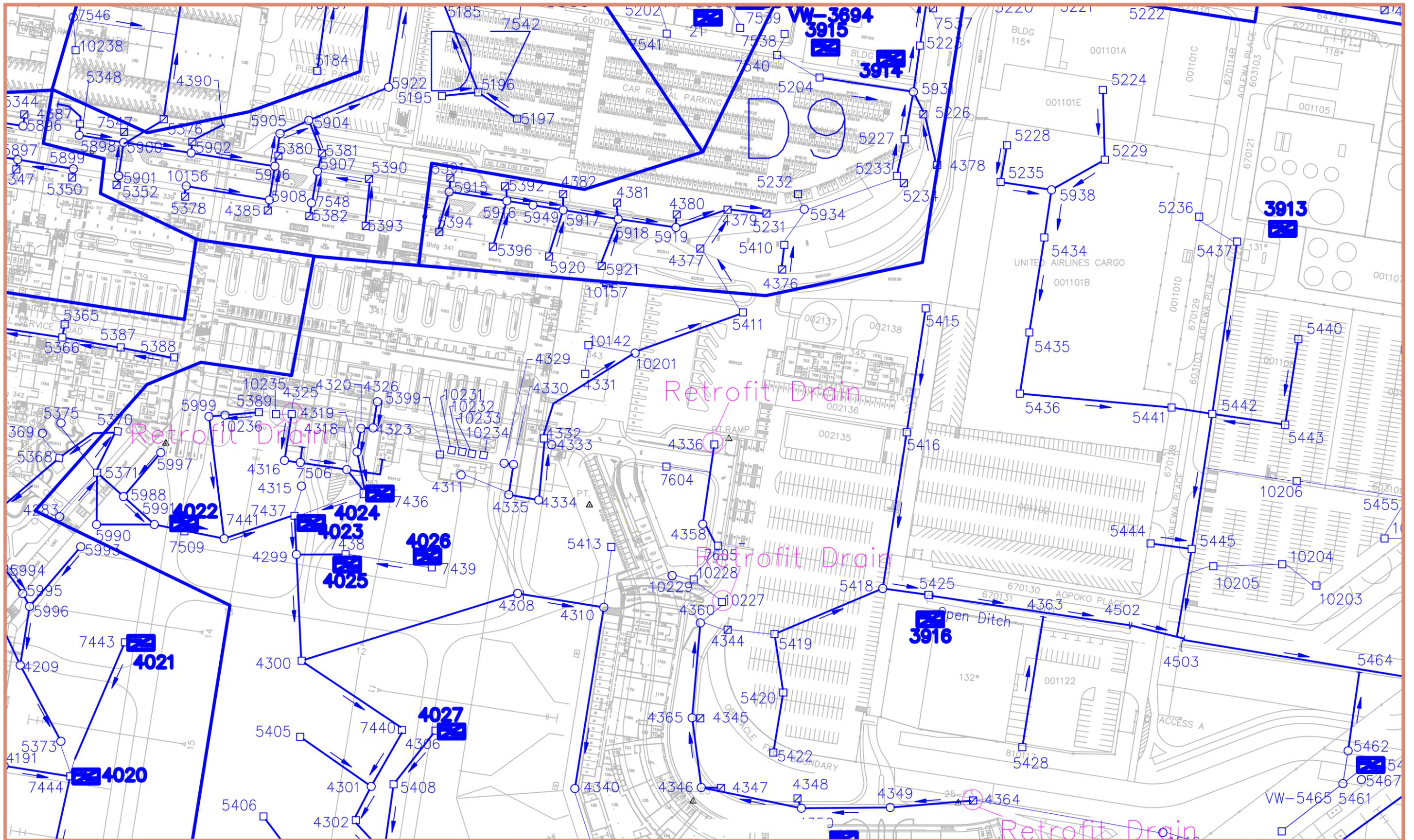
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