

## Appendix A-1

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### WSDOT Stormwater Design Documentation Spreadsheet Threshold Area Tabulation

Project Title:	Poplar Way Extension Bridge Project
WSDOT Region:	Northwest
WIN:	
PIN(s):	
Design Manual Used:	Highway Runoff Manual
Manual Publication Year:	2011
Job Number:	

Is this project in western Washington? **YES**

**Existing Impervious Surface**

Total Project Area (ft<sup>2</sup>) 225,878

**New Impervious Surface**

Total Project Area (ft<sup>2</sup>) 56,987

**Conversion of Native Vegetation to Lawn or Landscaped**

Total Project Area (ft<sup>2</sup>) 0

**Conversion of Native Vegetation to Pasture**

Total Project Area (ft<sup>2</sup>) 0

**Replaced Impervious Surface**

Total Project Area (ft<sup>2</sup>) 0

**Land Disturbing Activity**

Total Project Area (ft<sup>2</sup>) 334,042

Is this project a "non-road-related" project? (See HRM Glossary for definition) **NO**

Description	Project Area	Threshold Area Triggers	HRM Figure 3.1 Step #	Decision Response	HRM Minimum Requirements
New and replace impervious surfaces added to Project	56,987	≥ 2,000 ft <sup>2</sup>	2	YES	Apply MR 1-4 to the new and replaced impervious surfaces and land disturbed on the Project
Land disturbing activity for the Project	334,042	≥ 7,000 ft <sup>2</sup>	2	YES	Threshold does not apply since Project already exceeds the above new impervious and replaced surfaces threshold
New impervious surface added to Project	56,987	≥ 5,000 ft <sup>2</sup>	3	YES	Apply MR 6-9 for new impervious surfaces and converted pervious surfaces on the Project
Conversion of native vegetation to lawn or landscaped area	0	≥ 32,670 ft <sup>2</sup> (3/4 acres)	3	NO	Threshold does not apply since Project already exceeds new impervious surface threshold
Conversion of native vegetation to pasture	0	≥ 108,900 ft <sup>2</sup> (2.5 acres)	3	NO	Threshold does not apply since Project already exceeds new impervious surface threshold
New impervious surfaces add 50% or more to the existing impervious surfaces within the Project limit	25%	New impervious ≥ 5,000 sq. ft AND (New Impervious surface) ≥ 1/2 (Exist Impervious surface)	4	NO	DO NOT apply Apply MR 6-9 to replaced impervious surfaces on Project
For non-road-related Projects, proposed value of improvements greater than replacement value	See HRM Figure 3.1 for complete threshold. Non-road-related project generally refers to rest area, ferry terminals, and maintenance facility Projects.	(New impervious + replaced impervious) ≥ 5,000 sq. ft AND (Proposed value of improvements) ≥ 1/2 (replacement value of existing site)	4	N/A	Check road-related project threshold above

**Summary of All Minimum Requirements:**

**Apply MR 1-4 to New and Replaced impervious surfaces and land disturbed on the Project**  
**Apply MR 6-9 to New impervious surfaces and Converted pervious surfaces on Project**  
**Do not apply Minimum Requirements 6-9 to the replaced impervious surfaces on Project**  
**Go To Step 5 and 6 on next tab**

MR #	Minimum Requirements	MR #	Minimum Requirements
1	Stormwater Planning	6	Flow Control (Quantity)
2	Construction Stormwater Pollution	7	Wetland Protection
3	Source Control of Pollutants	8	Incorporating Watershed-Based/Basin
4	Maintaining the Natural Drainage	9	Operations and Maintenance
5	Runoff Treatment (quality)		

**Project Title: Poplar Way Extension Bridge Project**  
**WSDOT Region:** Northwest  
**WIN:**  
**PIN(s):**  
**Design Manual Used:** Highway Runoff Manual  
**Manual Publication Year:** 2011  
**Job Number:**

Is this project in western Washington?

**Existing PGIS**

Total Project Area (ft<sup>2</sup>)

**New PGIS**

Total Project Area (ft<sup>2</sup>)

**Conversion of Native Vegetation to PGPS**

Total Project Area (ft<sup>2</sup>)

**Replaced PGIS**

Total Project Area (ft<sup>2</sup>)

Is this project a "non-road-related" project? (See HRM Glossary for definition)

Description	Project Area (ft <sup>2</sup> )	Threshold Area (ft <sup>2</sup> )	HRM Figure 3.2 Step #	Decision Response	HRM Minimum Requirements
New PGIS added to Project	46,734	≥ 5,000	5	YES	Apply MR 5 for new PGIS and converted PGPS on the Project
Conversion of Native Vegetation to PGPS	0	≥ 32,670 (3/4 acres)	5	NO	Threshold does not apply since Project already exceeds new PGIS threshold
New PGIS add 50% or more to the existing PGIS within the Project limit	25%	New PGIS ≥ 5,000 AND (New PGIS) ≥ 1/2 (Exist PGIS)	6	NO	DO NOT apply MR 5 to the replaced PGIS on the Project
For non-road-related Projects, proposed value of improvements greater than replacement value	See HRM Figure 3.1 for complete threshold. Non-road-related Project generally refers to rest area, ferry terminals, and maintenance facility projects.	(New PGIS + replaced PGIS) ≥ 5,000 AND (Proposed value of improvements) ≥ 1/2 (replacement value of existing site)	6	N/A	Check road-related project threshold above

**Summary of All Minimum Requirements:**

**Apply MR 5 to New PGIS and converted PGPS the on Project**  
**Do not apply MR 5 to Replaced PGIS on Project**  
**Go to Step 7 RT tab**

MR #	Minimum Requirements	MR #	Minimum Requirements
1	Stormwater Planning	6	Flow Control (Quantity)
2	Construction Stormwater Pollution	7	Wetland Protection
3	Source Control of Pollutants	8	Incorporating Watershed-Based /Basin
4	Maintaining the Natural Drainage	9	Operations and Maintenance
5	Runoff Treatment (quality)		

Project Title: Poplar Way Extension Bridge Project  
 WSDOT Region: Northwest  
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 Design Manual Used: Highway Runoff Manual  
 Manual Publication Year: 2011  
 Job Number:

Refer to HRM Figure 3.3 Step 7  
 Is replaced PGIS applicable to the project per step 6?  NO

Is this project in western Washington?  YES

TDA Description	Description	New PGIS Area (ft <sup>2</sup> )	Replaced PGIS Area (ft <sup>2</sup> )	Non-Effective PGIS Area (ft <sup>2</sup> )	Effective PGIS Area (ft <sup>2</sup> )	Converted PGPS Area (ft <sup>2</sup> )	RT needed for TDA based on Effective PGIS? Flow Chart Step 7 (Yes/No)	RT needed for TDA based on PGPS? Flow Chart Step 7 (Yes/No)	RT needed for TDA? PGIS Area (ft <sup>2</sup> )	RT needed for TDA? Converted PGPS Area (ft <sup>2</sup> )	If RT needed, what is ADT of roadway in TDA? (ADT)	Is Roadway inside Urban Growth Area? (Yes/No)	Enhanced RT or Basic RT? (Enhanced/Basic)	Oil Control (Yes/No)	Phosphorus Control? (Yes/No)	Comments
TDA 1		38,150	0	0	38,150	0	YES	NO	38,150	0	30,000	YES	Enhanced RT	YES	NO	
TDA 2		3,682	0	0	3,682	0	NO	NO	0	0	30,000	YES	N/A	YES	NO	
TDA 3		4,761	0	0	4,761	0	NO	NO	0	0	30,000	YES	N/A	YES	NO	
TDA 4		141	0	0	141	0	NO	NO	0	0	30,000	YES	N/A	YES	NO	
Area Totals for Project		46,734	0	0	46,734	0			38,150	0						

Project Title: Poplar Way Extension Bridge Project  
 WSDOT Region: Northwest  
 WIN:  
 PIN(s):  
 Design Manual Used: Highway Runoff Manual  
 Manual Publication Year: 2011  
 Job Number:

Refer to HRM Figure 3.3 Step 8

Is replaced impervious surface applicable to the project per flow control step 5?

Is this project in western Washington?

TDA Description	Description	New Impervious Surface Area (ft <sup>2</sup> )	Reverted Impervious Surface** Area (ft <sup>2</sup> )	Net-New Impervious Surface Area (ft <sup>2</sup> )	Replaced Impervious Surface Area (ft <sup>2</sup> )	Non-Effective Impervious Surface Area (ft <sup>2</sup> )	Effective Impervious Surface Area (ft <sup>2</sup> )	Conversion of Native Vegetation to Lawn or Landscape per TDA Area (ft <sup>2</sup> )	Increase of 0.1 cfs in 100-year Recurrence Interval Flow for TDA?*** (Yes/No)	FC Needed for TDA based on Effective Impervious surface threshold? (Yes/No)	FC needed for TDA based on Native Vegetation Conversion? (Yes/No)	FC needed for TDA based on 0.1 cfs increase in flow? (Yes/No)	FC needed for TDA? Effective Impervious Area (ft <sup>2</sup> )	FC needed for TDA? Converted Pervious Surfaces Area (ft <sup>2</sup> )	Comments
TDA 1		49,698	0	49,698	0	0	49,698	0	YES	YES	NO	YES	49,698	0	
TDA 2		3,246	0	3,246	0	0	3,246	0	NO	NO	NO	NO	0	0	
TDA 3		3,903	0	3,903	0	0	3,903	0	NO	NO	NO	NO	0	0	
TDA 4		141	0	141	0	0	141	0	NO	NO	NO	NO	0	0	
Area Totals for Project		56,988	0	56,988	0	0	56,988	0					49,698	0	

\*\* Input zero into this column if the reverted impervious surface does not meet the requirements per HRM 4-3.6.1 (Western WA) and 4-4.6.2 (Eastern WA).

\*\*\* See Highway Runoff Manual 3-3.6.3 for MGSFlood modeling guidance.

Threshold Area Tabulation

TDA	Impervious Area Category	New PGIS (SF)	Total New PGIS (SF)	New Imperv. (SF)	Total New Imperv. (SF)
1	New PGIS (Road Pavement)	27,308		27,308	
	New PGIS (Road Pavement, Previously Sidewalk)	9,731		0	
	New NPGIS	0		20,942	
	<b>TDA 1 Totals</b>	<b>37,039</b>	<b>37,039</b>	<b>48,250</b>	<b>48,250</b>
	<b>TDA 1 Totals with 3% Contingency</b>		<b>38,150</b>		<b>49,698</b>
2	New PGIS (Road Pavement)	642		642	
	New PGIS (Road Pavement, Previously Sidewalk)	2,933		0	
	New NPGIS	0		2,509	
	<b>TDA 2 Totals</b>	<b>3,575</b>	<b>3,575</b>	<b>3,151</b>	<b>3,151</b>
	<b>TDA 2 Totals with 3% Contingency</b>		<b>3,682</b>		<b>3,246</b>
3	New PGIS (Road Pavement)	1,083		1,083	
	New PGIS (Road Pavement, Previously Sidewalk)	3,539		0	
	New NPGIS	0		2,706	
	<b>TDA 3 Totals</b>	<b>4,622</b>	<b>4,622</b>	<b>3,789</b>	<b>3,789</b>
	<b>TDA 3 Totals with 3% Contingency</b>		<b>4,761</b>		<b>3,903</b>
4	New PGIS (Road Pavement)	137		137	
	New PGIS (Road Pavement, Previously Sidewalk)	0		0	
	New NPGIS	0		0	
	<b>TDA 4 Totals</b>	<b>137</b>	<b>137</b>	<b>137</b>	<b>137</b>
	<b>TDA 4 Totals with 3% Contingency</b>		<b>141</b>		<b>141</b>
<b>Project Totals with 3% contingency</b>			<b>46,734</b>		<b>56,987</b>

Numbers below obtained from Existing Impervious Area Maps in Appendix A

Project Existing Impervious Area Totals (SF)

Total Existing PGIS	183,389
Total Existing NPGIS	42,489
<b>Total Existing Impervious area</b>	<b>225,878</b>

<b>Total Project Area</b>	<b>334,042</b>
This area is the total project area within the project limits	

Figures A-2.1 through A-2.7: Existing Drainage Conditions

Figure A-2.8: Upstream Map

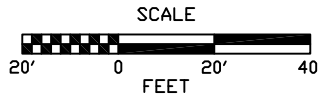
Figures A-2.9 through A-2.14: Downstream Maps (excluding Figure A-2.12)

Figure A-2.15: Point of Compliance

Figures A-2.16 through A-2.22: Existing Impervious Areas

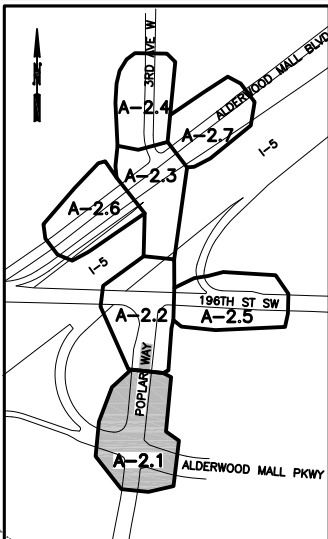
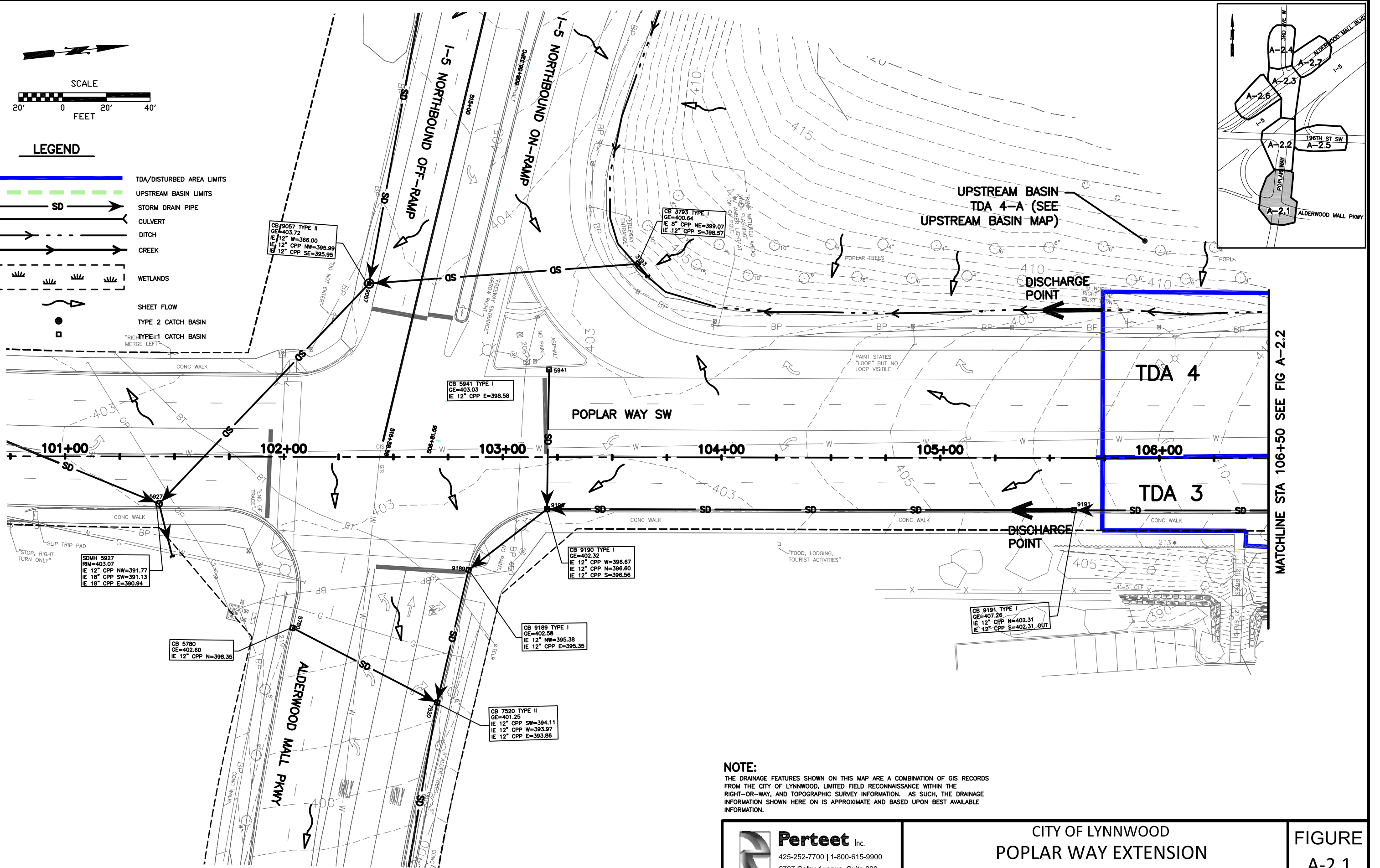
Figures A-2.23 through A-2.29: Proposed Impervious Areas

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LEGEND

- TDA/DISTURBED AREA LIMITS
- UPSTREAM BASIN LIMITS
- STORM DRAIN PIPE
- CULVERT
- DITCH
- CREEK
- WETLANDS
- SHEET FLOW
- TYPE 2 CATCH BASIN
- TYPE 1 CATCH BASIN



MATCHLINE STA 106+50 SEE FIG A-2.2

**NOTE:**  
 THE DRAINAGE FEATURES SHOWN ON THIS MAP ARE A COMBINATION OF GIS RECORDS FROM THE CITY OF LYNNWOOD, LIMITED FIELD RECONNAISSANCE WITHIN THE RIGHT-OF-WAY, AND TOPOGRAPHIC SURVEY INFORMATION. AS SUCH, THE DRAINAGE INFORMATION SHOWN HERE ON IS APPROXIMATE AND BASED UPON BEST AVAILABLE INFORMATION.

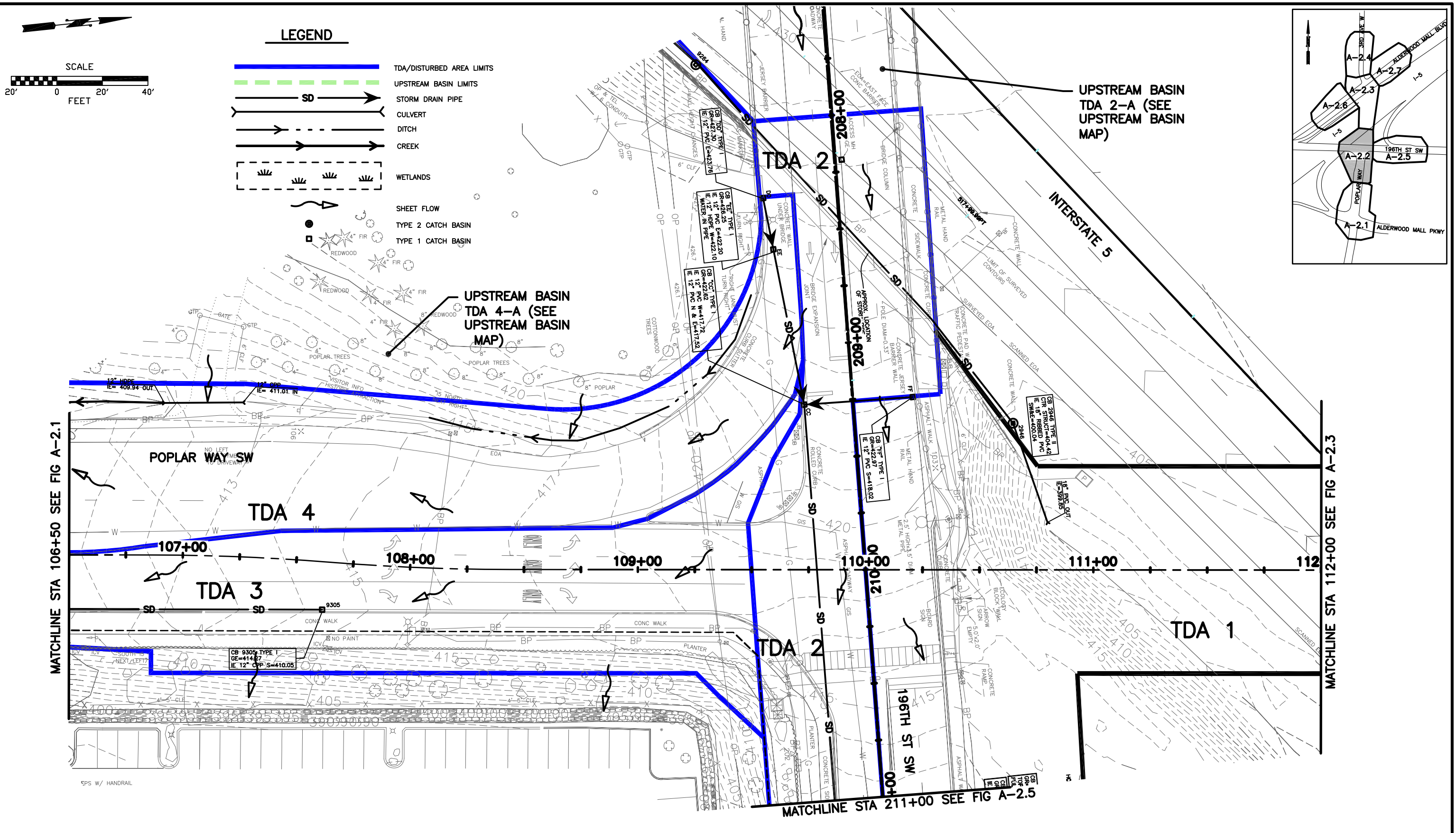
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 POPLAR WAY EXTENSION  
 EXISTING DRAINAGE CONDITIONS

FIGURE  
 A-2.1



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MATCHLINE STA 106+50 SEE FIG A-2.1

MATCHLINE STA 112+00 SEE FIG A-2.3

MATCHLINE STA 211+00 SEE FIG A-2.5

UPSTREAM BASIN TDA 2-A (SEE UPSTREAM BASIN MAP)

UPSTREAM BASIN TDA 4-A (SEE UPSTREAM BASIN MAP)

**LEGEND**

- TDA/DISTURBED AREA LIMITS
- UPSTREAM BASIN LIMITS
- SD STORM DRAIN PIPE
- CULVERT
- DITCH
- CREEK
- WETLANDS
- SHEET FLOW
- TYPE 2 CATCH BASIN
- TYPE 1 CATCH BASIN

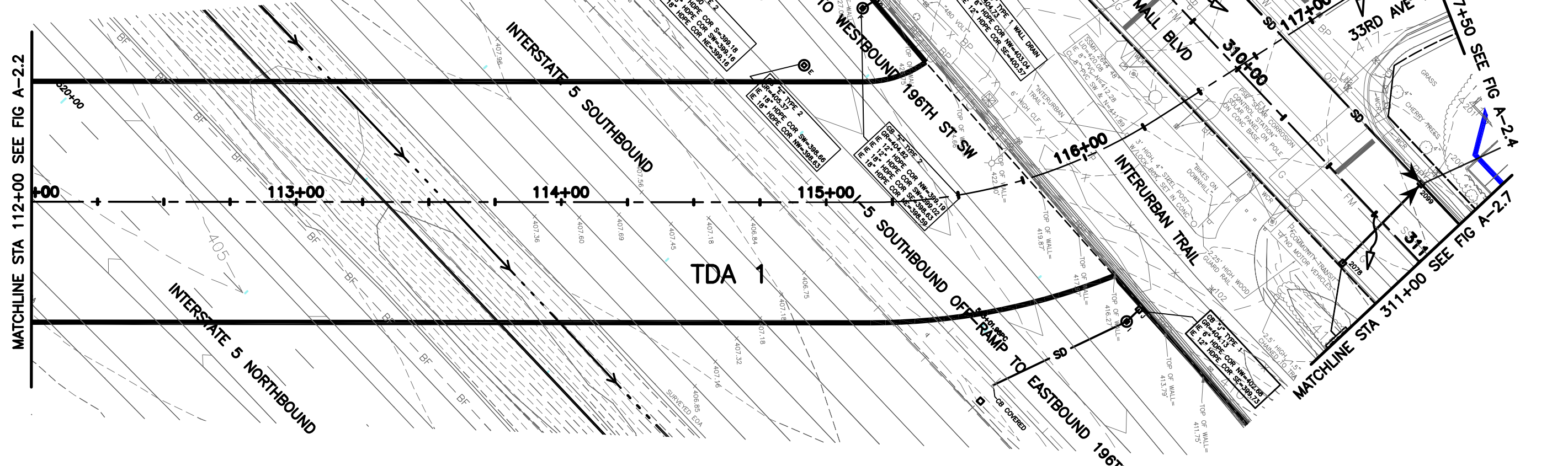
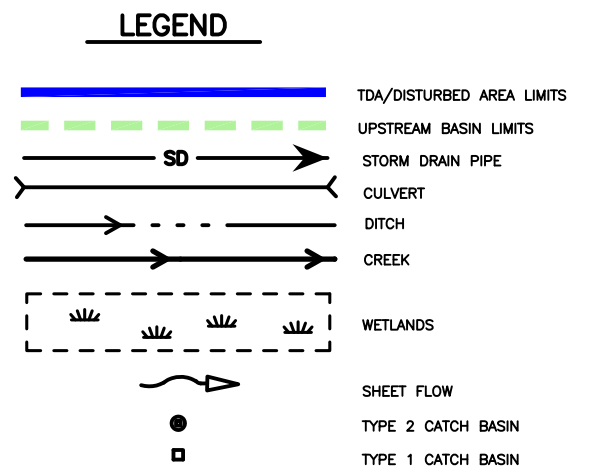
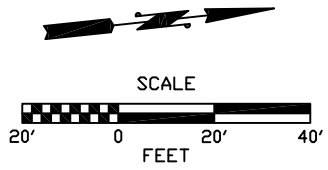
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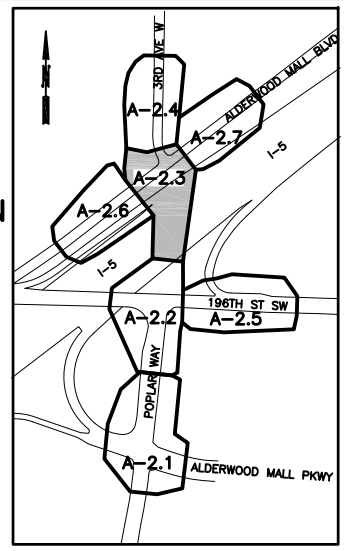
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FIGURE  
 A-2.2

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POINT DISCHARGE FROM UPSTREAM BASIN TDA 1-C (SEE UPSTREAM BASIN MAP)

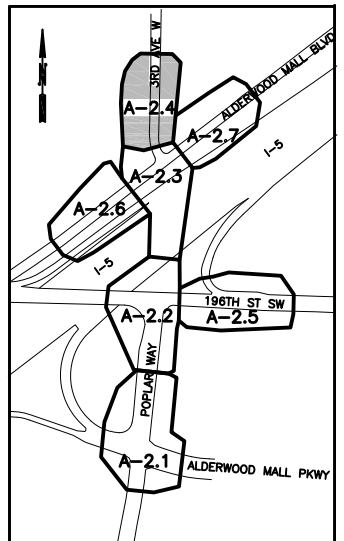
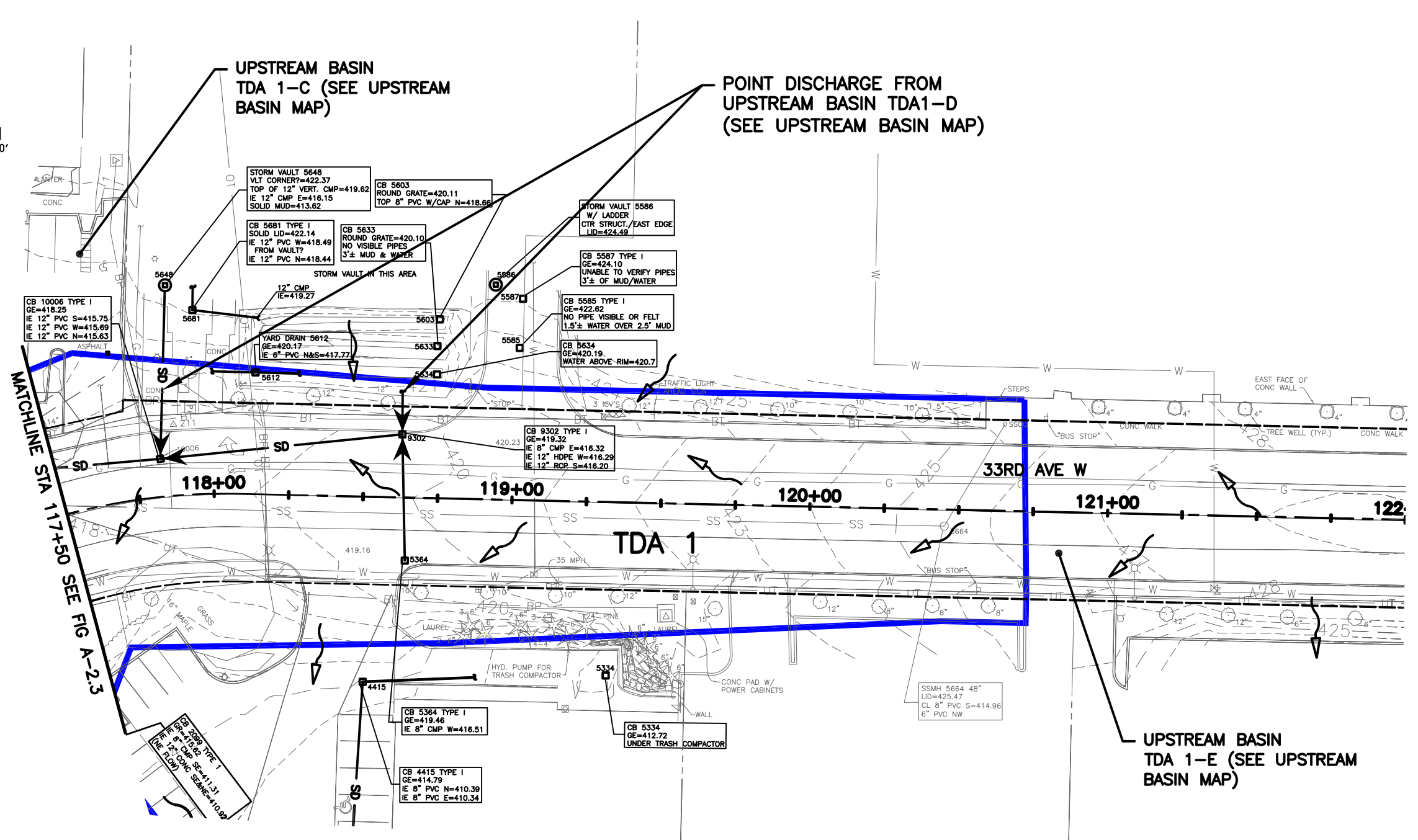
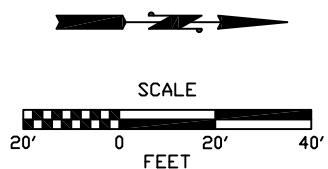


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FIGURE  
A-2.3



**LEGEND**

- TDA/DISTURBED AREA LIMITS
- UPSTREAM BASIN LIMITS
- STORM DRAIN PIPE
- CULVERT
- DITCH
- CREEK
- WETLANDS
- SHEET FLOW
- TYPE 2 CATCH BASIN
- TYPE 1 CATCH BASIN

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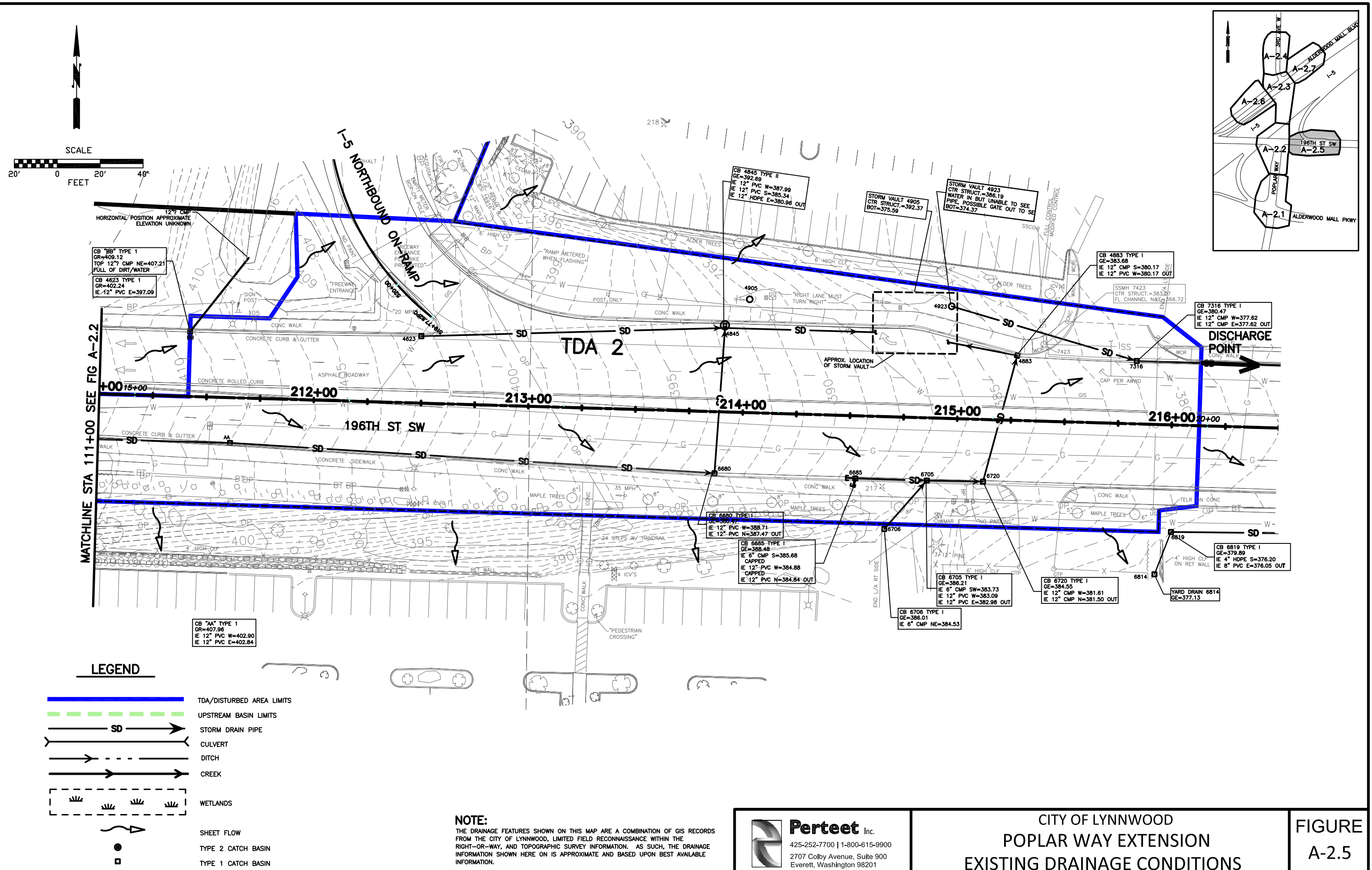
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EXISTING DRAINAGE CONDITIONS

**FIGURE**  
A2.4

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SCALE  
0 20' 40'  
FEET

MATCHLINE STA 111+00 SEE FIG A-2.2

**LEGEND**

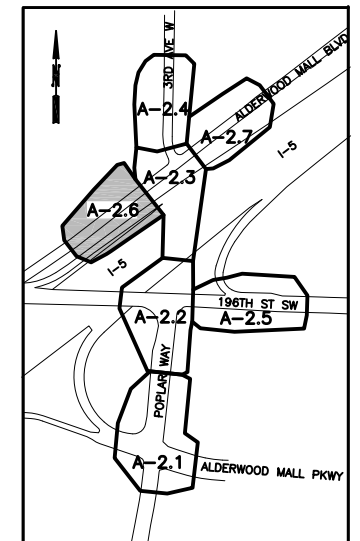
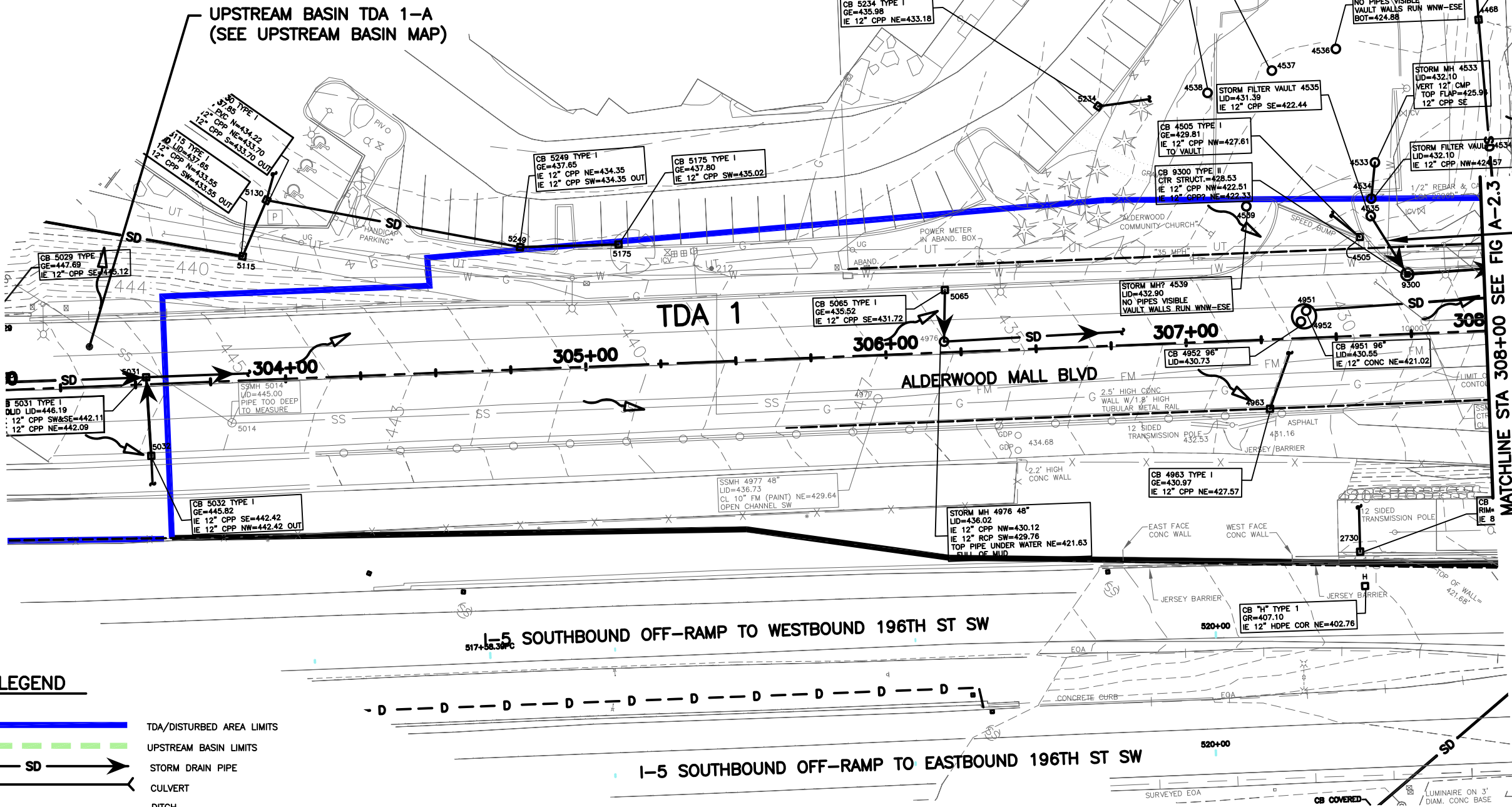
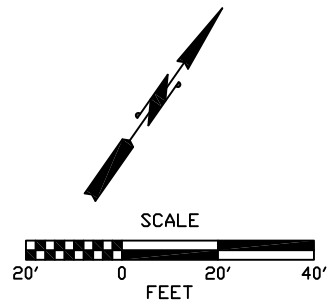
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**FIGURE**  
A-2.5



POINT DISCHARGE FROM  
UPSTREAM BASIN TDA 1-B  
(SEE UPSTREAM BASIN MAP)

MATCHLINE STA 308+00 SEE FIG A-2.3

**LEGEND**

- TDA/DISTURBED AREA LIMITS
- UPSTREAM BASIN LIMITS
- STORM DRAIN PIPE
- CULVERT
- DITCH
- CREEK
- WETLANDS
- SHEET FLOW
- TYPE 2 CATCH BASIN
- TYPE 1 CATCH BASIN

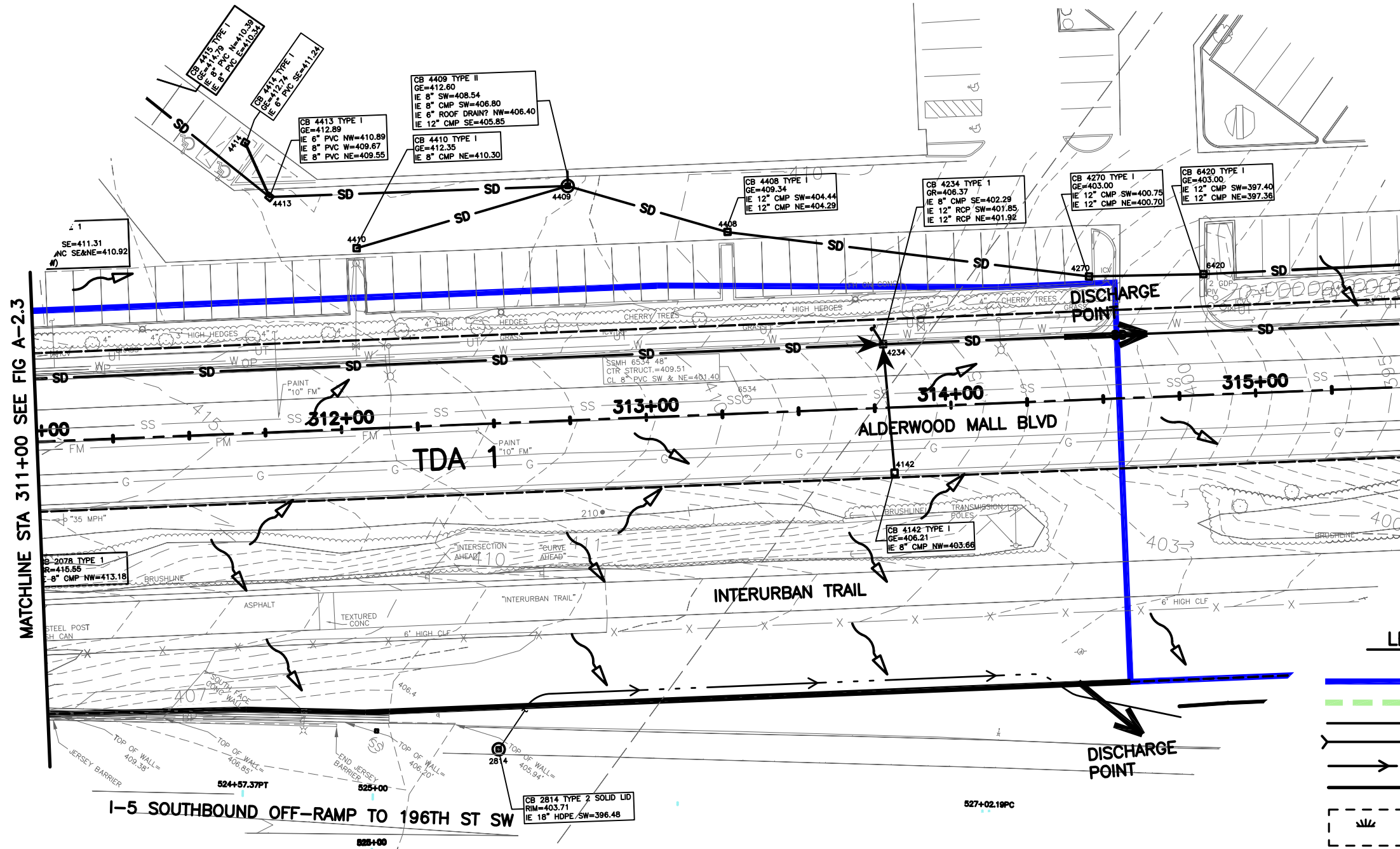
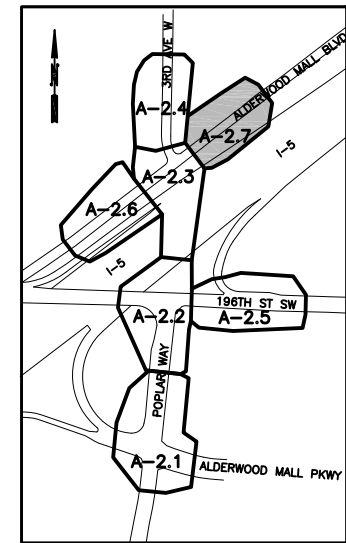
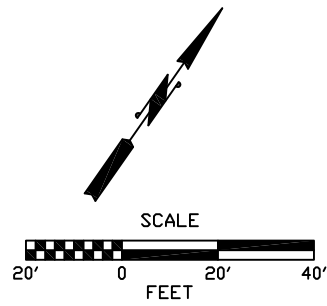
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**FIGURE**  
A-2.6

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MATCHLINE STA 311+00 SEE FIG A-2.3

**LEGEND**

- TDA/DISTURBED AREA LIMITS
- UPSTREAM BASIN LIMITS
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- CULVERT
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- TYPE 1 CATCH BASIN

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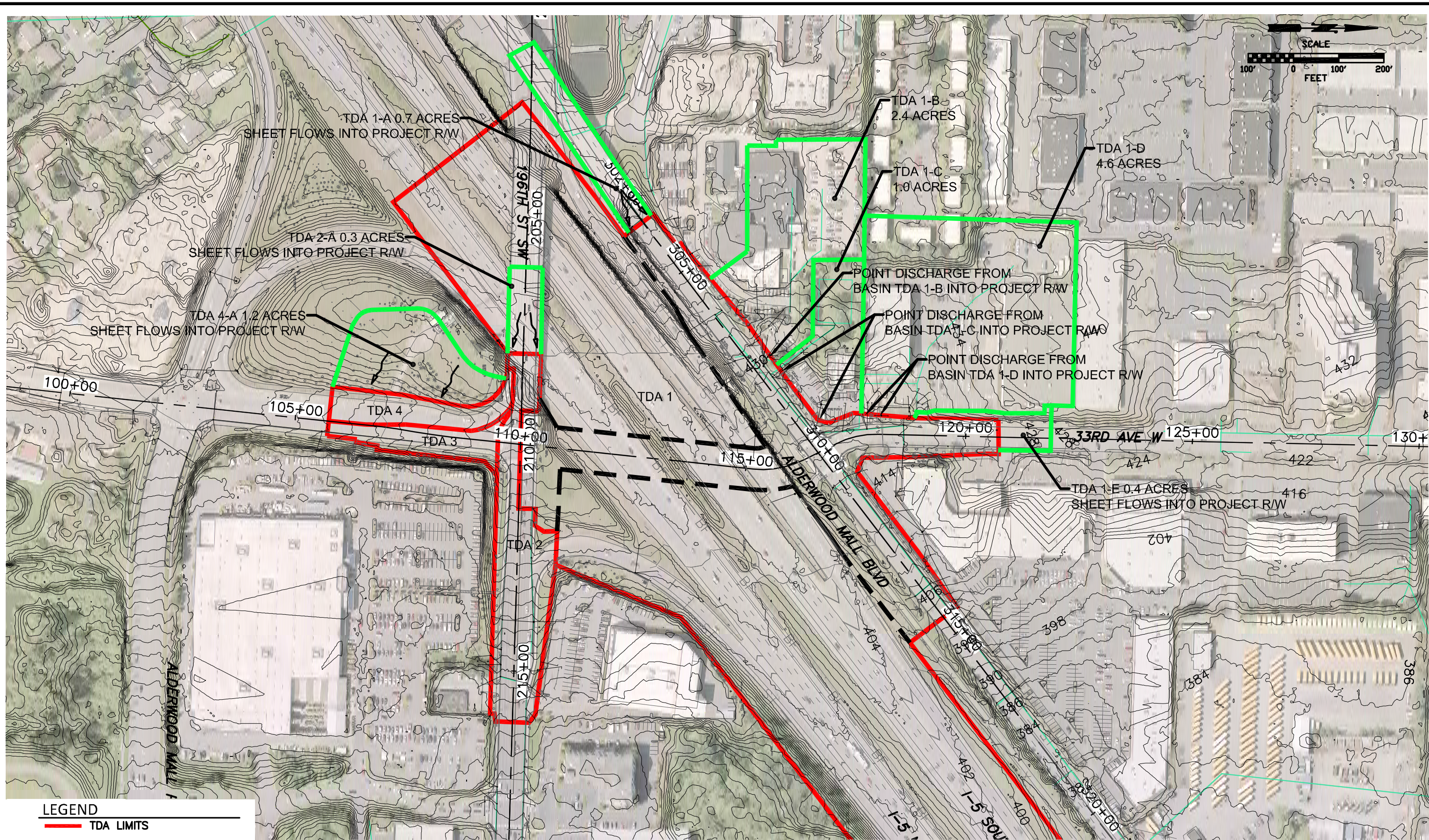
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**FIGURE  
 A-2.7**

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- LEGEND**
- TDA LIMITS
  - UPSTREAM BASIN BOUNDARY
  - - - TDA 1 DISTURBED AREA BOUNDARY LIMITS

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 UPSTREAM MAP

FIGURE  
 A-2.8