

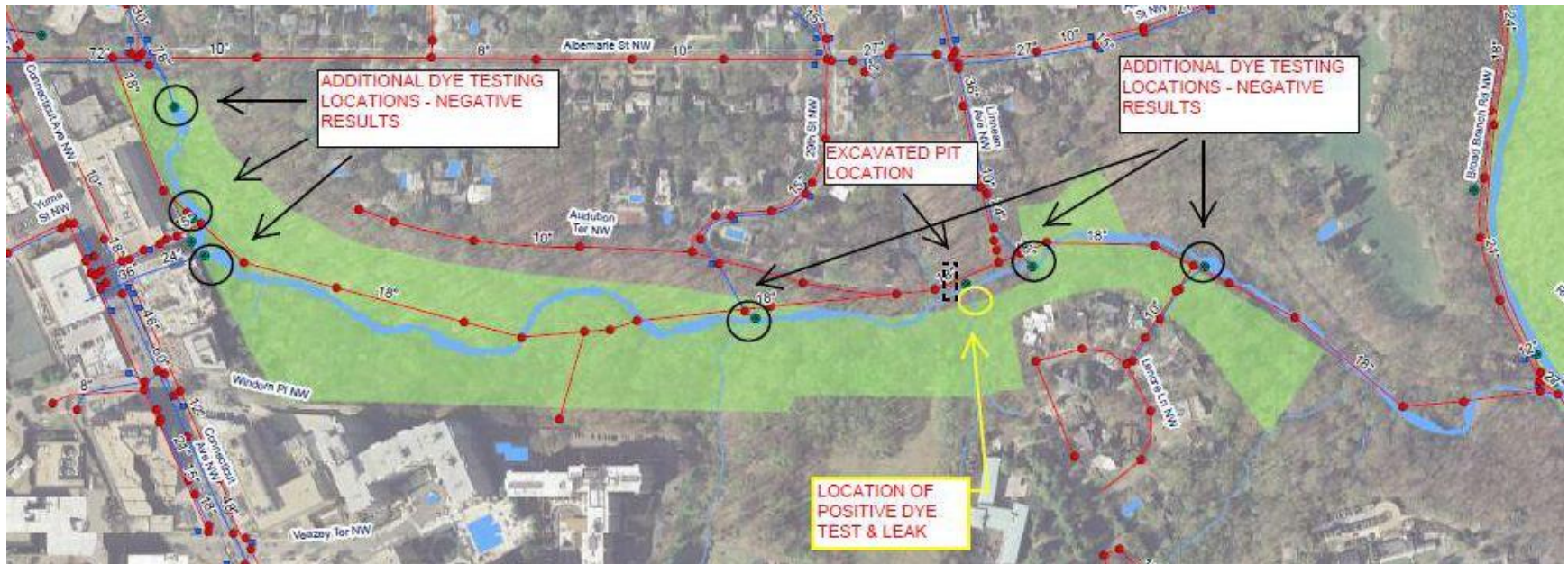
Soapstone Sewer Rehabilitation – Alternative Concepts Design and Associated Impacts



- Update on Soapstone Emergency Response
- Provide project background
- Provide project purpose & need
- Present proposed design concepts
- Present environmental impacts

Positive dye test near storm outfall



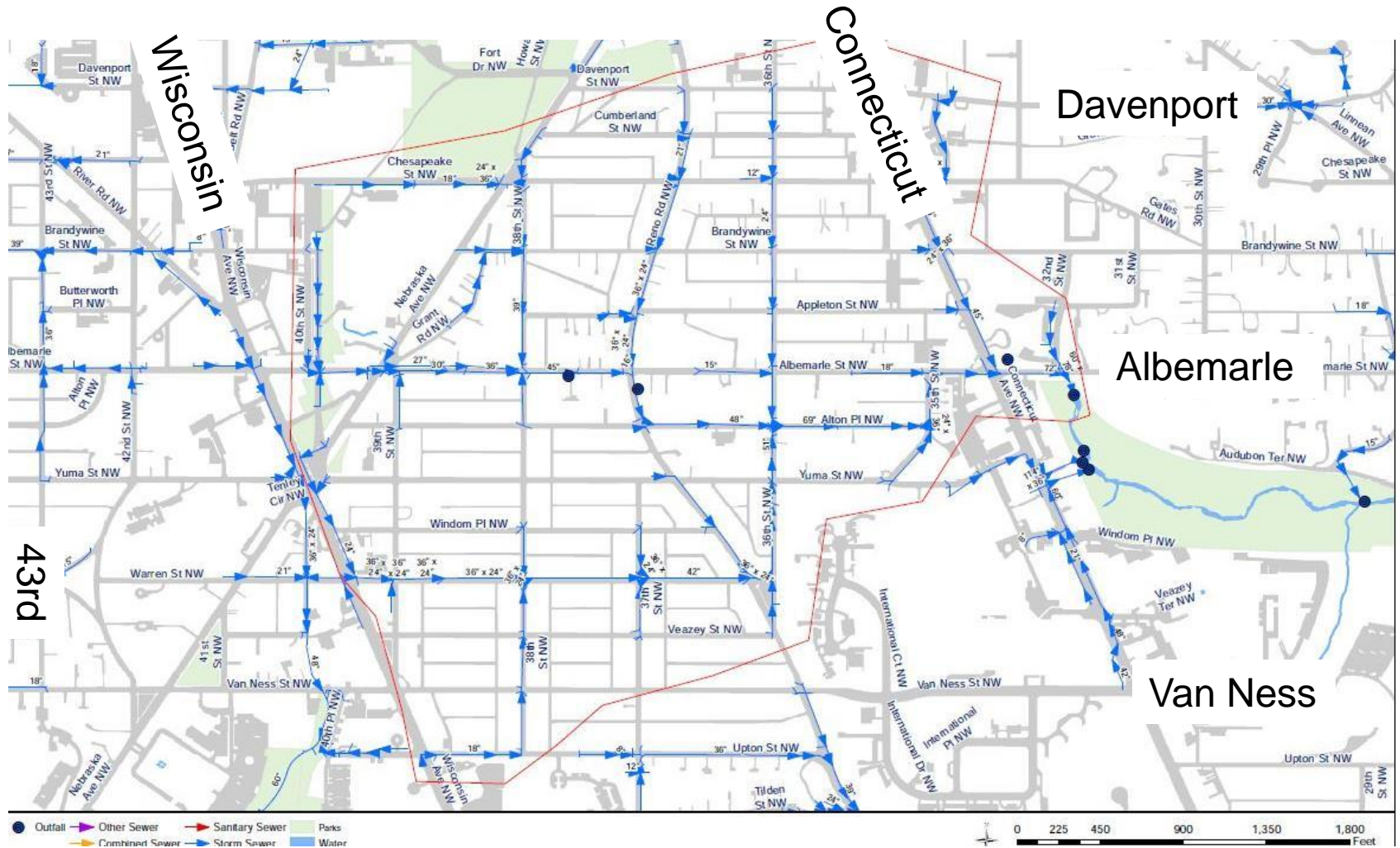




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Stormshed Delineation

– Example (F-117)



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- Project Pipes= approx. 6,200 LF
- In service since 1907-1908 (>100 yrs old)
- Condition Assessment results (completed 2010):
 - Multiple internal structural defects
 - Exposure of assets in stream due to erosion
 - Risk of leaks & infiltration due to pipe condition and exposures
 - 2 MS4 outfalls in need of repair

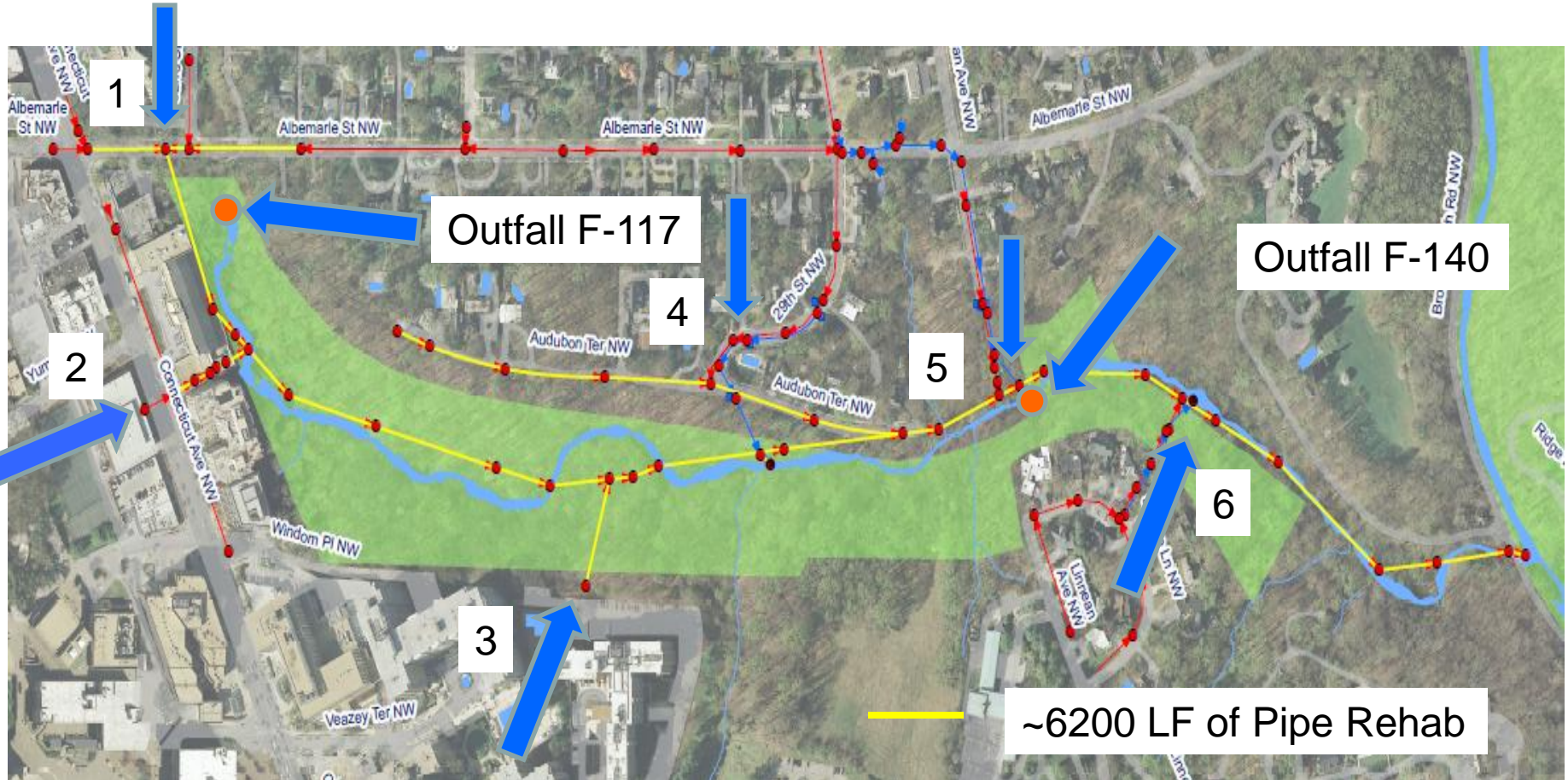


- Repair, Replace or Rehabilitate 6200 LF of sanitary pipe
- Repair or Rehabilitate 22 sanitary manholes
- Repair 2 storm outfalls per MS4 permit
- Eliminate exposure of assets to the extent practicable
- Maintain the function of National Park land



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Sewers in Soapstone Valley



- DC Water Submitted Draft EA in 2012
- One Action Alternative (CIPP) was presented at the time
- Impact to trees per earlier design was estimated by NPS as:
 - 586 – 812 individual trees
- NPS requested DC Water provide additional design alternative to reroute sewer flow outside Park property.

- Per NPS' request, DC Water has prepared:
 - A second Concept Alternative - Reroute Sewer Flow out of the Park (i.e. "Reroute" Concept)
 - Refined CIPP design (i.e. "Trenchless" Concept) and associated impacts
 - Quantified Impacts to Trees for both concepts

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Reroute Concept Summary

Concept

Reroute Concept:

Removal of sewage from NPS property by rerouting flow

Objective

Remove sewage flow from NPS property

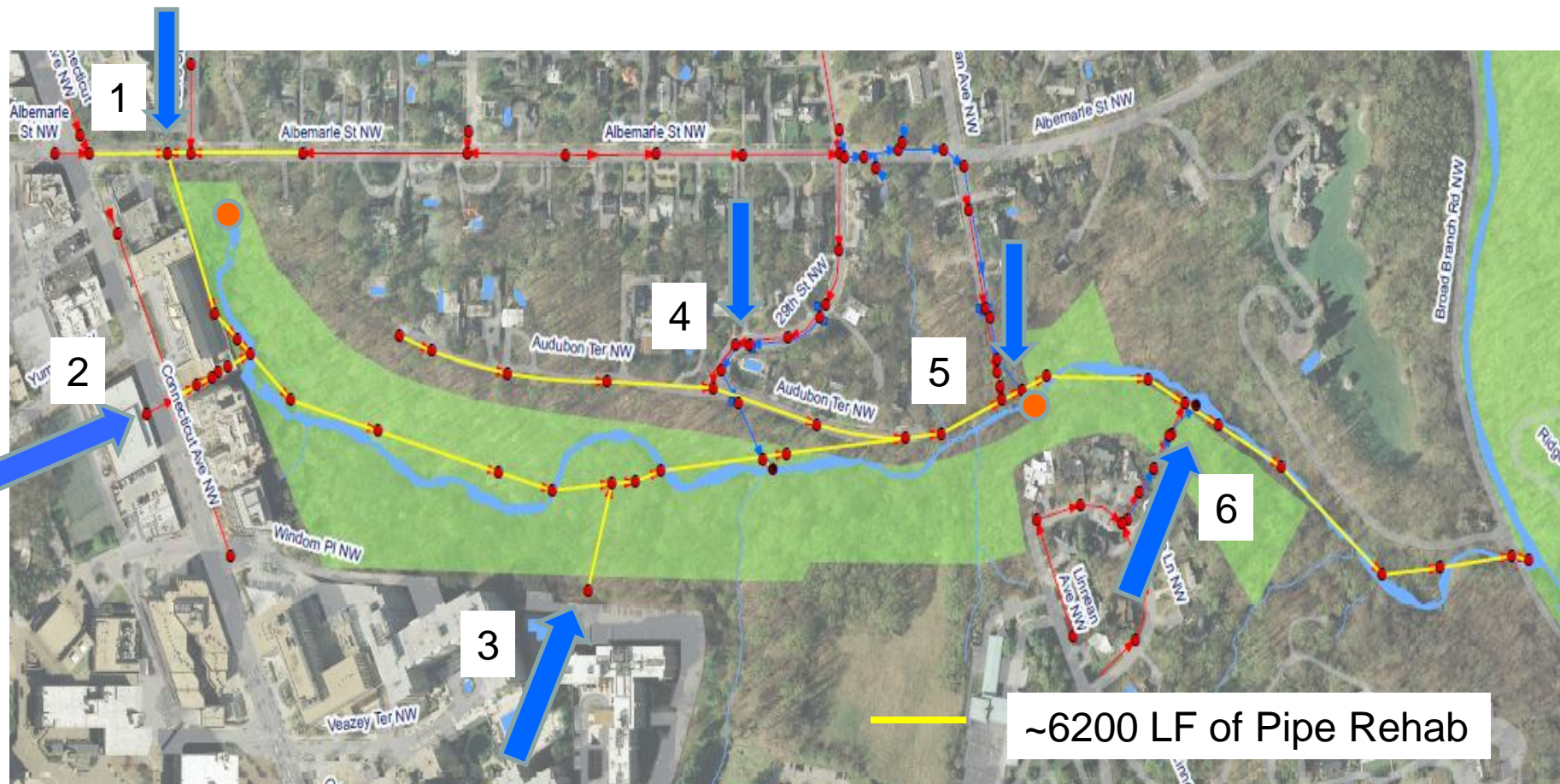
Methodology

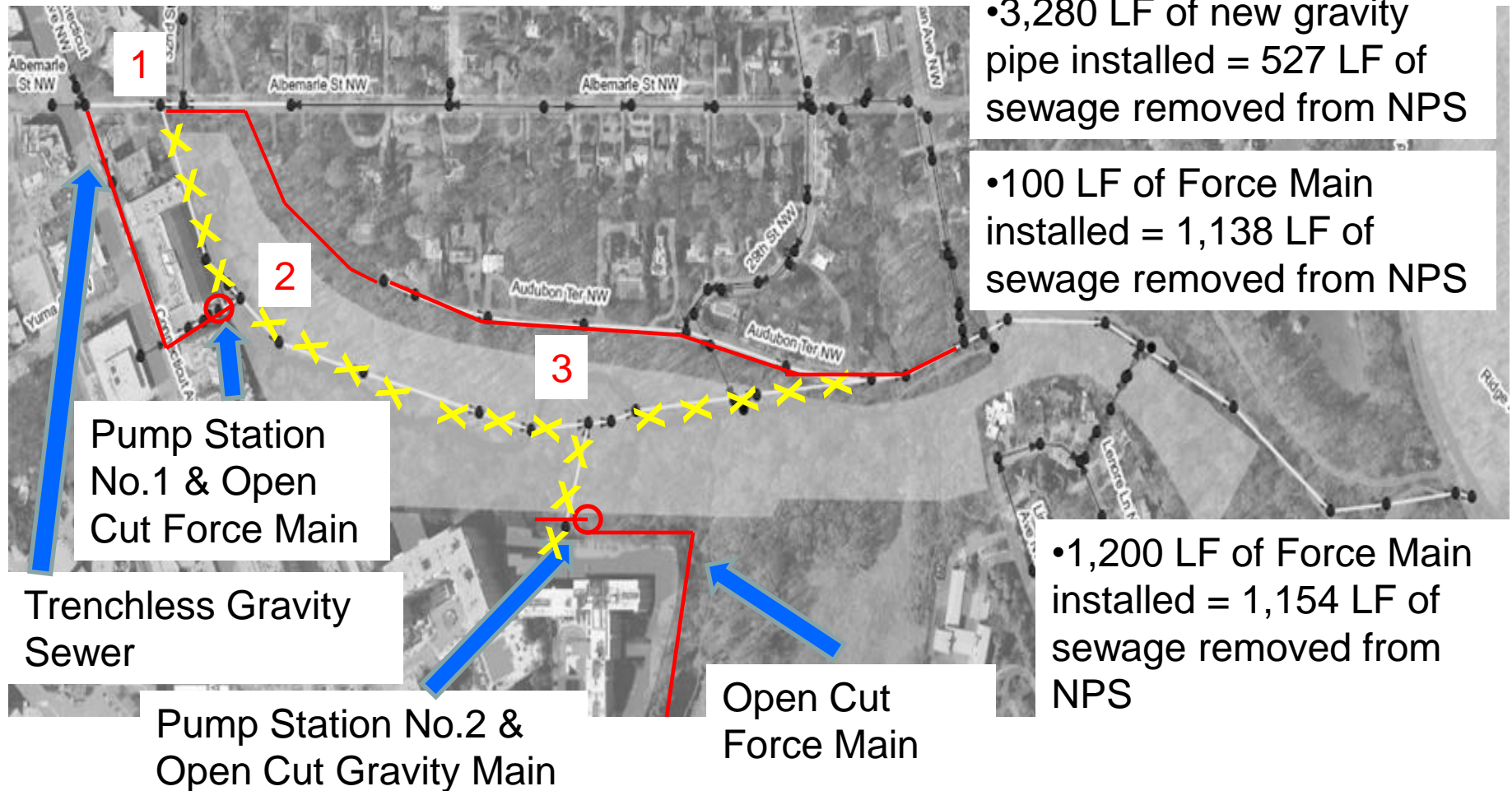
- Intercept sewage from locations where flows enter Soapstone Valley Park and re-direct it around the perimeter of the Park by installing a combination of new gravity mains, force mains and new pump stations.
- Protect assets within stream from erosion effects.
- Repair defective stormwater outfalls and manholes.
- Abandonment of inactive sewers and manholes.
- Rehab remaining non-rerouted segments via trenchless methods.

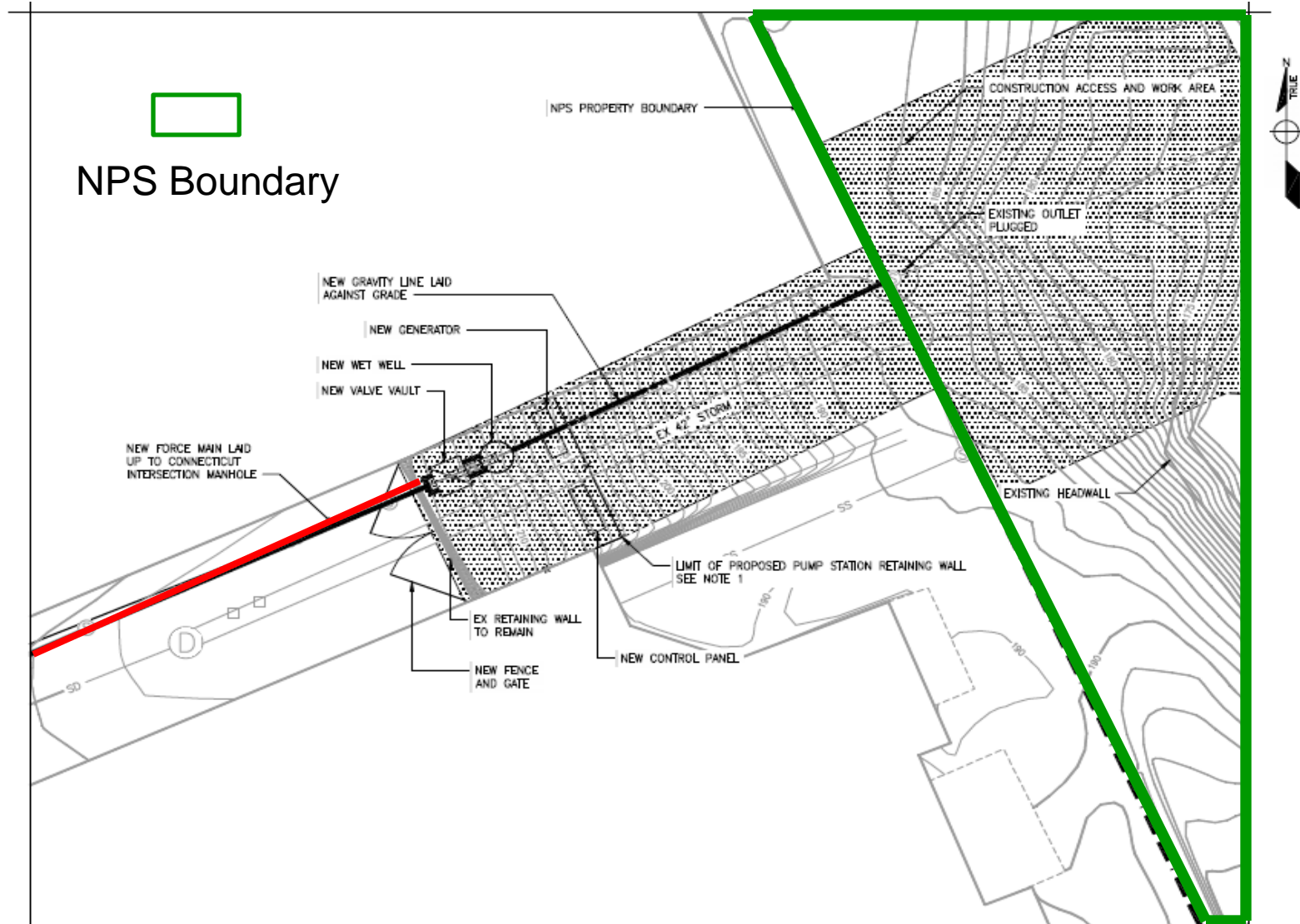


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Sewers in Soapstone Valley



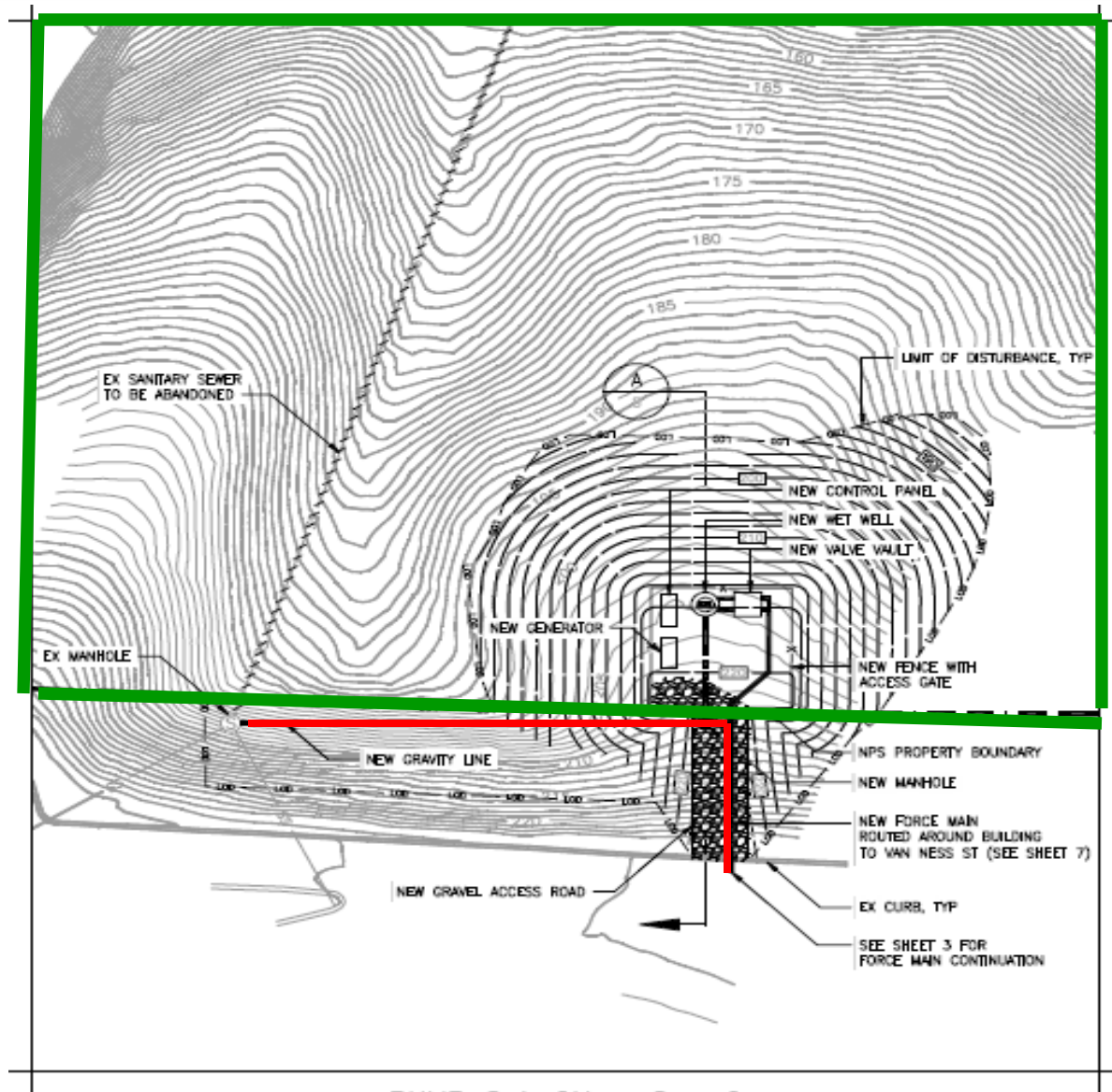




PUMP STATION – SITE 1

SCALE: 1" = 10'

Pump Station #2

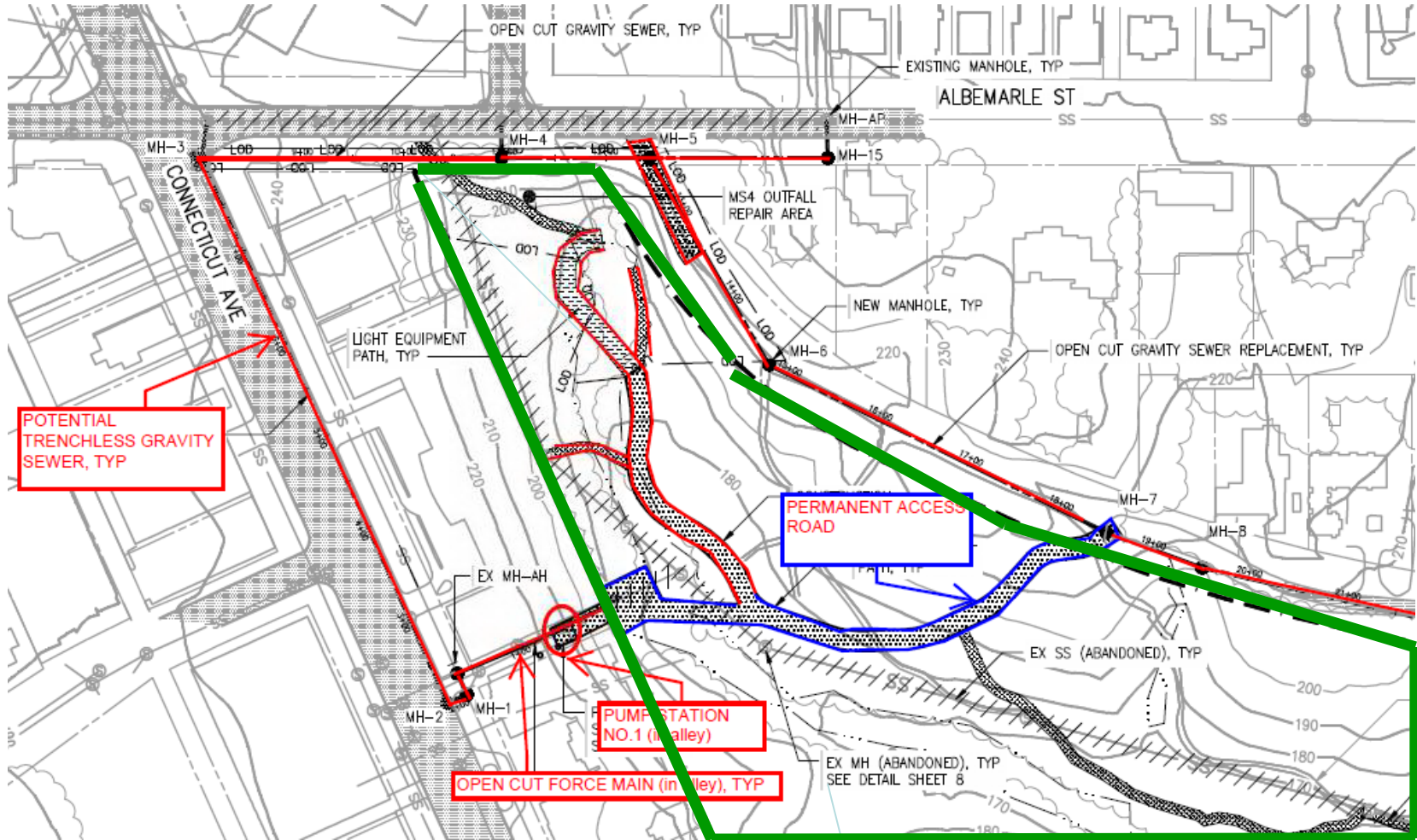


NPS Boundary

PUMP STATION – SITE 2

SCALE: 1" = 30'





NPS Boundary



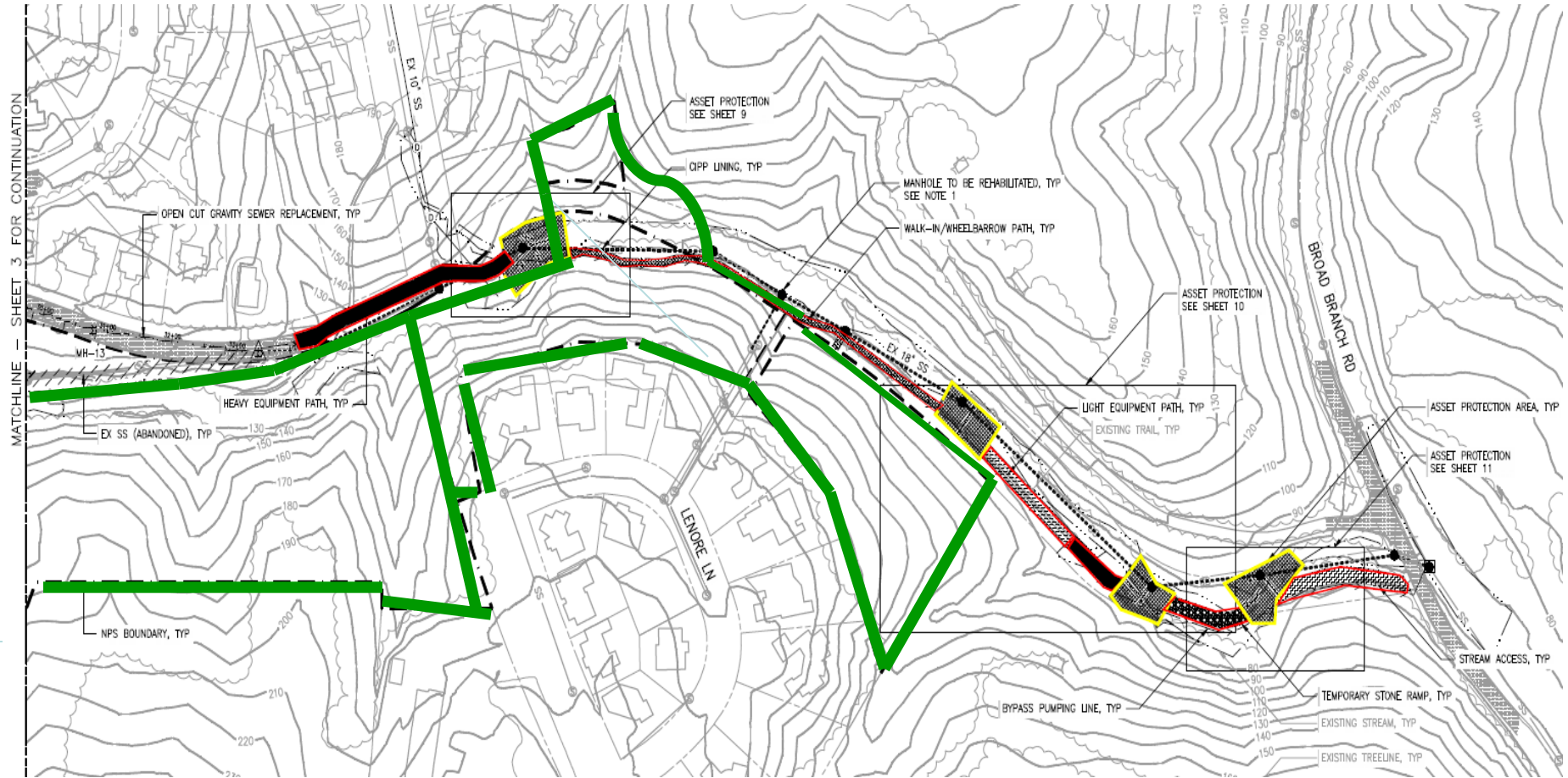
Access Path Needed



F-117 and nearby slope



F-117 large fracture



- Asset Protection Areas
- Access Path Needed

NPS Boundary



Exposed Pipe and
Manholes



- Update on Soapstone Emergency Response
- Provide project background
- Provide project purpose & need
- Present proposed design concepts
- Present environmental impacts

Impacts to Trees* on all Property Types (NPS, DDOT, and other)

	Trees Removed	Trees Trimmed	Total
Reroute Concept	370	79	449

* Reforestation/Re-growth of impacted trees is possible except for Pump Station locations & Permanent Access Road to P.S. #1

Impacts to Trees* NPS Property

	Trees Removed	Trees Trimmed	Total
Reroute Concept	113	35	148

* Reforestation/Re-growth of impacted trees is possible except for Pump Station locations & Permanent Access Road to P.S. #1

- Pump Stations related impacts:
 - Approx. 0.5 acres permanently impacted for 2 pump stations (combined)
 - Acquisition of property (transfer of jurisdiction) from NPS and Private Owner (condominium)
 - Noise and exhaust from emergency generators
 - Increased presence of DC Water maintenance crew
 - Permanent road & crossing required

- Permanent road related impacts:
 - Approx. 0.25 acres required
 - Stream crossing (ex: concrete ford) required
 - Permanent removal of existing vegetation and significant grading required

CIPP Concept Summary

Concept

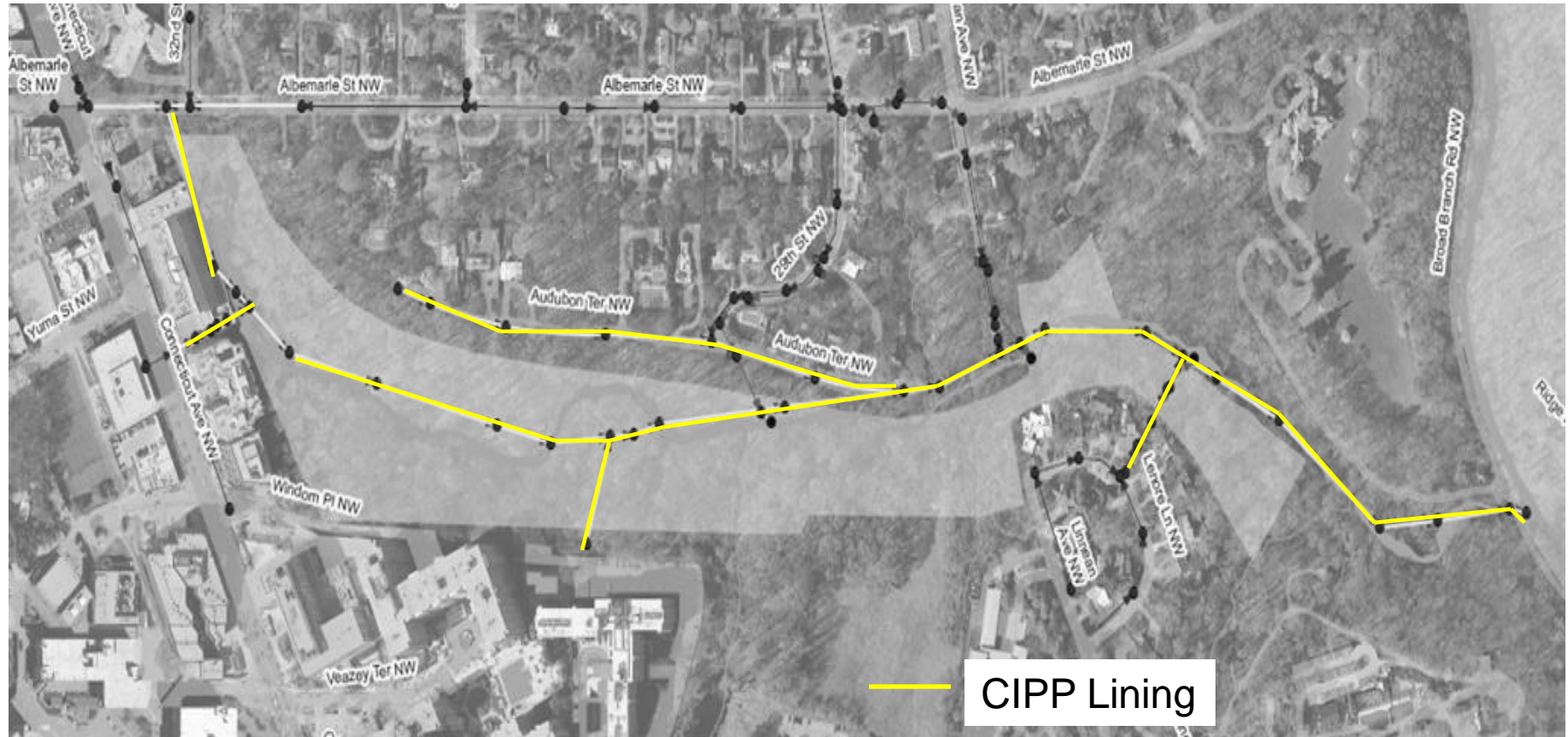
CIPP Concept:
Trenchless rehabilitation of infrastructure within NPS property

Objective

Use trenchless technology to repair defective infrastructure

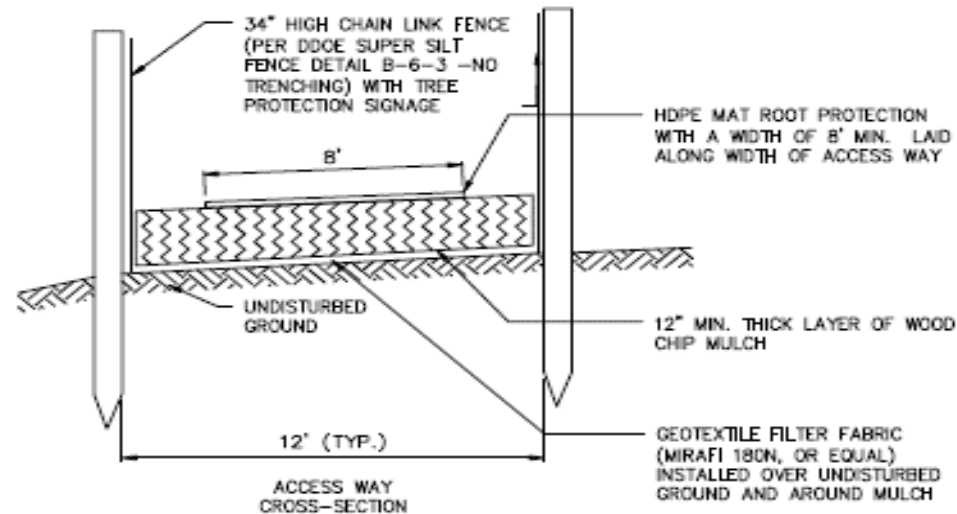
Methodology

- Use Cured-In-Place Pipe (CIPP) or similar lining to provide structural rehabilitation of defective pipe segments. CIPP lining would require temporary access paths and staging areas to be used for lining equipment and setup vehicles.
- Protect assets within stream from erosion effects.
- Repair defective stormwater outfalls and manholes.



- At locations where access paths cross streams, temporary stream crossings (bridges) would be used

Light Equipment Mulch Mat



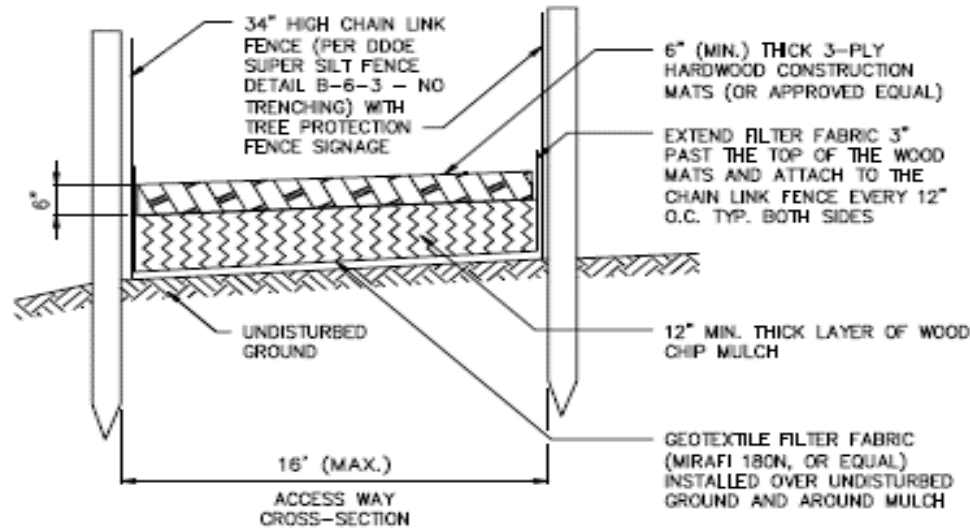
NOTES:

1. ACCESS ROUTES TO BE FIELD LOCATED WITH DC WATER AND NPS INSPECTORS AT PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL SEQUENCE CONSTRUCTION SUCH THAT NO EQUIPMENT WILL IMPACT AREAS TO BE PROTECTED PRIOR TO MULCH PLACEMENT.
3. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD.
4. CONTRACTOR SHALL LAY ALTERNAMATS OR APPROVED EQUAL OVER MULCH MAT TO PROVIDE GROUND COVER PROTECTION ALONG THE WIDTH OF THE ACCESS WAY USING A MINIMUM 8-FT WIDE SEMI-RIGID MAT FOR IMPACT PROTECTION AND MINOR WEIGHT DISTRIBUTION.
5. CONTRACTOR SHALL DISPOSE OF MULCH MAT OFF-SITE UNLESS OTHERWISE APPROVED BY NPS. WHERE MULCH IS TO REMAIN, FILTER FABRIC SHALL BE AN APPROVED BIODEGRADABLE TYPE.

LIGHT EQUIPEMENT MULCH MAT DETAIL

NOT TO SCALE

Heavy Equipment Mulch Mat

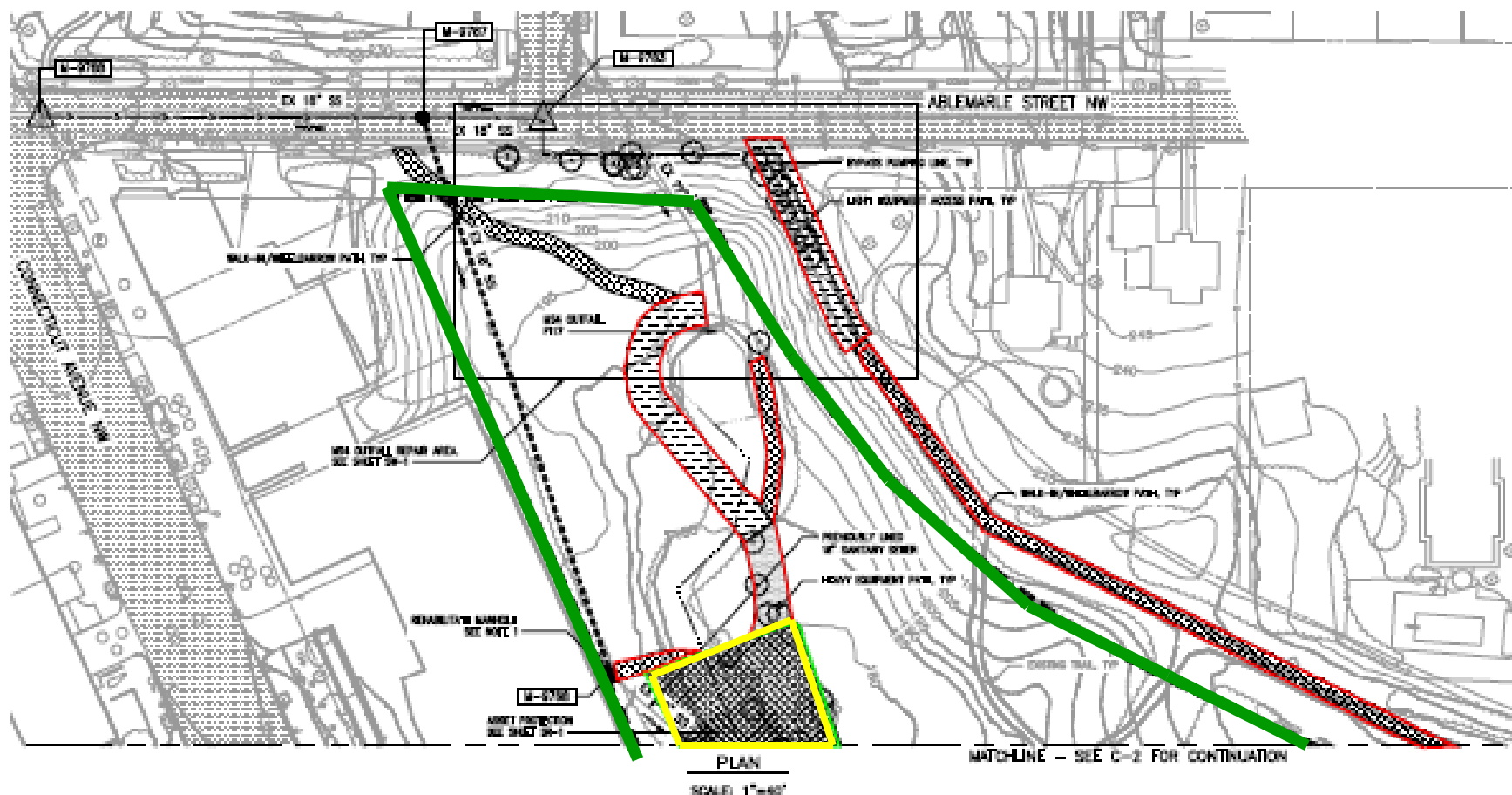


NOTES:

1. ACCESS ROUTES TO BE FIELD LOCATED WITH DC WATER AND NPS INSPECTORS AT PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL SEQUENCE CONSTRUCTION SUCH THAT NO EQUIPMENT WILL IMPACT AREAS TO BE PROTECTED PRIOR TO MULCH PLACEMENT.
3. FILTER FABRIC SHALL BE A SINGLE PIECE ACROSS WIDTH. OVERLAP FABRIC BY 18" MIN. ALONG LENGTH OF ROUTE.
4. FILTER FABRIC MAY ONLY BE ELIMINATED WITH PRIOR WRITTEN APPROVAL FROM NPS.
5. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD.
6. MULCH SHALL BE DISPOSED OF OFF-SITE UNLESS OTHERWISE APPROVED BY NPS. WHERE MULCH IS TO REMAIN, FILTER FABRIC SHALL BE AN APPROVED BIODEGRADABLE TYPE.

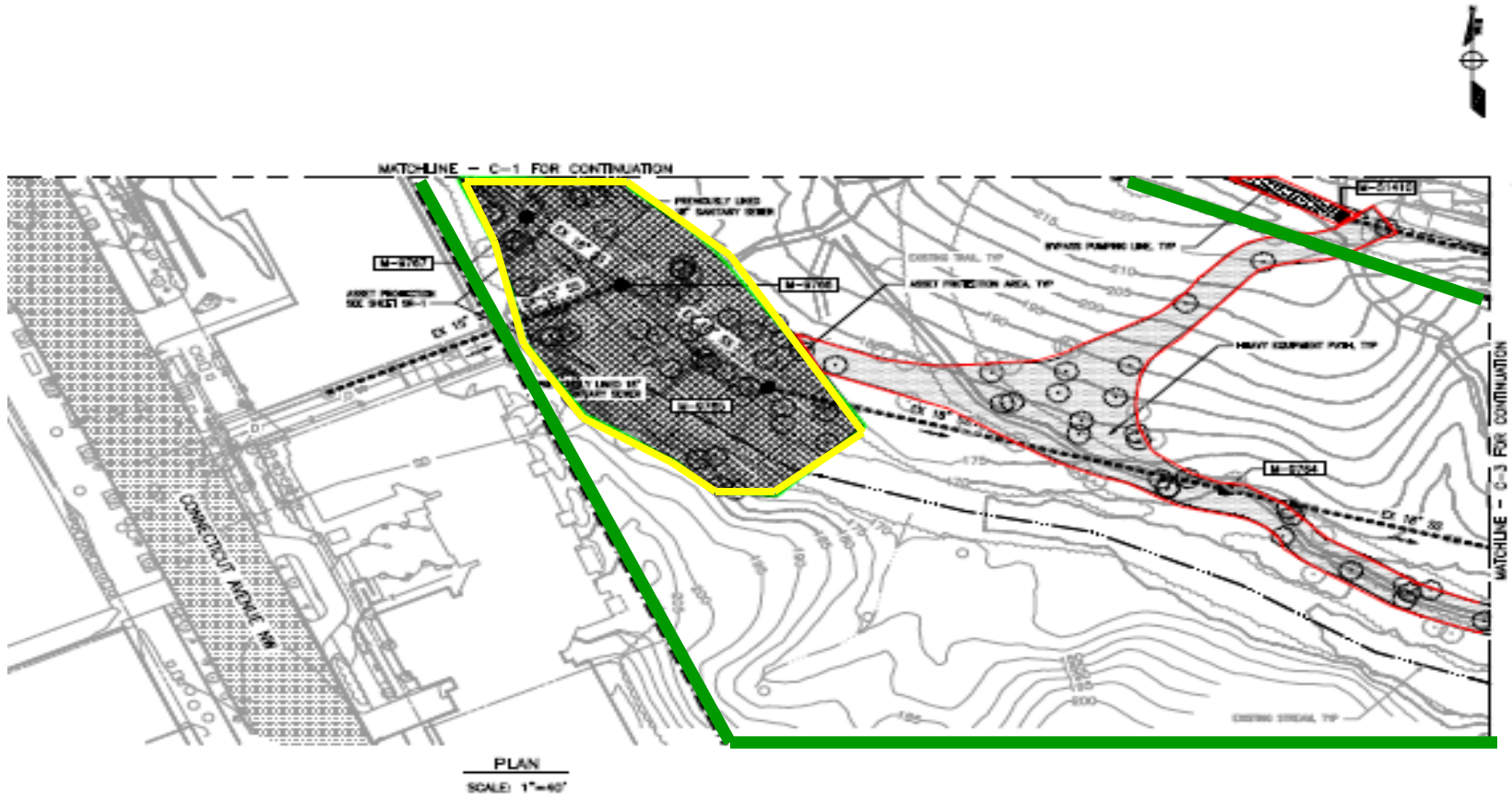
HEAVY EQUIPMENT MULCH MAT DETAIL

NOT TO SCALE



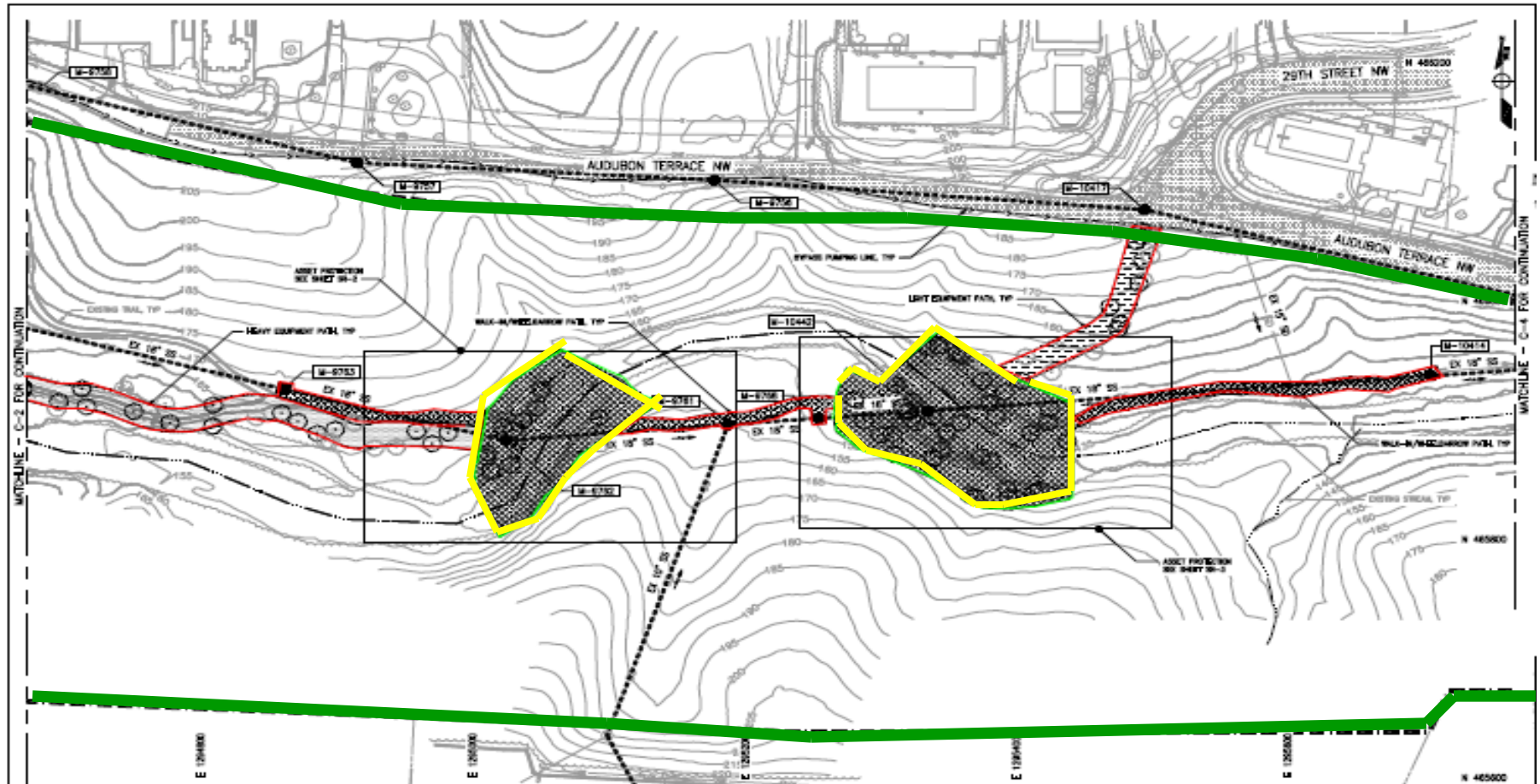
- Asset Protection Areas
- Access Path Needed

- NPS Boundary



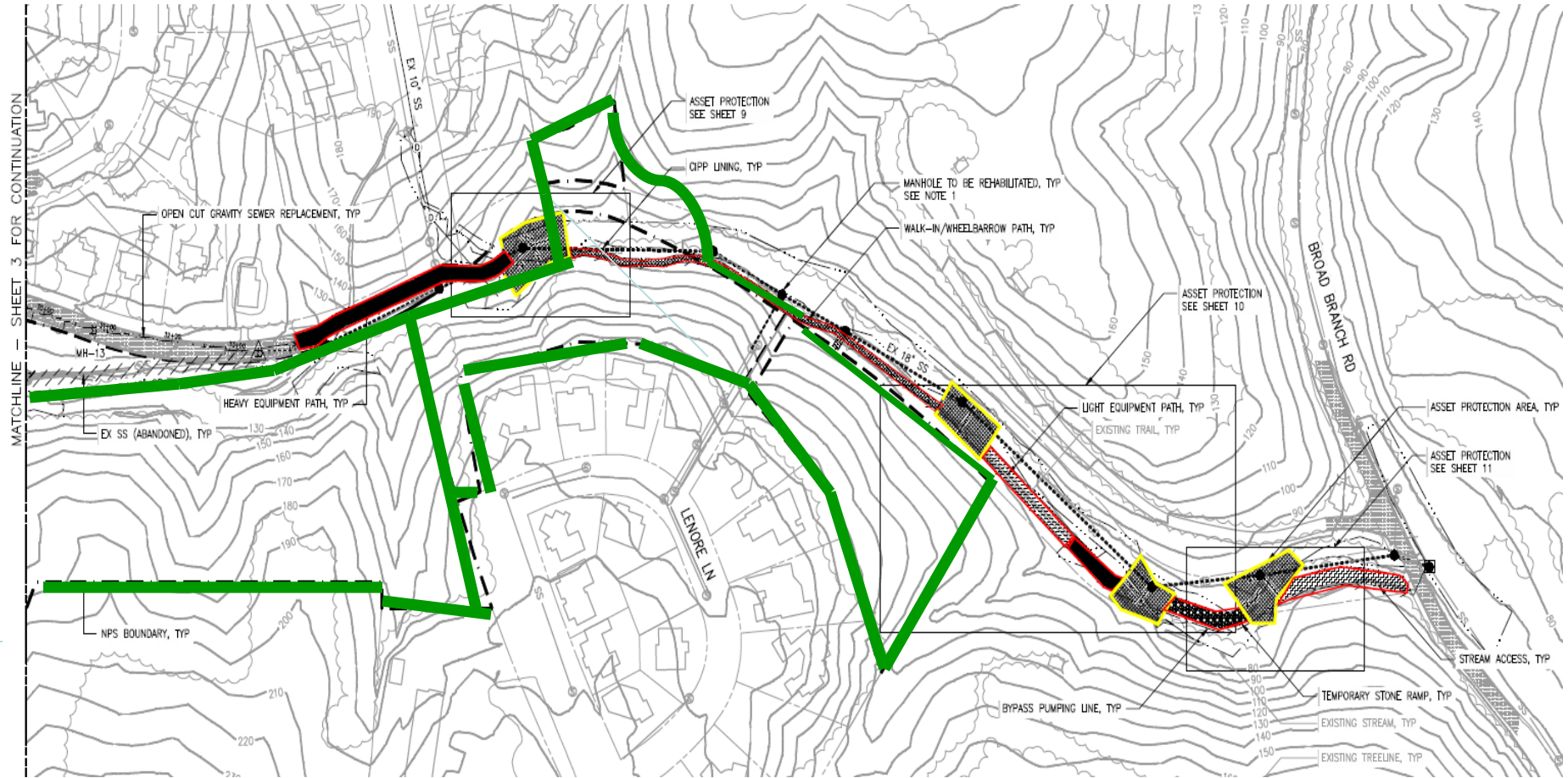
- Asset Protection Areas
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- Asset Protection Areas
- Access Path Needed

- NPS Boundary



- Asset Protection Areas
- Access Path Needed

NPS Boundary



Exposed Pipe





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Asset Protection - example



Before

After



Impacts to Trees* on all Property Types (NPS, DDOT, and other)

	Trees Removed	Trees Trimmed	Total
CIPP Concept	310	69	379

* Reforestation/Re-growth of impacted trees is for all areas

Impacts to Trees* NPS Property

	Trees Removed	Trees Trimmed	Total
CIPP Concept	195	40	235

* Reforestation/Re-growth of impacted trees is possible for all areas

- Greater disturbed area in the short-term



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Summary of Tree Impacts

	2012 CIPP Concept Impacts	2015 Reroute Concept Impacts	2015 CIPP Concept Impacts
All Property Types Combined (NPS, DDOT & Other)	586 – 812	449	379
NPS Property	Not Available	148	235



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Impact Comparison

Alternative Concept Type	Temporary Impacts	Permanent Impacts
Reroute Concept	<ul style="list-style-type: none">• Large equipment presence for excavation and movement of heavy structures• Construction access via Audubon Terrace	<ul style="list-style-type: none">• Permanent access road from foot of P.S #1 in Park all the way to Audubon Terr.• Significant re-grading of area within Park and around P.S #2• Acquisition of temporary and permanent easements from NPS and private owners• Regularly scheduled maintenance of pump stations• Increase in energy consumption and carbon footprint• Noise issues due to emergency generators• 4,380 LF of sanitary pipe would be abandoned-in-place• Tree Impacts – 449 (All types)
CIPP Concept	<ul style="list-style-type: none">• Greater short-term disturbance pre-mitigation	<ul style="list-style-type: none">• Tree Impacts – 379 (All types)



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Options Pro's and Con's

Alternative Concept Type	PRO'S	CON'S
Reroute Concept	<ul style="list-style-type: none">• No flow in west half of NPS property	<ul style="list-style-type: none">• More permanent impacts• More linear feet of pipe installed• More trees impacted
CIPP Concept	<ul style="list-style-type: none">• No permanent impact• Fewer trees impacted	<ul style="list-style-type: none">• Must work in National Park Service (NPS) land

- Complete Draft EA for NPS review – Sept 2015 +/-
- Complete Draft EA for agency review – Nov 2015 +/-
- Complete Draft EA for public review – Jan 2016 +/-

