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Ref. No. 1988090.03/015435.00010

January 27, 2020

(VIA US MAIL AND EMAIL)
Michelle Mullin, Project Manager
USEPA REGION 10
1200 Sixth Avenue
Mail Code: OAW-150
Seattle, WA 98101
Mullin.michelle@epamail.epa.gov

Re: Rainier Commons Individual Phase Work Plan for Phase III
Risk Based Disposal Approval December 18, 2013 (last amended November 14, 2019, Amendment No. 7)
EPA ID No. WAD051239994

Dear Ms. Mullin,

As you know, this firm represents Rainer Commons, LLC, the owner of the property commonly referred to as Rainier Commons, also known as the Old Rainier Brewery, located generally at 3100 Airport Way S, Seattle Washington, 98134. Please accept this letter and its attachments as Rainier Commons' Individual Phased Work Plan ("IPWP") for Phase III of the exterior paint removal project at the Rainier Commons campus.

Phase III includes the balance of the work at the campus. All of the Phase III work will be performed pursuant to the EPA's Risk Based Disposal Approval ("RBDA"), dated December 18, 2013, as amended[1]. We anticipate EPA's approval of the Phase IIb IPWP will be issued shortly. We further anticipate that the approval of the Phase IIb IPWP will result in an additional formal modification of the RBDA, consistent with informal modifications already issued by EPA. The Phase III work plan submitted herewith is consistent with the Phase IIb modifications agreed to through in-person working sessions, conferences and exchanges of drafts with EPA, prior to the Phase IIb submittal. The Phase III work will, therefore, conform to the previously approved General Work Plan, as modified by the Phase IIb IPWP, except as expressly updated and supplemented as set forth herein. The Phase III IPWP includes the final phase work components as required in the RBDA as well as the soil plan requested by EPA.

[1] Last amended November 14, 2019, Amendment No. 7.

Phase III includes 39 containment set-ups, on 23 buildings. (See Exhibits 1-39). The follow-up work in the sixth floor stairwell area, pursuant to Condition 1 of the RBDA, is included as set-up No. 39. Each containment Set-Up submission attached contains detailed information for each Set-Up, including the building number(s), the particular walls (north, south, east, west) involved, the total square footage of wall area being abated, the wall material type, tenant type (commercial, residential, mixed use), the catch basin zone designation, roof drain information, and building drawings and/or photographs of the area. Each Set-Up submission also shows where the containment will be installed, the locations of the wipe samples for the Set-Up, and a corresponding catch basin sampling diagram, among other items.

Consistent with the previously approved and successfully completed phases of work, the dried applied paint will be physically removed primarily via sandblasting. Touch-up and finish work will be performed by hand, utilizing small tools, such as grinders and chisels. Smooth, non-porous surfaces, such as sheet metal, will be abated via chemical stripper, or by removal and appropriate disposal. Examples would be parapet cap flashings, exterior vent hoods, narrow roof flashings, and so forth. These dried applied paint removal methods are the same as those deployed in the successful Phase I and Phase IIa work, already performed and officially approved as complete by EPA. The containment sketch is included in the PAS work and safety plan. (Exhibit 40 at Exhibit E). The material Safety Data Sheets for the blasting grit, chemical stripper, sealant and dust lock materials are included in the PAS work and safety plan. (Exhibit 40 at Appendix F).

All of the blasting work will be performed in a monitored negative air enclosure, strictly limited to qualified and authorized personnel. The corresponding interior walls will be further protected with a sealed, double walled poly drape system, as depicted in the Set-Up diagrams and described in the PAS work plan and the Interior Protection Plan attached hereto. (Exhibits 1-39, 40 and 48).

The duration of each Set-Up will last approximately four weeks; consisting of four sub-processes, *i.e.* 1) Mobilization; 2) Abatement; 3) Assessment; and 4) Demobilization. The entire duration of Phase III is anticipated to be in the range of 24 months, contingent upon financing, as addressed in meetings and stated below.

Project waste will be collected and stored temporarily on site. Waste will be sent off-site for final disposal at regular intervals during the Phase III work. All federal and state laws for waste handling and disposal will be adhered to. (See Exhibit 47, Storage Facility SOP, for updates to the previous Work Plan and IPWPs). The waste storage plan was updated for Phase III to accommodate the need to relocate the waste storage facility (already updated in Phase IIb IPWP) and to further accommodate the duration and scope of the Phase III work. Waste will be tagged and tracked so that no waste will be held on site more than 90 days.

A soil survey and contingent remediation plan is included with this Phase III IPWP, pursuant to EPA's request. (See Exhibit 49). The soil survey addresses all pervious surface areas, cataloging and addressing all soil, gravel, tree, grass and shrub covered areas of the campus. Soil

characterization and remediation work, if any is needed, will be carried out after the paint removal work is complete.

A detailed plan for cleaning the storm and combined sanitary sewer lines at Rainier Commons, following the final phase of work is also included in the Phase III IPWP. The final utility line work will be carried out following the demobilization of the last set-up and following the soil characterization and any pervious surface remediation indicated by that work. The storm and combined sewer line cleaning will generally follow the approach utilized in collaboration with Seattle Public Utilities in 2013. Additional feedback from the specialty contractors that will be involved, likely Bravo Environmental, Clean Harbors, or a similar qualified contractor is being gathered to finalize the Condition 3 Plan. (See Exhibit 50 to this Phase III IPWP, which will be submitted under separate cover).

EPA asked Rainier Commons to survey the campus and to identify any area that is like the Sixth Floor Stairwell area, namely, any area that used to be an exterior wall that is now enclosed, or is a part of an interior space. After a thorough review of the campus, no other such area has been identified.

The general contractor currently selected to perform the Phase III work is Performance Abatement Services, Inc. ("PAS"). The primary subcontractor is Aqua-Brite Inc. The primary environmental consultant providing certified industrial hygienist, sampling, inspection and laboratory support will continue to be NVL Laboratories, Inc. The Condition 3 storm and combined sanitary sewer line contractor is to be identified. The waste disposal contractor will be selected by the general contractor in consultation with Rainier Commons, at the time of work approval and contracting.

During the Phase III work, Rainier Commons will make weekly reports to the EPA Project Manager, pursuant to the RBDA, Amendment 3, dated August 12, 2014, item 11. The weekly report will generally contain a status summary for the project and work in progress. An illustrative example follows:

> *Set-Up #3 was completed last week, Set-Up #4 in Demobilization, Set-Up #5 in Assessment, Set-up #6 continues in Abatement. Mobilization activities for Set-Up #7 scheduled to begin next Monday.*

Any deviations from the Work Plan, tenant concerns, or unexpected conditions, if any, will also be noted in the weekly reports. Also included with the weekly reports will be any completed *Observation Checklist and Completion Reports* closed out that week.

The wall areas in each Set-Up will be inspected by the contractor prior to release to Rainier Commons for final inspection and approval, or return for punchlist work. Once the wall areas in each Set-Up are reported to be complete by the contractor, Rainier Commons and NVL will inspect the areas for compliance with the visual clearance criteria, namely, all of the visible paint has been removed. NVL will conduct the independent general visual clearance inspection

and the particularized more rigorous two percent, randomized visual inspection, pursuant to the inspection plans successfully deployed on the Phase I and Phase IIa work. (See Exhibits 41 and 42). The efficacy of this approach was proved and re-proved by numerous substrate samples at the campus.

To manage and organize the necessary close out documentation, an *Observation Checklist and Completion Report* will be prepared for each Set-Up. (Exhibit 48e). This should result in one Completion Report submitted approximately every two weeks, after the project is up and running at full production. Field Notes and photographs prepared each day will be relevant to several different Set-Ups, after the initial stage of the work. Therefore, each Completion Report will list all days when each Set-Up was mentioned on a Daily Field Report, photographic records, active blasting dates, and dates of its visual inspection(s). Due to the volume, each of these individual records will be placed on an electronic platform for EPA's access and reference (*e.g.* DropBox).

The project documentation compiled in the weekly reports and in the individual Set-Up completion reports, as referenced above, along with all of the other project documentation, will assist with the orderly compilation of the final Phase III close-out report.

The Exhibits to this Phase III IPWP are incorporated here by reference and are as follows:

1. Set-Up 1;
2. Set-Up 2;
3. Set-Up 3;
4. Set-Up 4;
5. Set-Up 5;
6. Set-Up 6;
7. Set-Up 7;
8. Set-Up 8;
9. Set-Up 9;
10. Set-Up 10;
11. Set-Up 11;

12. Set-Up 12;

13. Set-Up 13;

14. Set-Up 14;

15. Set-Up 15;

16. Set-Up 16;

17. Set-Up 17;

18. Set-Up 18;

19. Set-Up 19;

20. Set-Up 20;

21. Set-Up 21;

22. Set-Up 22;

23. Set-Up 23;

24. Set-Up 24;

25. Set-Up 25;

26. Set-Up 26;

27. Set-Up 27;

28. Set-Up 28;

29. Set-Up 29;

30. Set-Up 30;

31. Set-Up 31;

32. Set-Up 32;

33. Set-Up 33;

34. Set-Up 34;

35. Set-Up 35;

36. Set-Up 36;

37. Set-Up 37;

38. Set-Up 38;

39. Set-Up 39;

40. PAS General Work and Safety Plan April 2019[2] ;

41. NVL Visual Inspection Plan to Evaluate Work Performance;

42. NVL Example of Method to Randomly Select Two Percent Surface Area to Test;

43. Catch Basin Sampling Plan for Phase III IPWP (Condition 6);

    a. Catch Basin Sampling Zones
    b. Inventory of Storm Sewer Inlets

44. NVL IPWP III Dust Sample Collection and Assessment Plan;

45. NVL's Health and Safety Plan (HASP) for the Rainier Common's Exterior Paint Removal Project;

46. Oransi Hepa Filtered Air Purifier Product Information;

47. SOP for Temporary Storage of Hazardous Waste Materials;

48. Rainier Commons Abatement Project Management and Oversight Process Controls;

    a. Interior Space Assessment, Protection and Inspection Checklist;
    b. Inventory of Set-Up Specific Conditions;
    c. NAM Worksheet;
    d. Abatement Project Interior Protection Process Flow Chart
    e. Observation and Completion Report

[2] See Table of Contents for guide to each required section, *e.g.* general work plan, health and safety plan, spill prevention plan, appendices and so forth.

49. NVL Plan for Characterization and Clean-up, if Necessary, of Soil at Rainier Commons Non-Impervious Surface Areas

50. Condition 3 Storm and Combined Sanitary Sewer Line Cleanout Plan – finalization pending will be submitted under separate cover.

Some of the Phase IIb updates, currently pending approval, and in particular the air monitoring and wipe sampling components of the plan, will result in formal amendment to the RBDA. We, therefore, asked that EPA issue an additional amendment to the RBDA, or a combined approval of Phase IIb IPWP, with the amendment to the RBDA, consistent with the Phase IIb supplement to the work plan. We have not yet received that approval and modification, but trust that it will be issued shortly. This IPWP Phase III is based upon and incorporates those anticipated formal modifications to the RBDA, previously requested and informally approved by EPA.

The timing for commencement and completion of the Phase III work is contingent upon financing. Therefore, the approval sought for the Phase III work is expressly conditioned upon the waiver, or modification of the 30 calendar day, Condition 4 commencement date, as set forth in the original RBDA, Condition 4 requirement. Rainier is not committing to undertake the Phase III work, unless and until financing is secured, or a successor in title to the property secures financing for the work. Delays in formal approvals from EPA have made it necessary to seek the approval for the Phase III work first, in order to provide necessary assurances to financial institutions and/or to an interested purchaser that timely progress can be made to complete the work and receive all necessary approvals within a reasonable time frame.

Given the scope of the Phase III work, a modification to the Condition 4 commencement date is further required to allow for rational planning with the contractors involved. Contractor scheduling and mobilization cannot reasonably be assured within 30 days of the date of EPA's formal approval, where that date is unknown and cannot be reasonably predicted. Given the variance from the EPA's initial commitment to make best efforts to issue approvals within 30 days of the submittal of work plans, Rainier Commons is not able to commit itself to a contract 30 days out from plan submittals, as the parties initially envisioned. We anticipate an appropriate modification to the Condition 4 work start date requirement will, therefore, accompany the Phase III IPWP approval to accommodate the financing contingency and the functional realities of approval delays and contractor scheduling.

We appreciate your time and effort on this project to date. We look forward to the Phase III approval at your earliest convenience. We trust that the extended Phase IIb review period will have established the framework for an expedited approval for the balance of the Phase III work.

We are transmitting a hard copy of this cover letter with a CD containing the enclosures. Due to the overall volume of the submittal, we are providing an electronic copy to you via email with a sharefile link to the enclosures as opposed to pdf attachments. Should EPA require a full printout in hard copy form, please let my office know and we will prepare a hardcopy in

notebook form for EPA. An estimate of the printed volume will be in the range of a thousand pages. Therefore, it is our hope that the electronic version will suffice.

Please let us know if you have questions in advance of EPA's issuance of its formal approval and the corresponding RBDA modifications.

Very truly yours,

RYAN, SWANSON & CLEVELAND, PLLC

Jo M. Flannery
Attorney Of Counsel

Enclosures
cc: Lynne D. Davies (via email - Davies.lynne@Epamail.epa.gov)
Lisa McArthur - Manager, RCRA Corrective Action, Permits and PCB Unit (via email - mcarthur.lisa@epa.gov)
Dave Leonard, NVL
Phil Roberts
Client

Phase 3 Set-up 1

Location: Building 12 and 23, West Elevation

Stories: Building 12 = 1
Building 23 = 3

Material: Brick

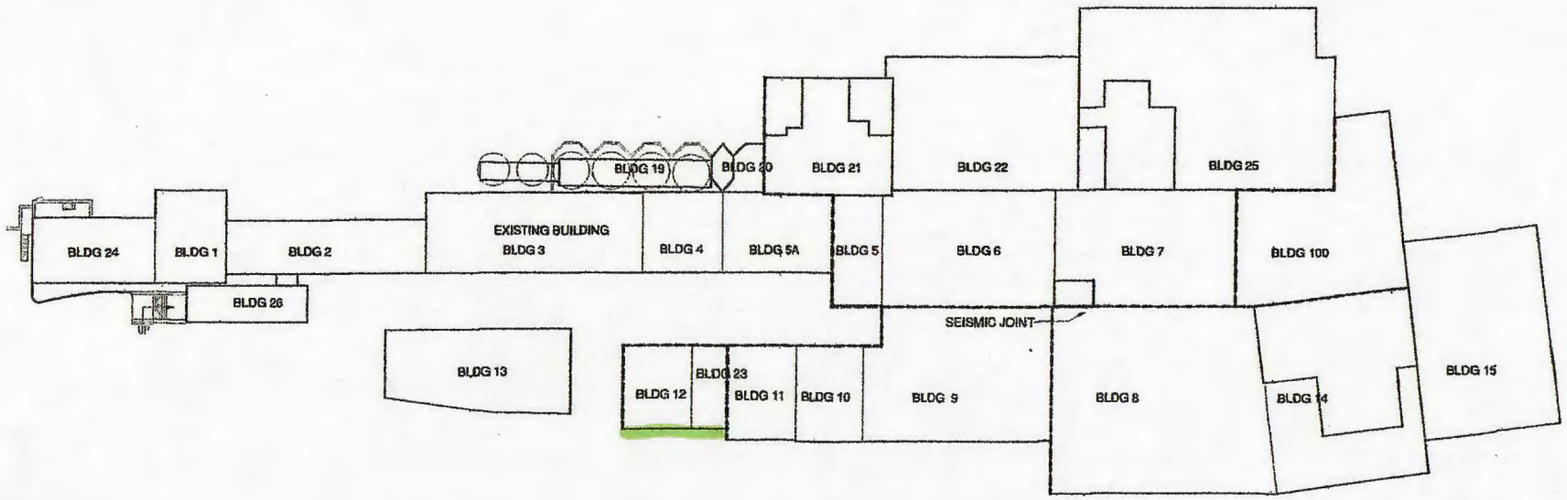
Square Feet: 1,477

Tenants: Commercial

C/B Zone: Blue

Roof Drain: Hole In Wall

Roof Protection: Plug and pump to Roof Drain 45



Building 23, West Elevation

Building 12, West Elevation

WEST ELEVATION
BUILDINGS 12, 23

3200
Little Red Day Spa

PHASE THREE, SETUP 1

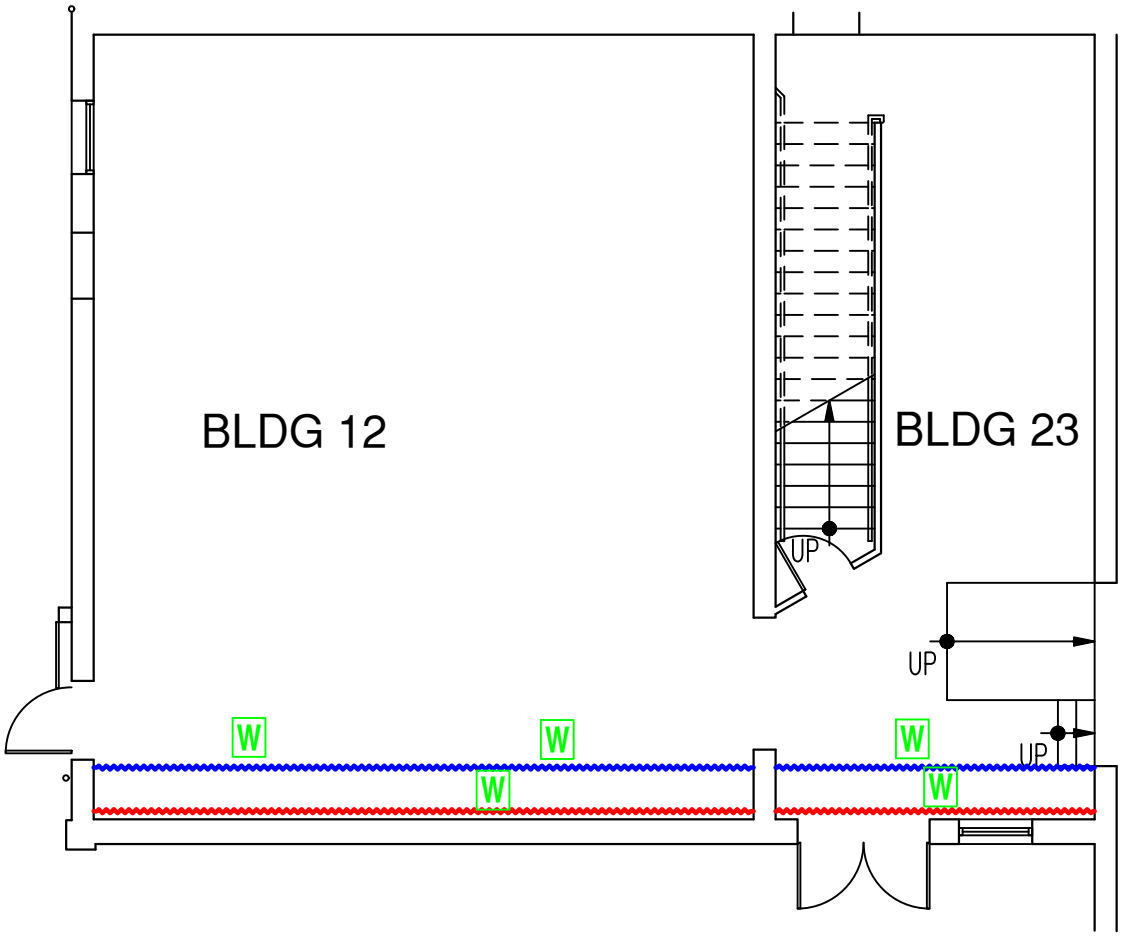
BUILDING 12 & 23, 100 LEVEL

WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 1

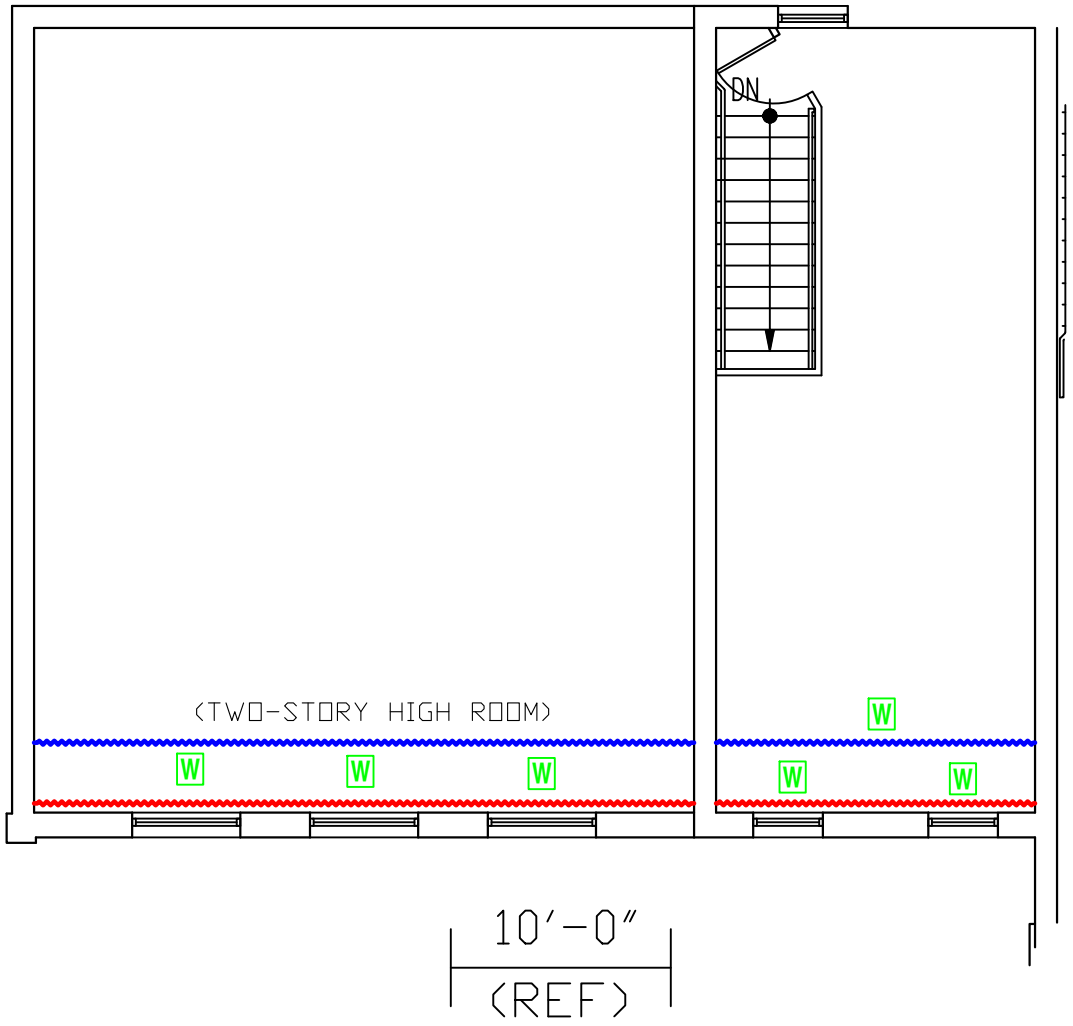
BUILDING 12 & 23, 200 LEVEL

WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 1

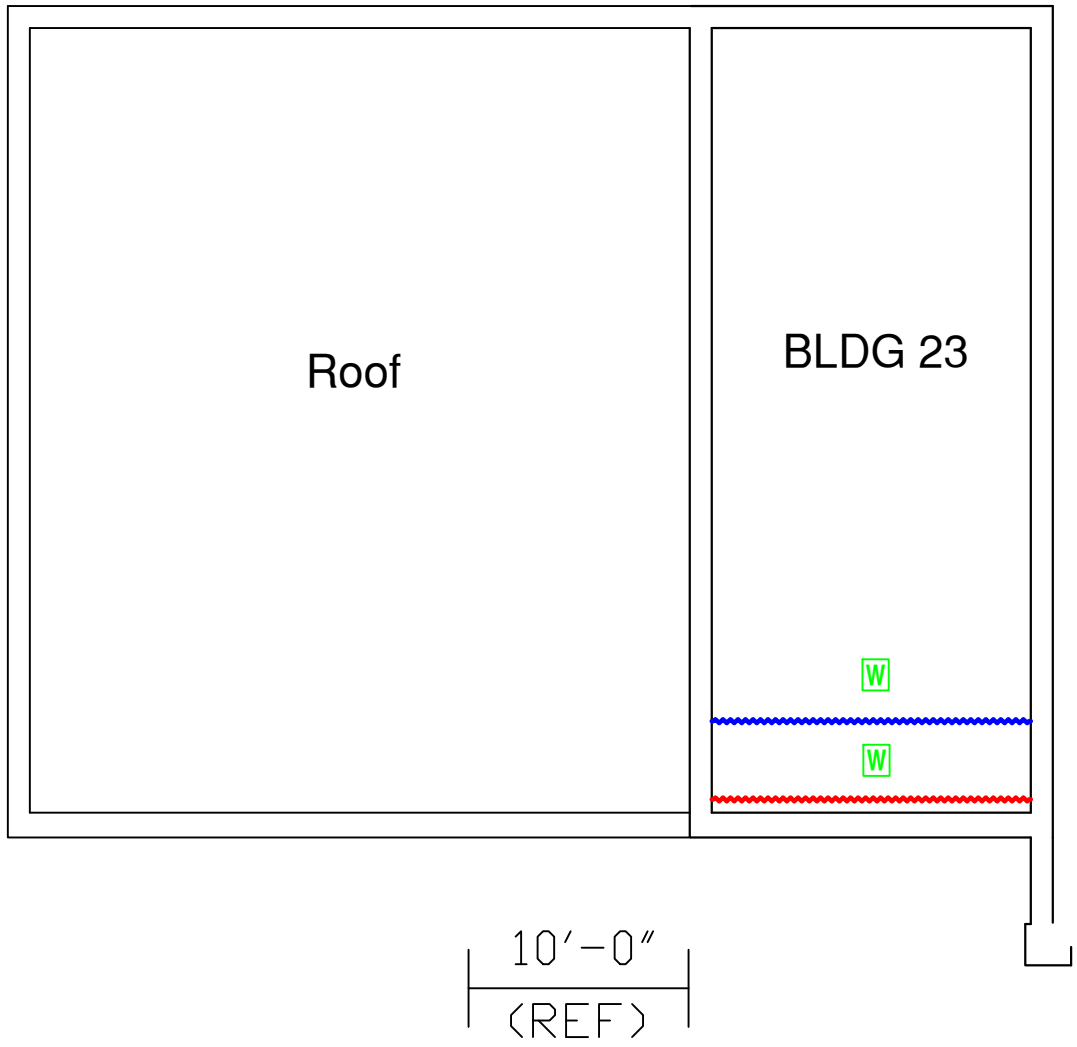
BUILDING 12 & 23, 300 LEVEL

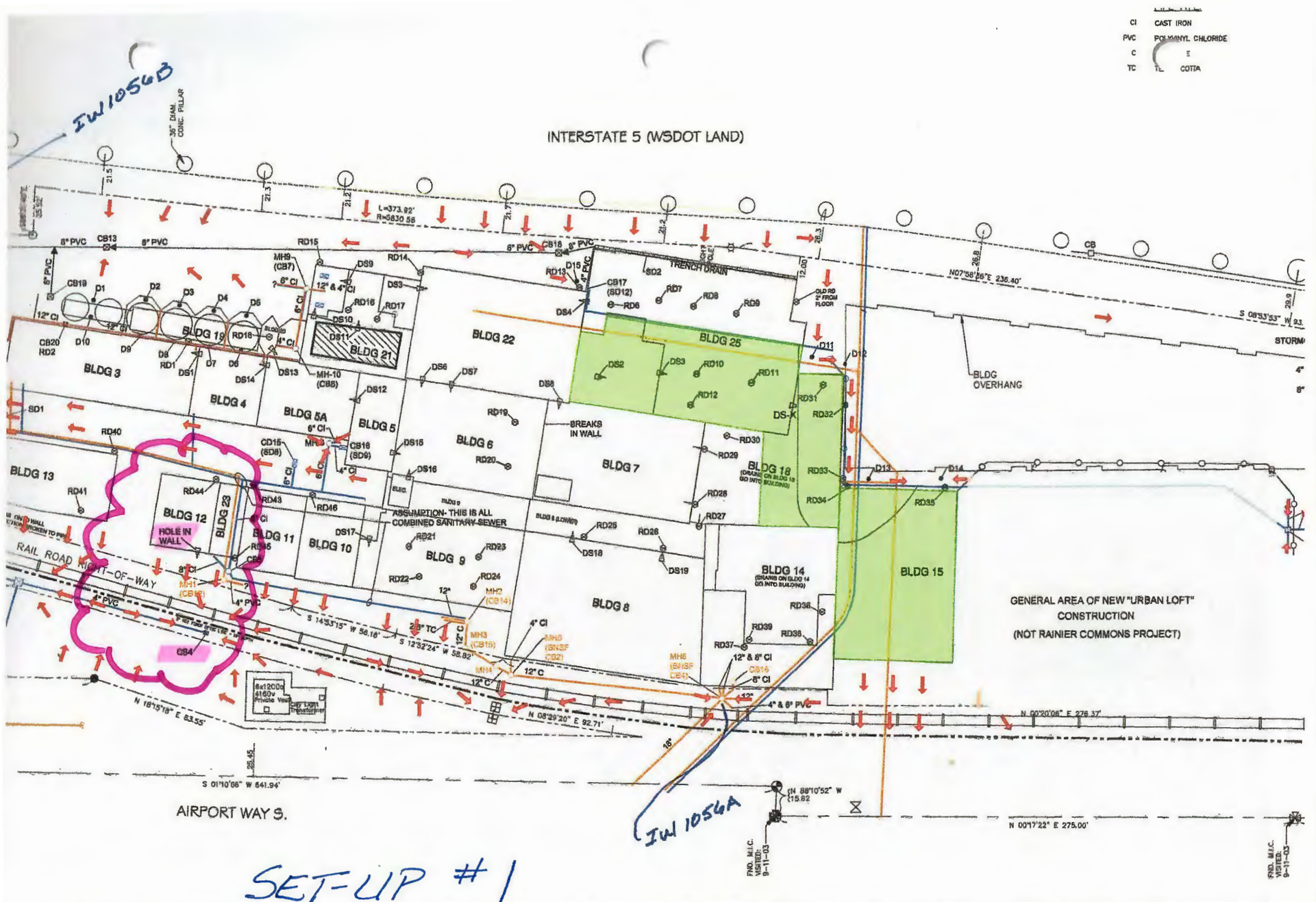
WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION





DESIGNED BY:	AEM
DRAWN BY:	PJR
SHEET CHK'D BY:	PJM
CROSS CHK'D BY:	
APPROVED BY:	
DATE:	JANUARY 2009

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Bellevue, Washington 98005
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RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN STUDY

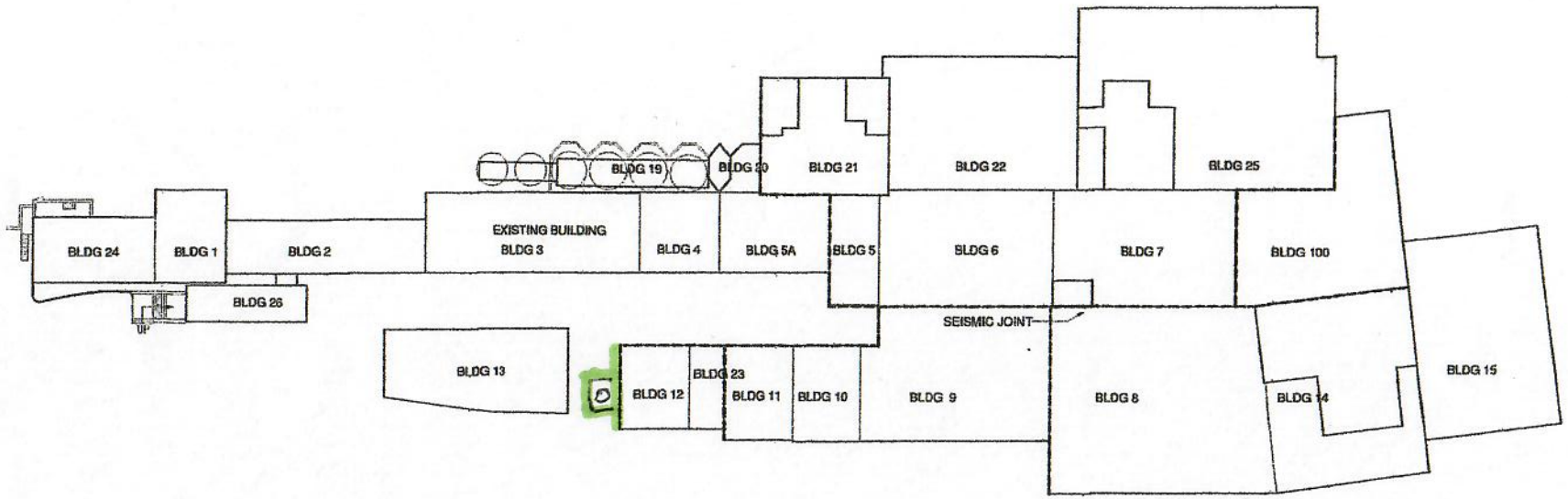
CATCH BASIN LOCATIONS PLAN

PR
FIL

Phase 3 Set-up 2

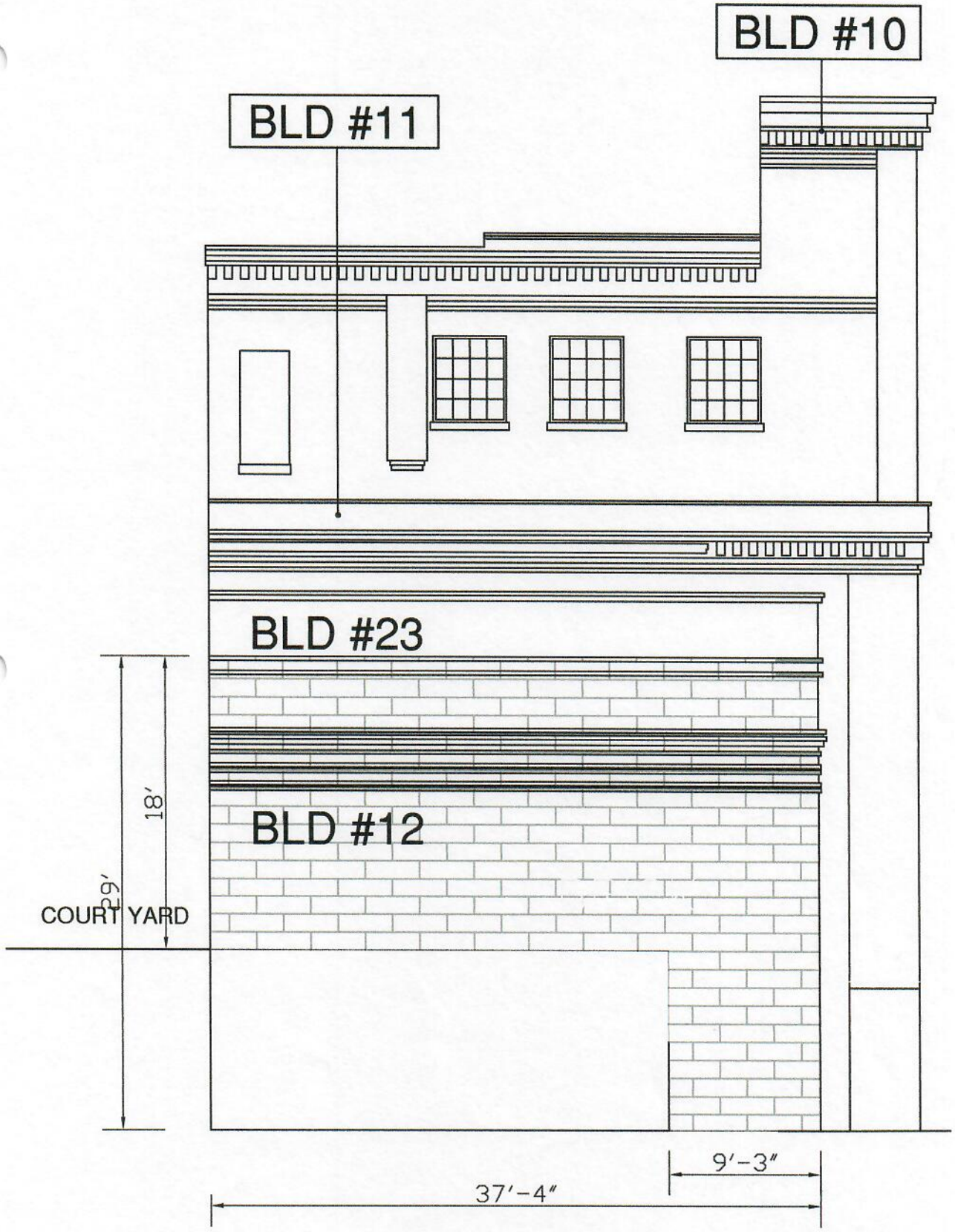
Location:	Building 12 North Elevation Chimney - All Elevations
Stories:	Building 12 = 1 Chimney = 1
Material:	Brick
Square Feet:	3,742
Tenants:	Commercial
C/B Zone:	Blue
Roof Drain:	No Drains Impacted

Roof Protection: Special Protection Not Required

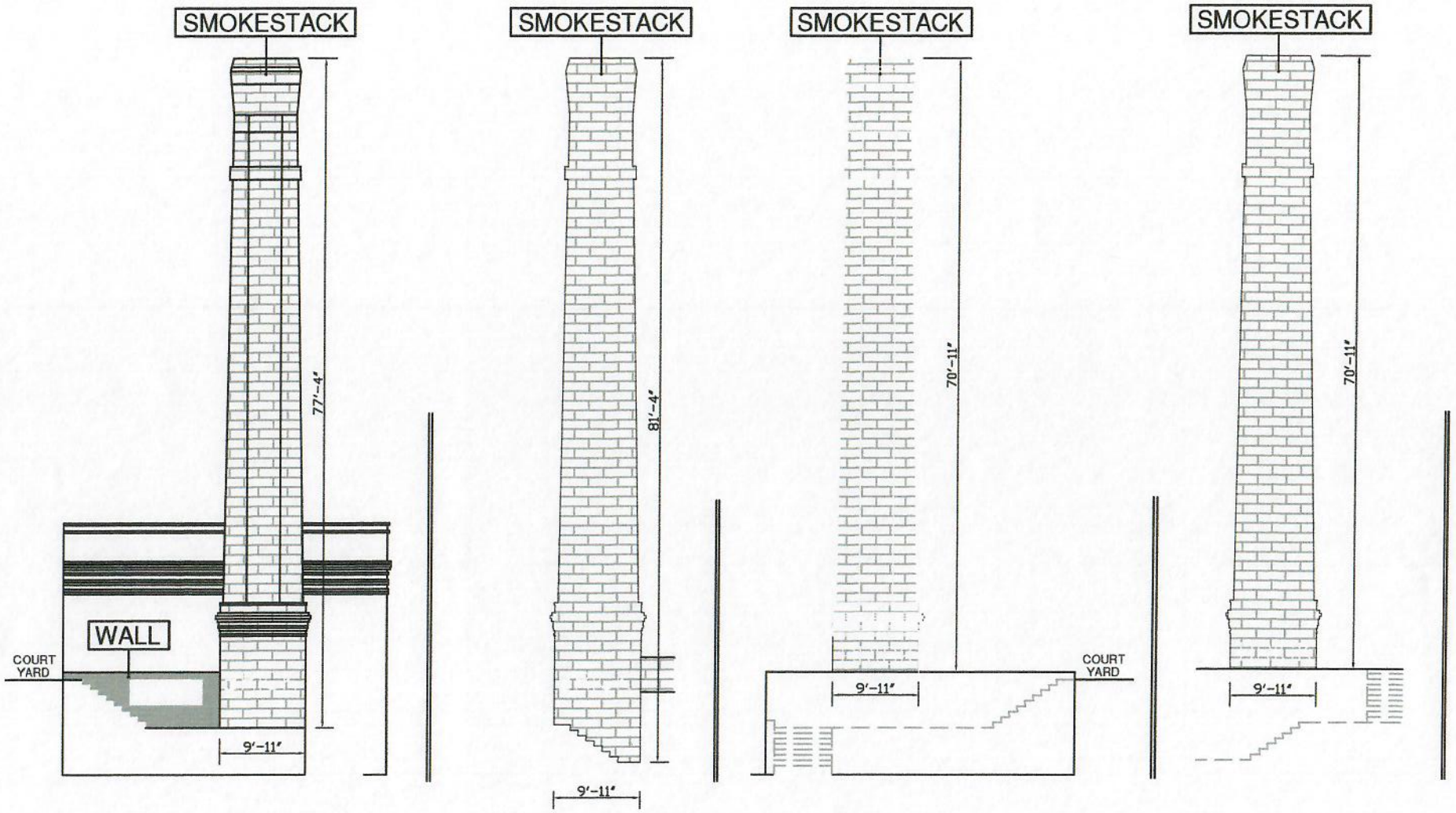


BUILDING 12, NORTH ELEVATION

CHIMNEY, ALL ELEVATIONS



NORTH ELEVATION
BUILDING 12



NORTH ELEVATION
SMOKESTACK

WEST ELEVATION
SMOKESTACK

SOUTH ELEVATION
SMOKESTACK

EAST ELEVATION
SMOKESTACK

PHASE THREE, SETUP 2

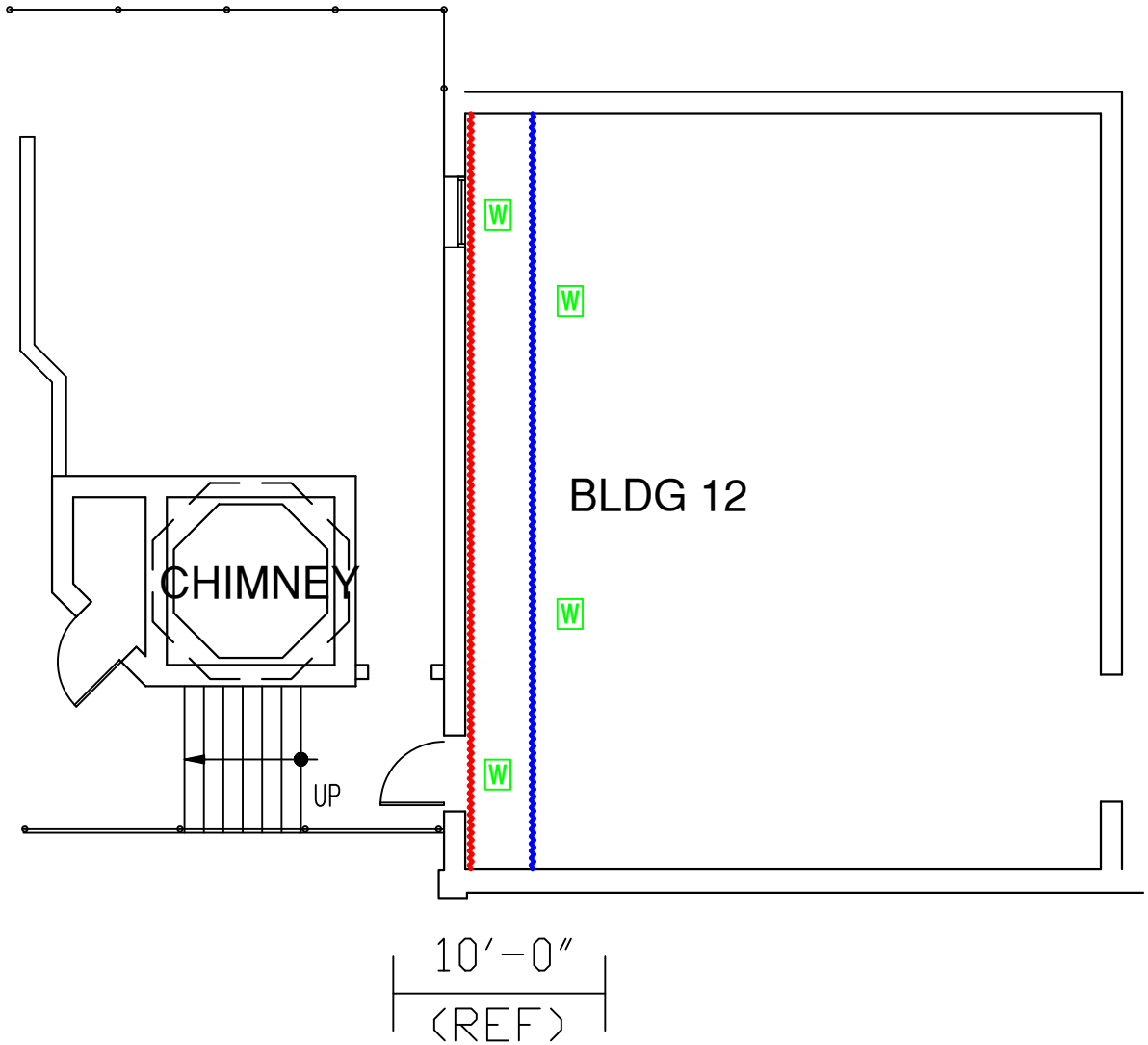
BUILDING 12 & CHIMNEY, 100 LEVEL

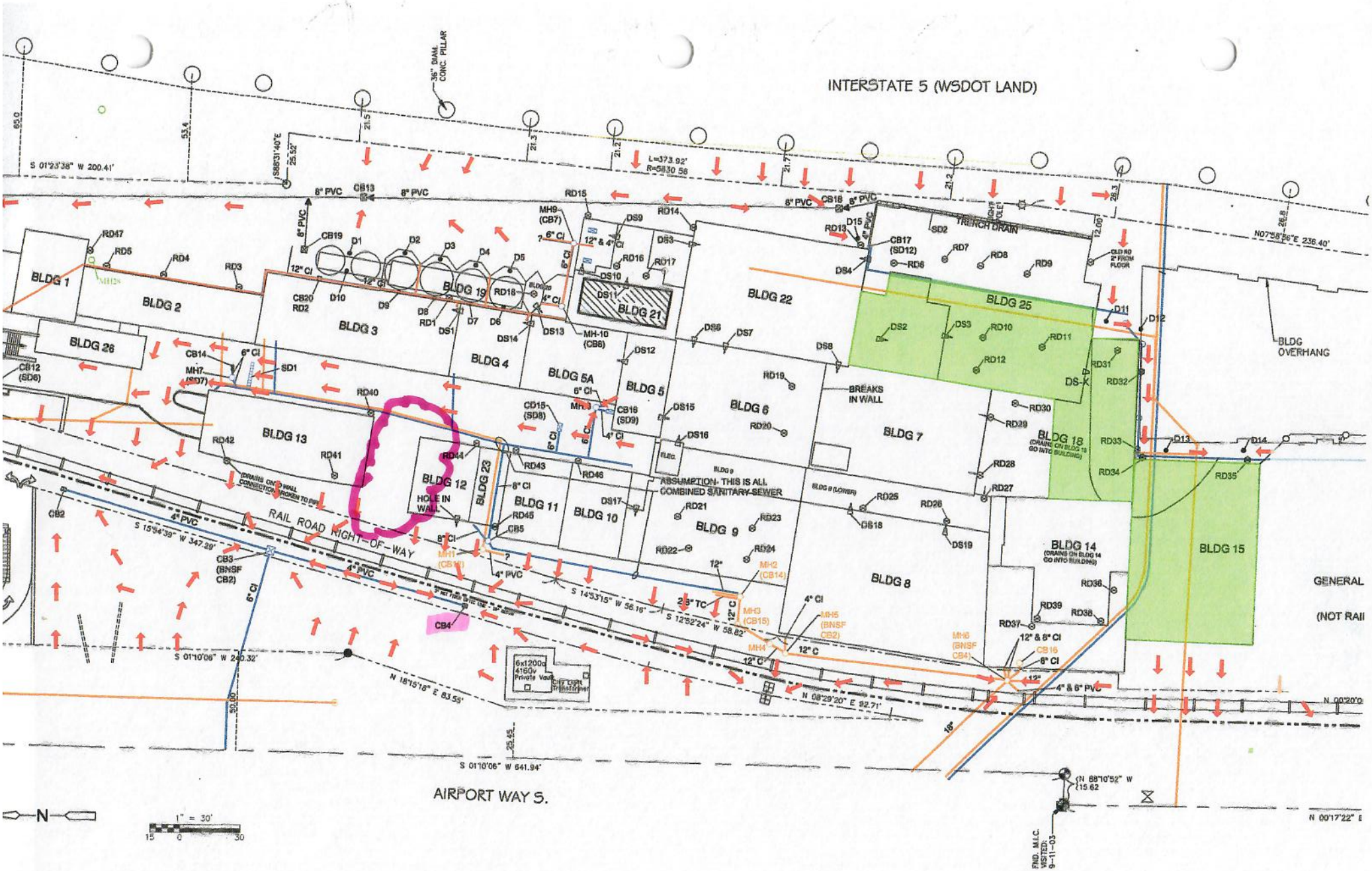
NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION





COMMONS SURFACE WATER DRAINAGE FLOW MAP
' DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
' DRAIN LOCATED NORTH OF BLDG. 25 (D15)

REMARKS

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

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CATCH BASIN STUDY

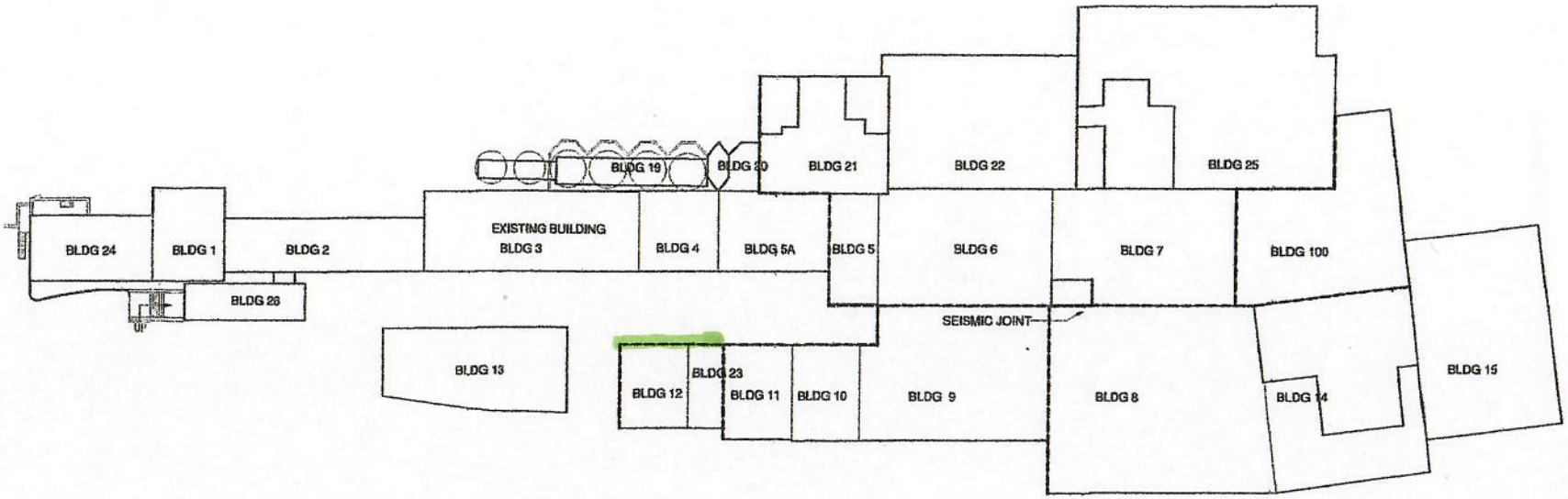
CATCH B.

SET-UP #2

Phase 3 Set-up 3

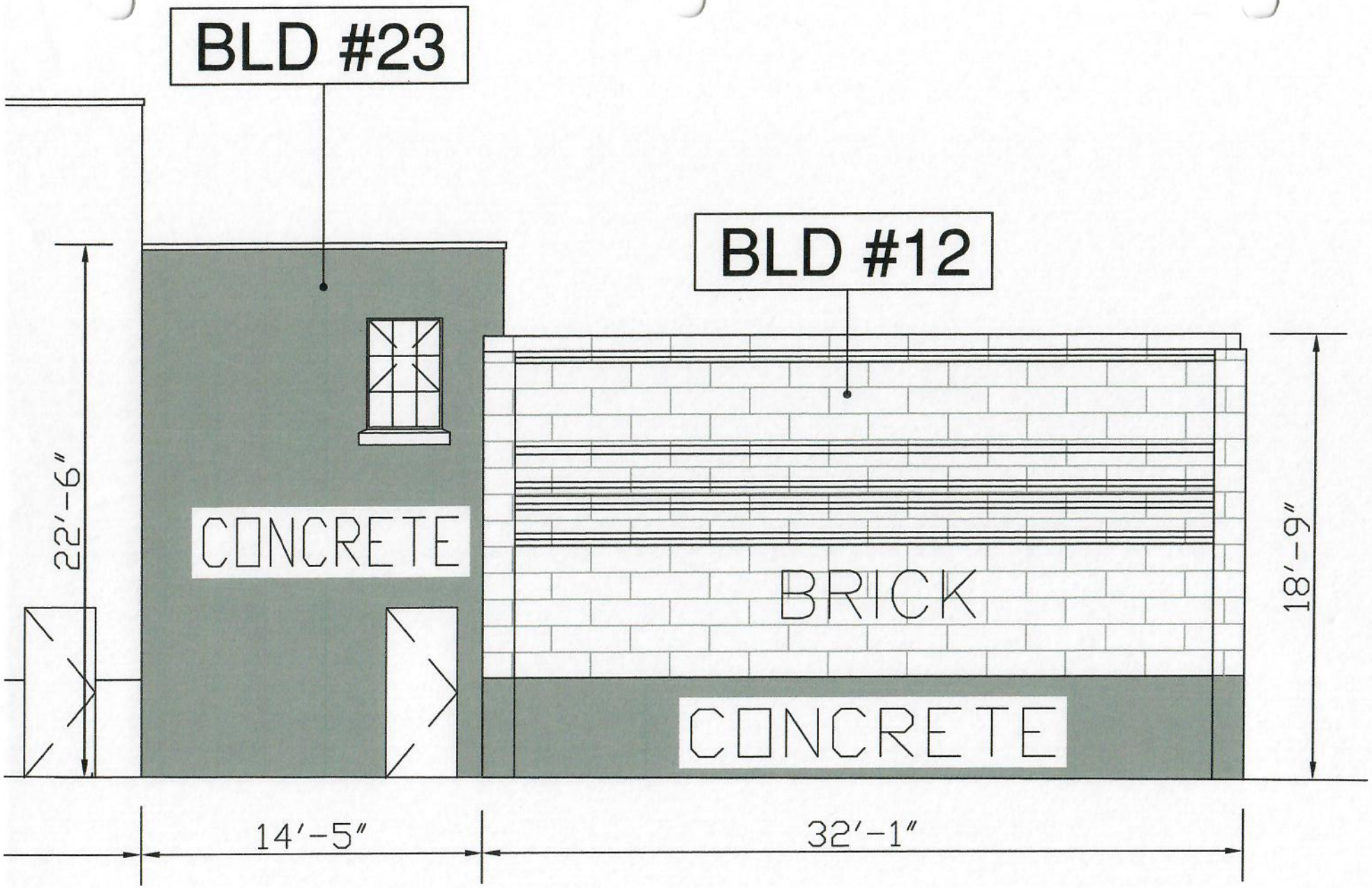
Location:	Building 12 and 23, East Elevation
Stories:	Building 12 = 1 Building 23 = 2
Material:	Bldg 12 = Brick, Bldg 23 = Concrete
Square Feet:	820
Tenants:	Commercial
C/B Zone:	Orange
Roof Drain:	Scupper to Downspout, Tied to Storm

Roof Protection: Plug and pump to west side of building



BUILDING 12, EAST ELEVATION

BUILDING 23, EAST ELEVATION



EAST ELEVATION
BLDG 12 & 23

PHASE THREE, SETUP 3

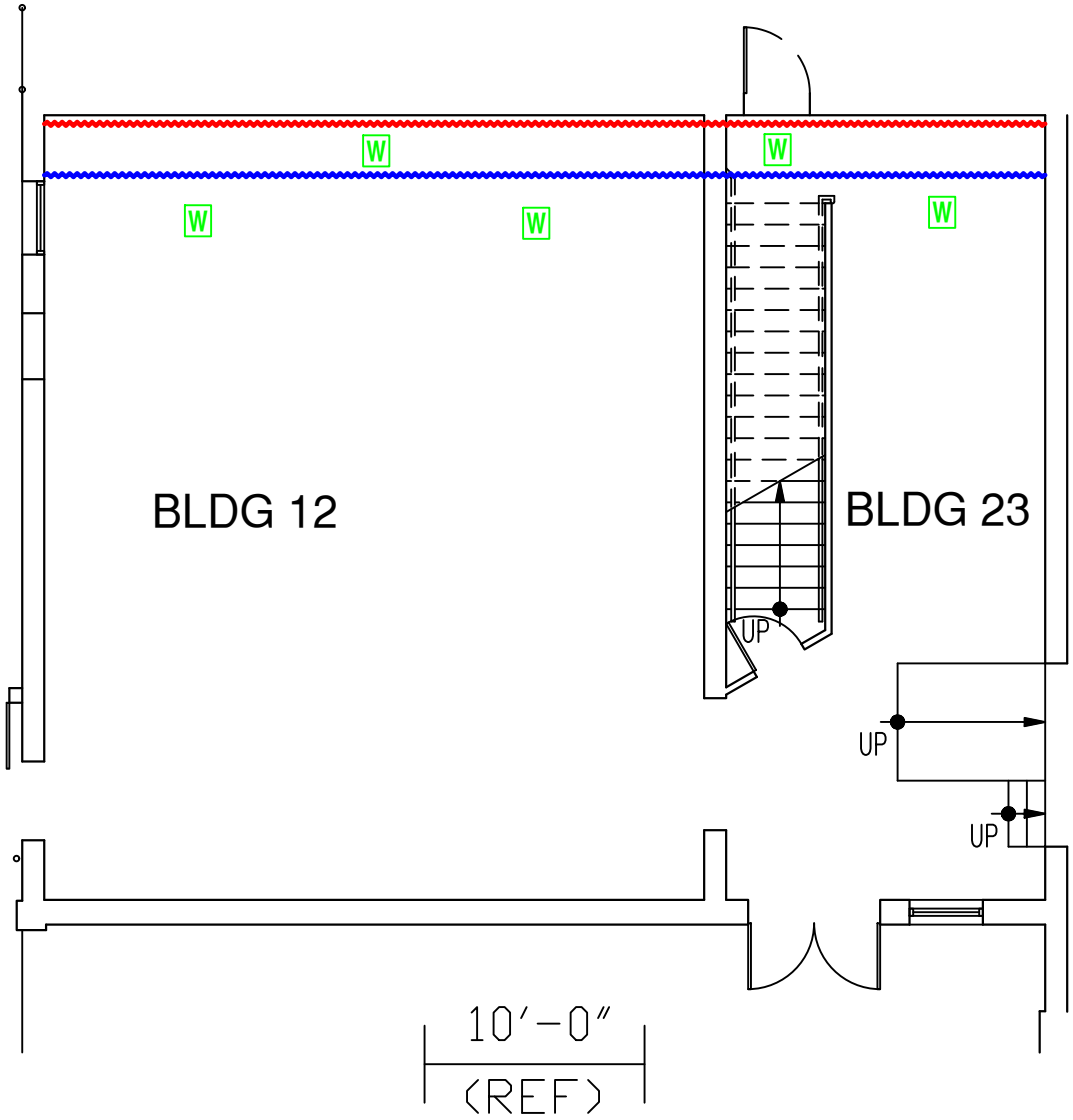
BUILDING 12 & 23, 100 LEVEL

EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 3

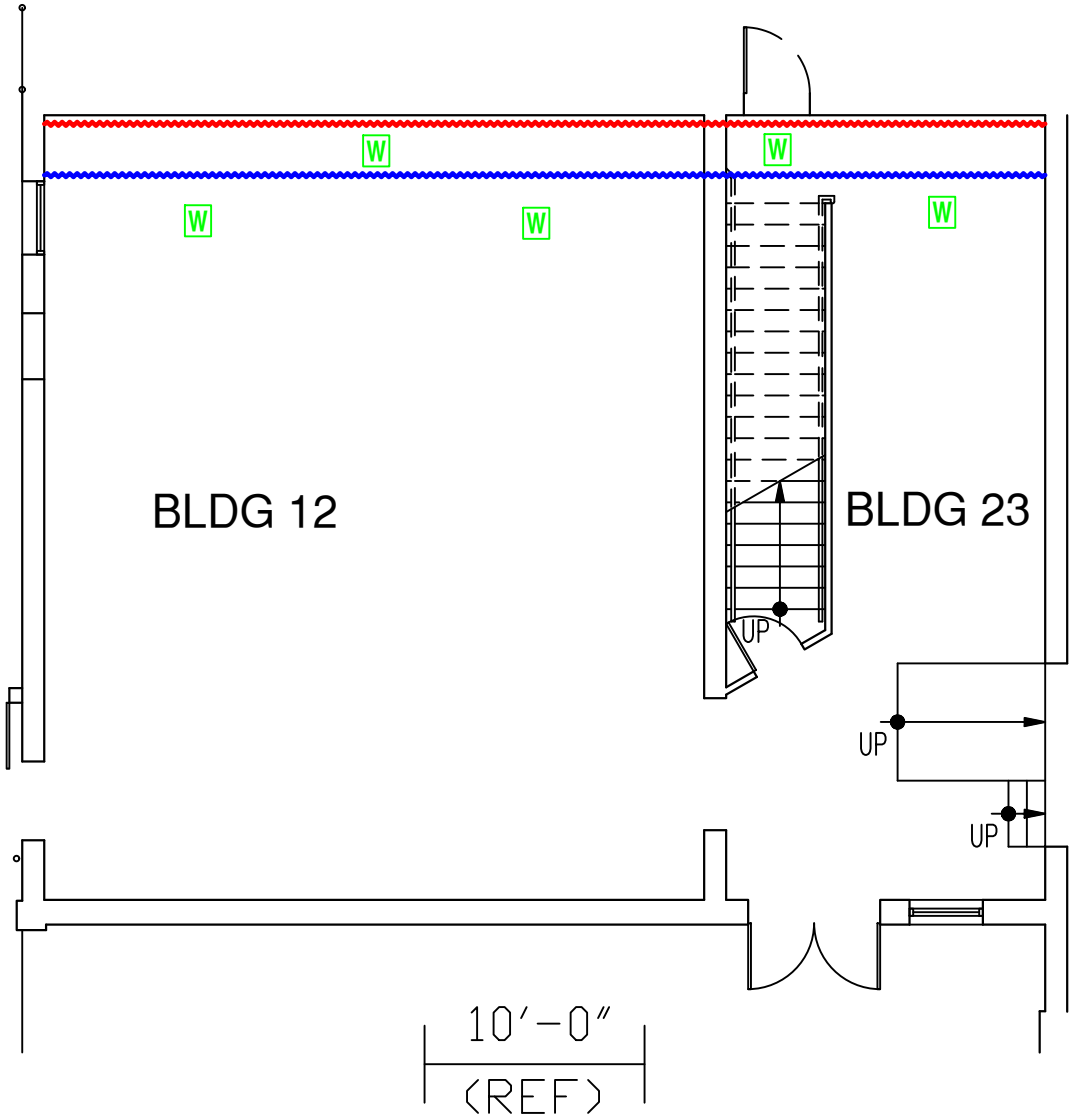
BUILDING 12 & 23, 200 LEVEL

EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 3

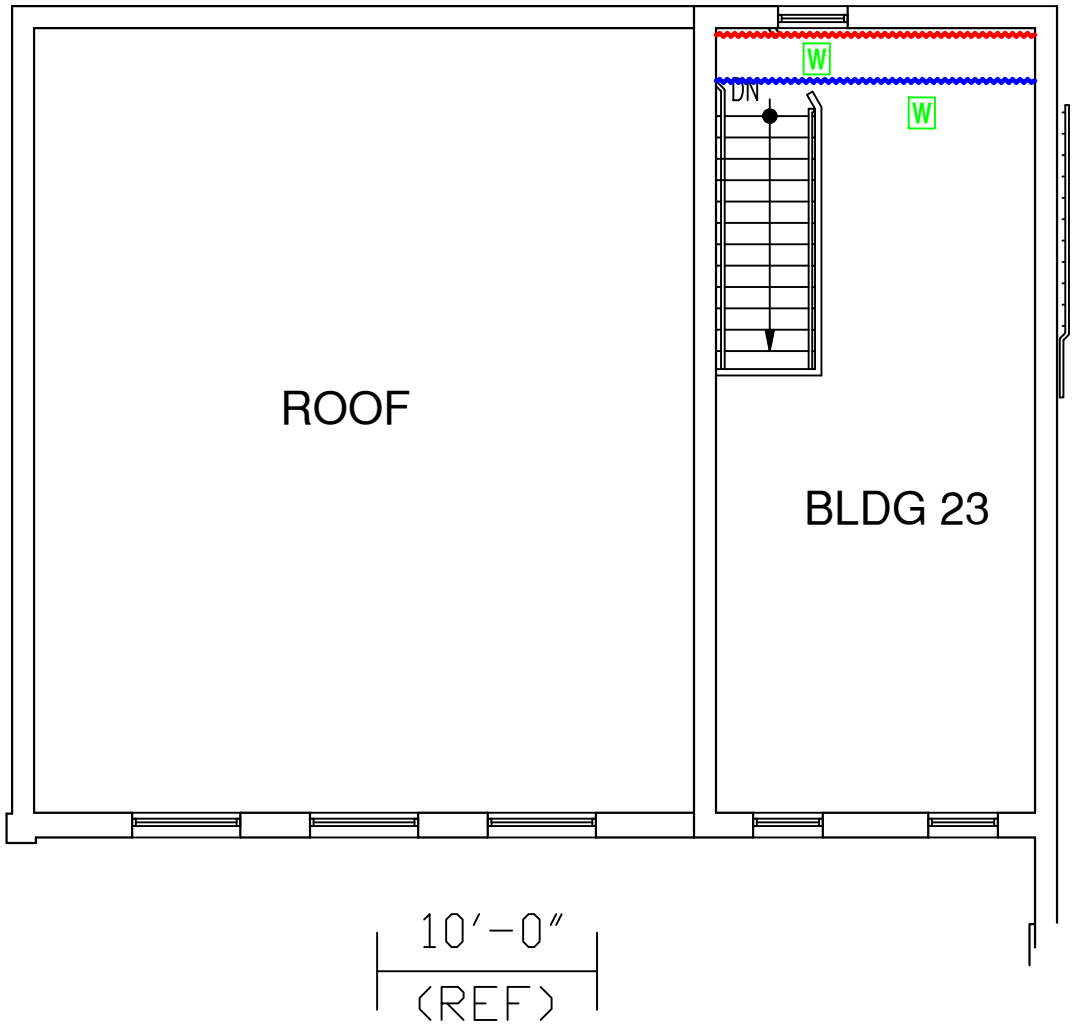
BUILDING 12 & 23, 300 LEVEL

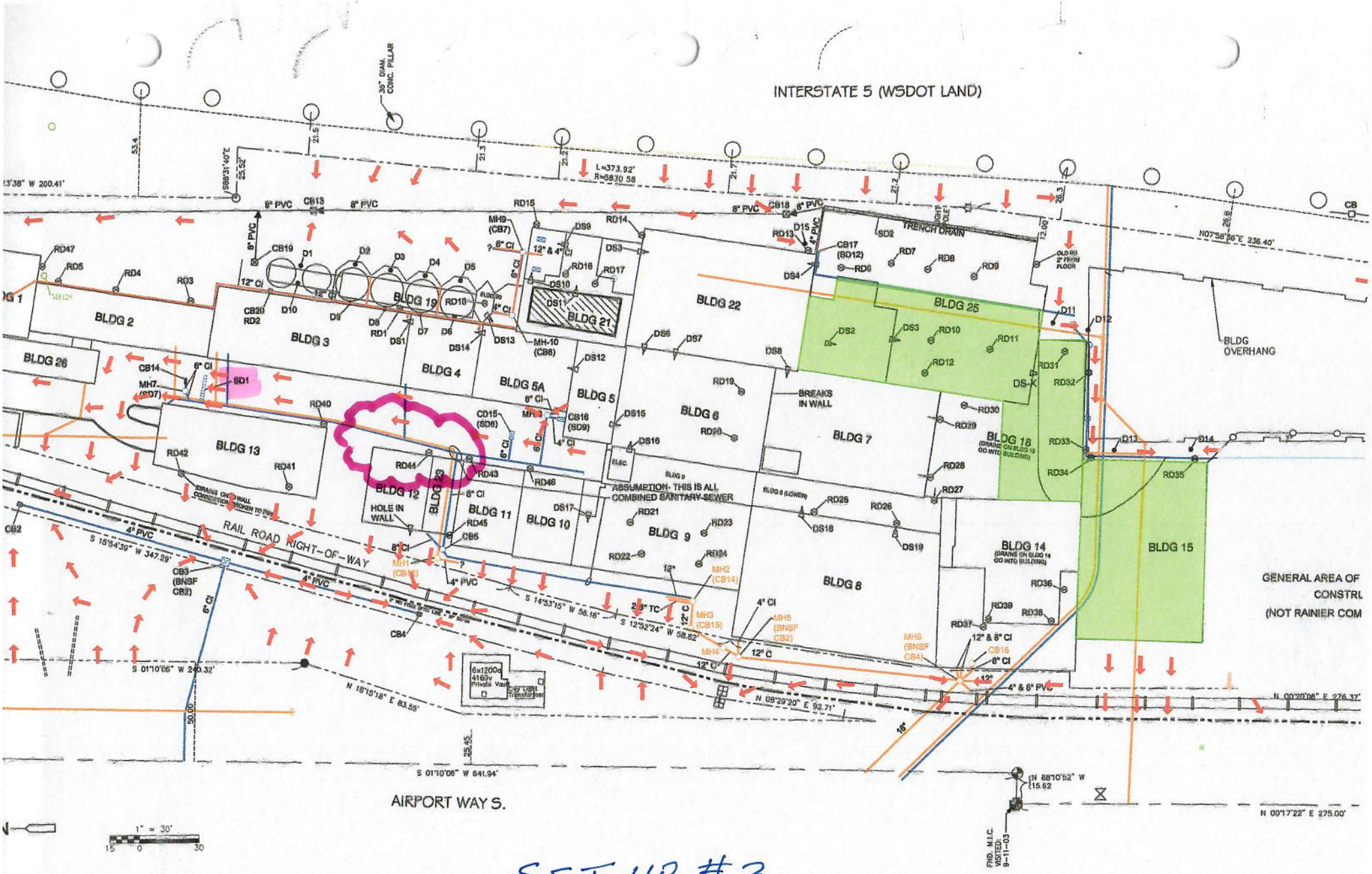
EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION





SET-UP #3

SURFACE WATER DRAINAGE FLOW MAP
IN LOCATED SOUTH OF BLDG. 25 (D11-D14)
OCATED NORTH OF BLDG. 25 (D15)

REMARKS

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

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RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

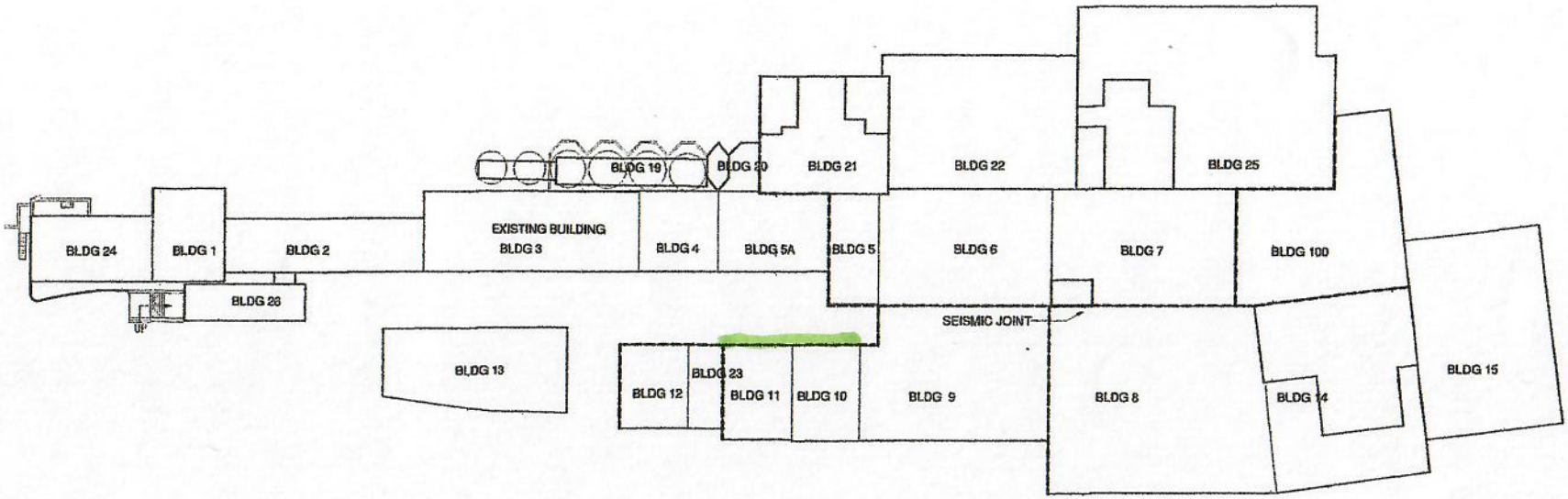
CATCH BASIN STUDY

CATCH BASIN PLAI

Phase 3 Set-up 4

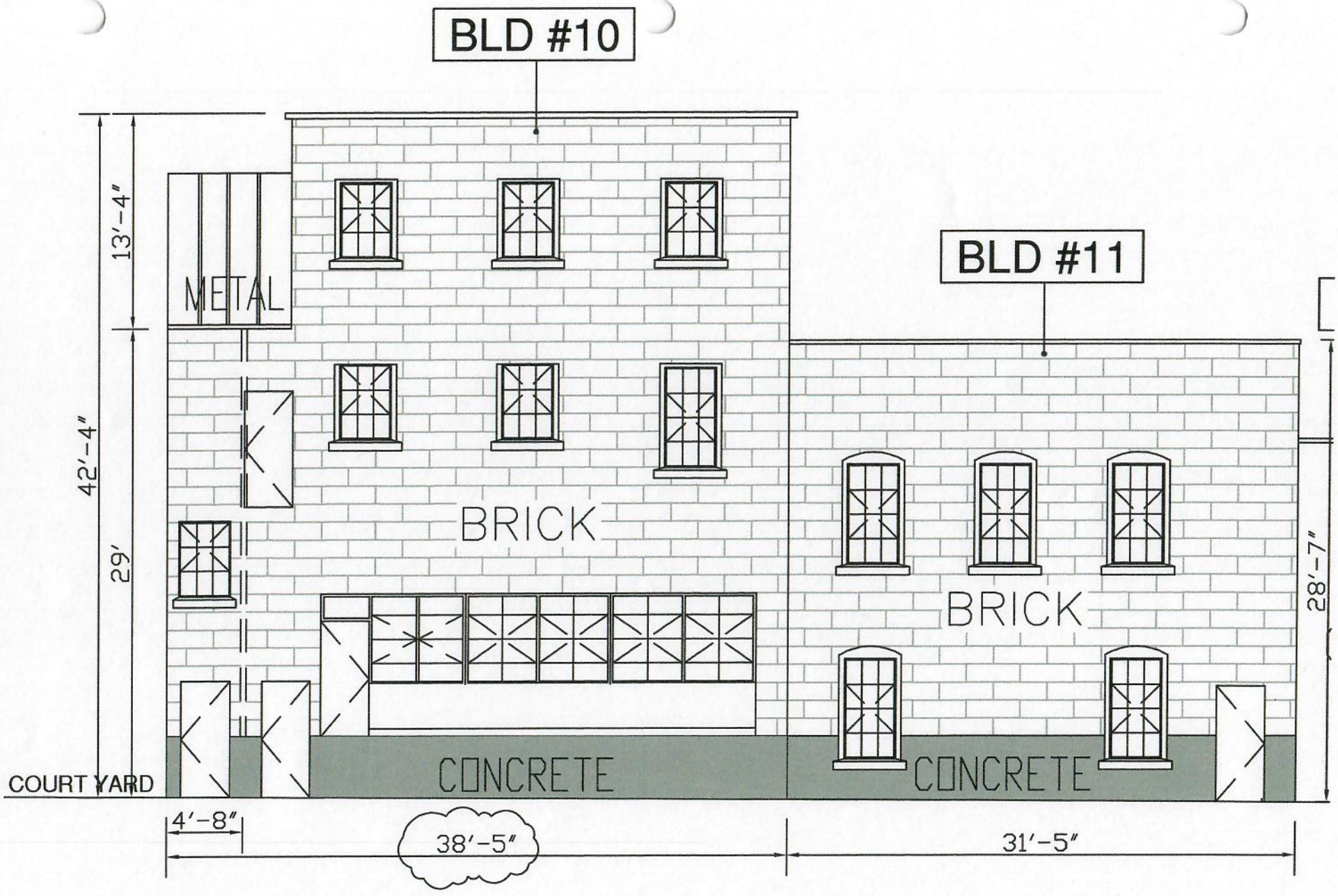
Location:	Building 10 and 11, East Elevation
Stories:	Building 10 = 4 Building 11 = 2
Material:	Brick
Square Feet:	2,409
Tenants:	All Commercial except 10-300 & 10-400 Residential
C/B Zone:	Orange
Roof Drain:	(2) Scupper to Downspout, Tied to Storm

Roof Protection: Plug and pump to Roof Drain 21 & 44



BUILDING 11, EAST ELEVATION

BUILDING 10, EAST ELEVATION



EAST ELEVATION
BLDG 10 & 11

PHASE THREE, SETUP 4

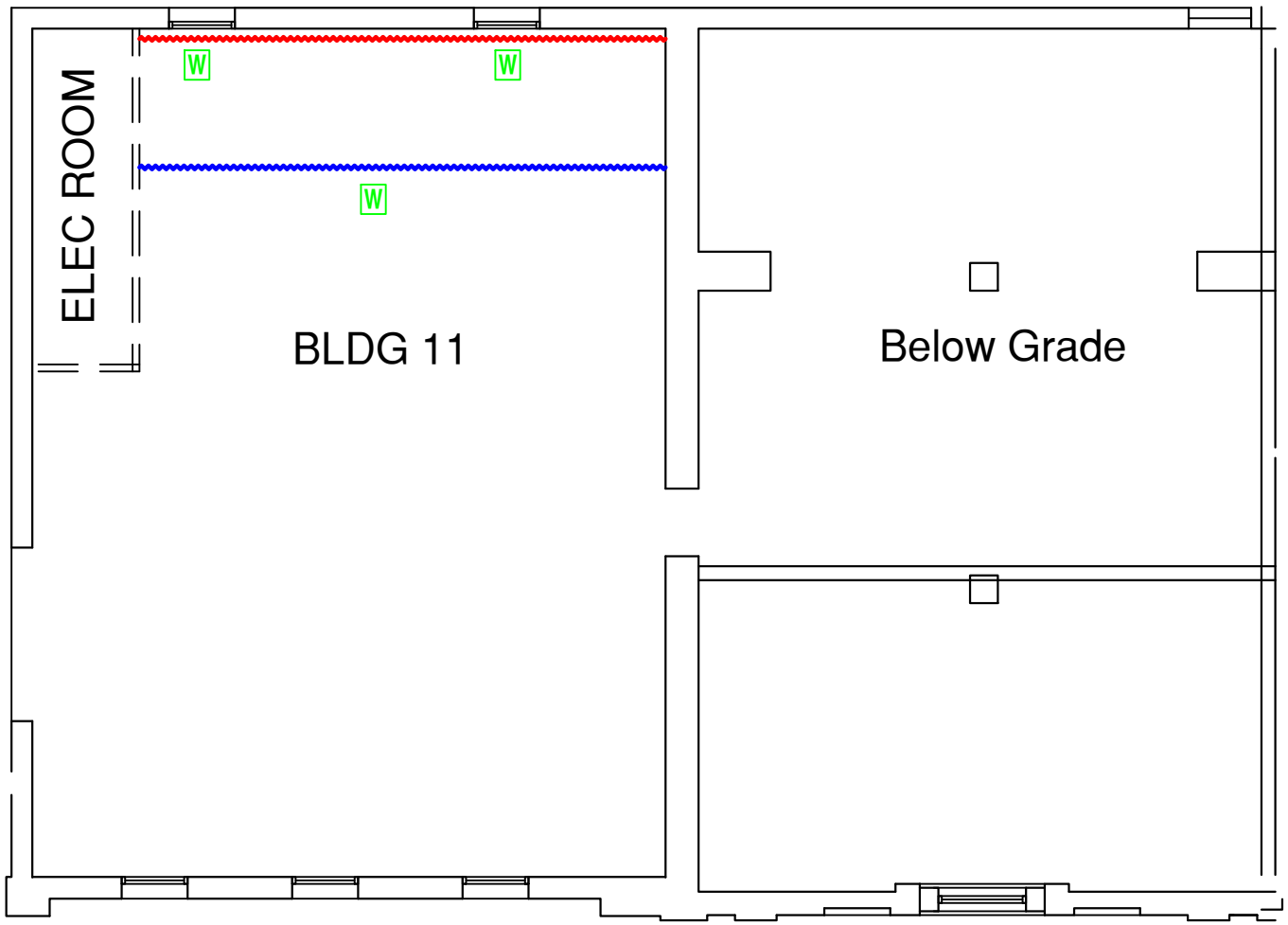
BUILDING 10 & 11, 100 LEVEL

EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 4

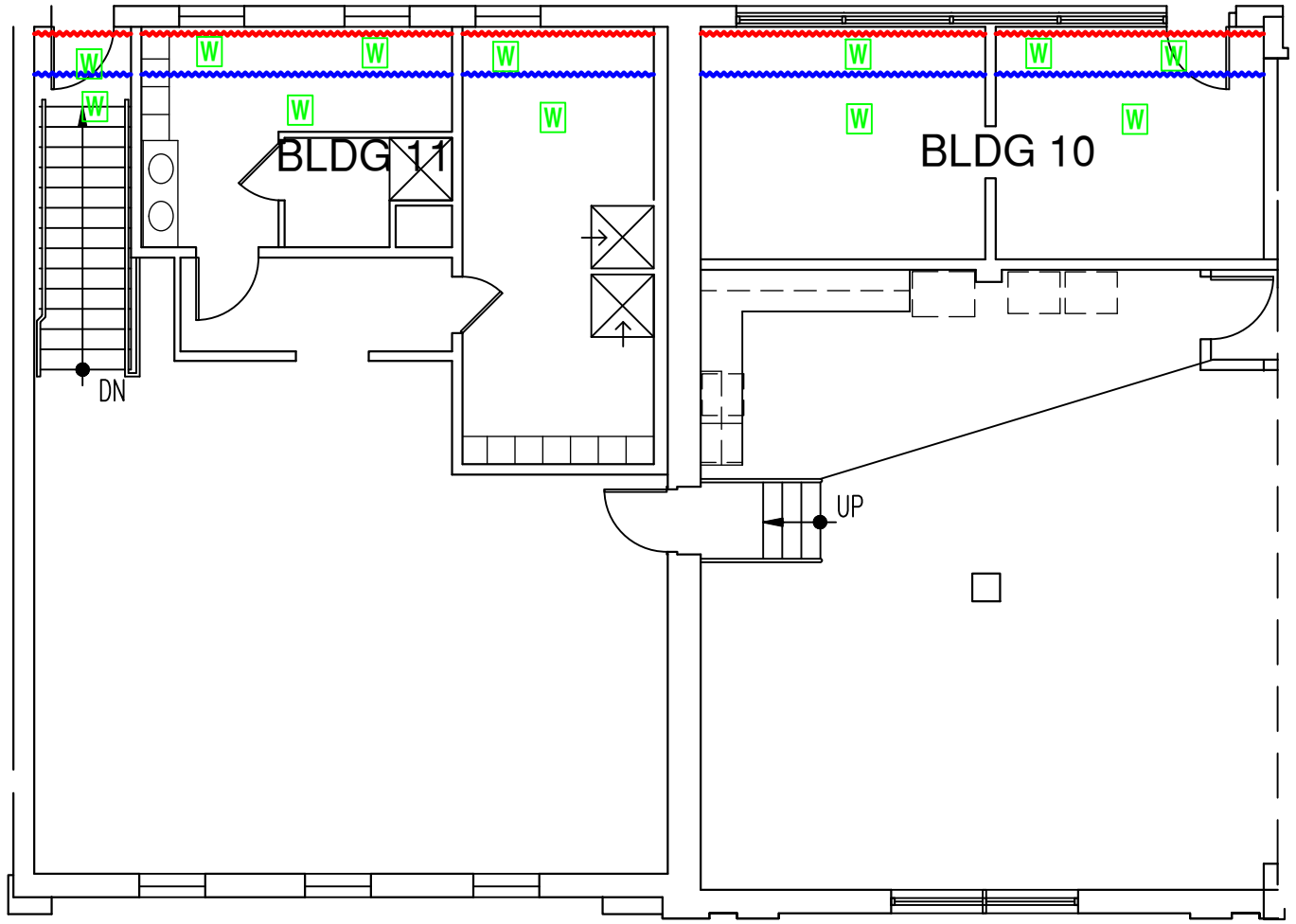
BUILDING 10 & 11, 200 LEVEL

EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 4

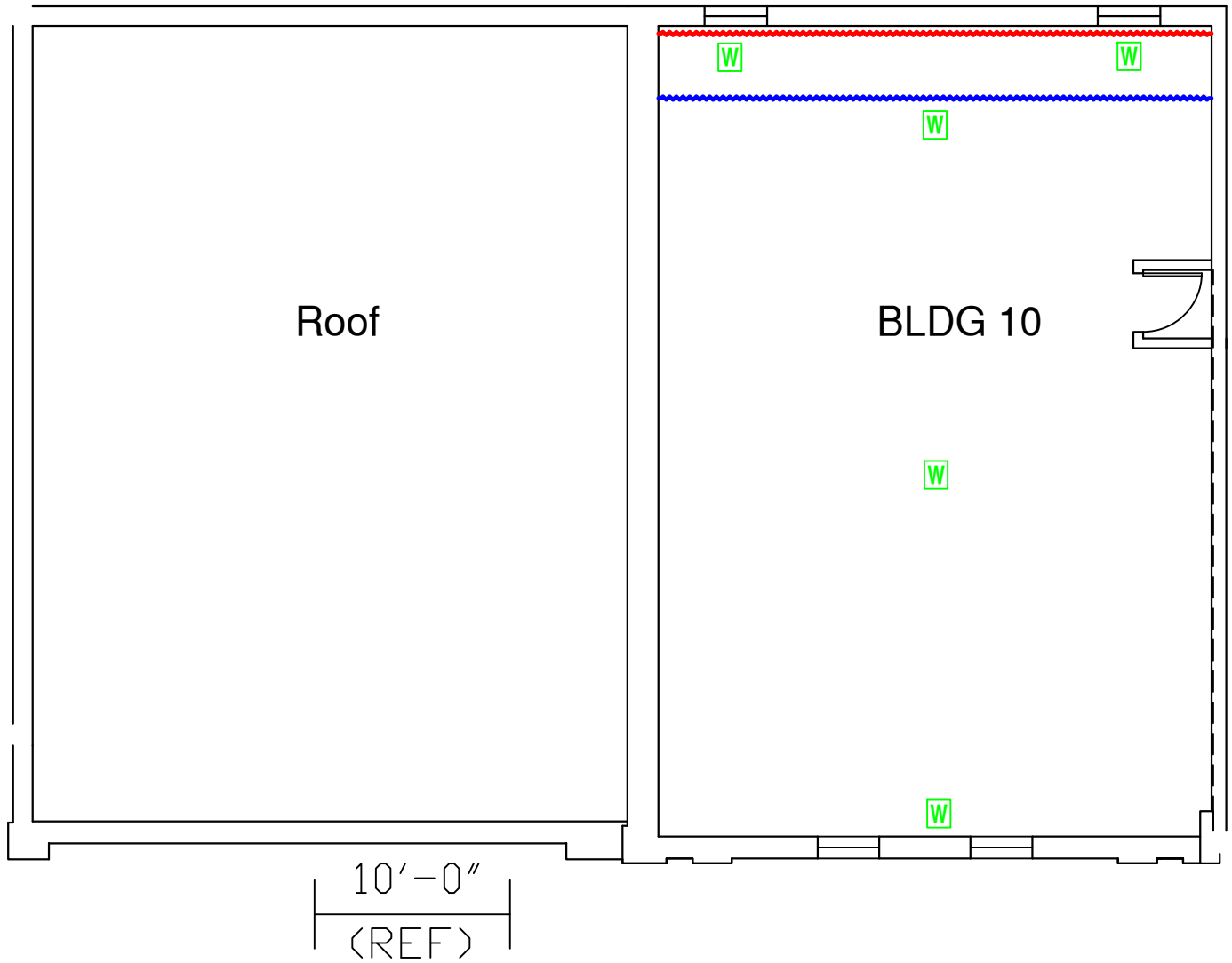
BUILDING 10 & 11, 300 LEVEL

EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 4

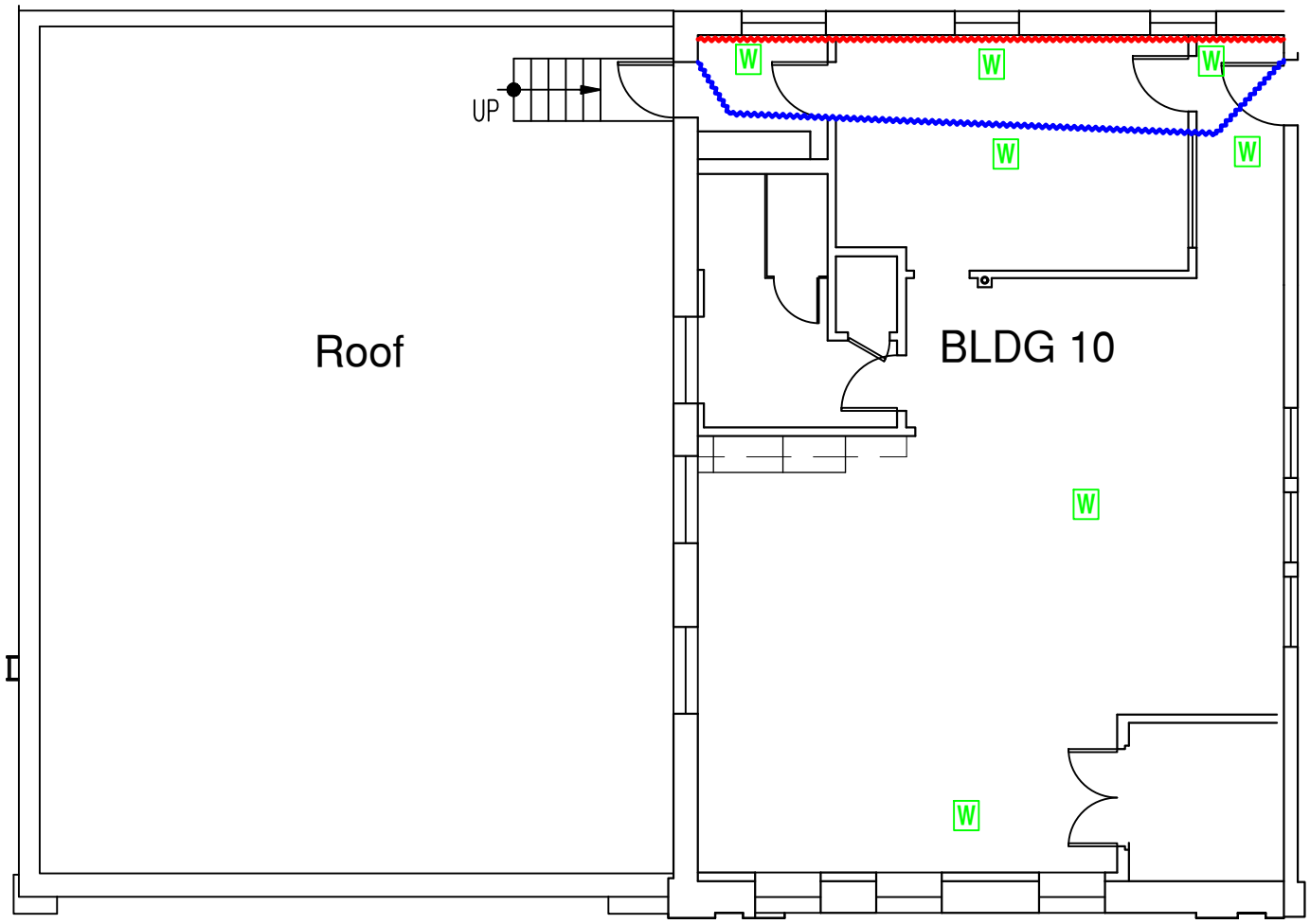
BUILDING 10 & 11, 400 LEVEL

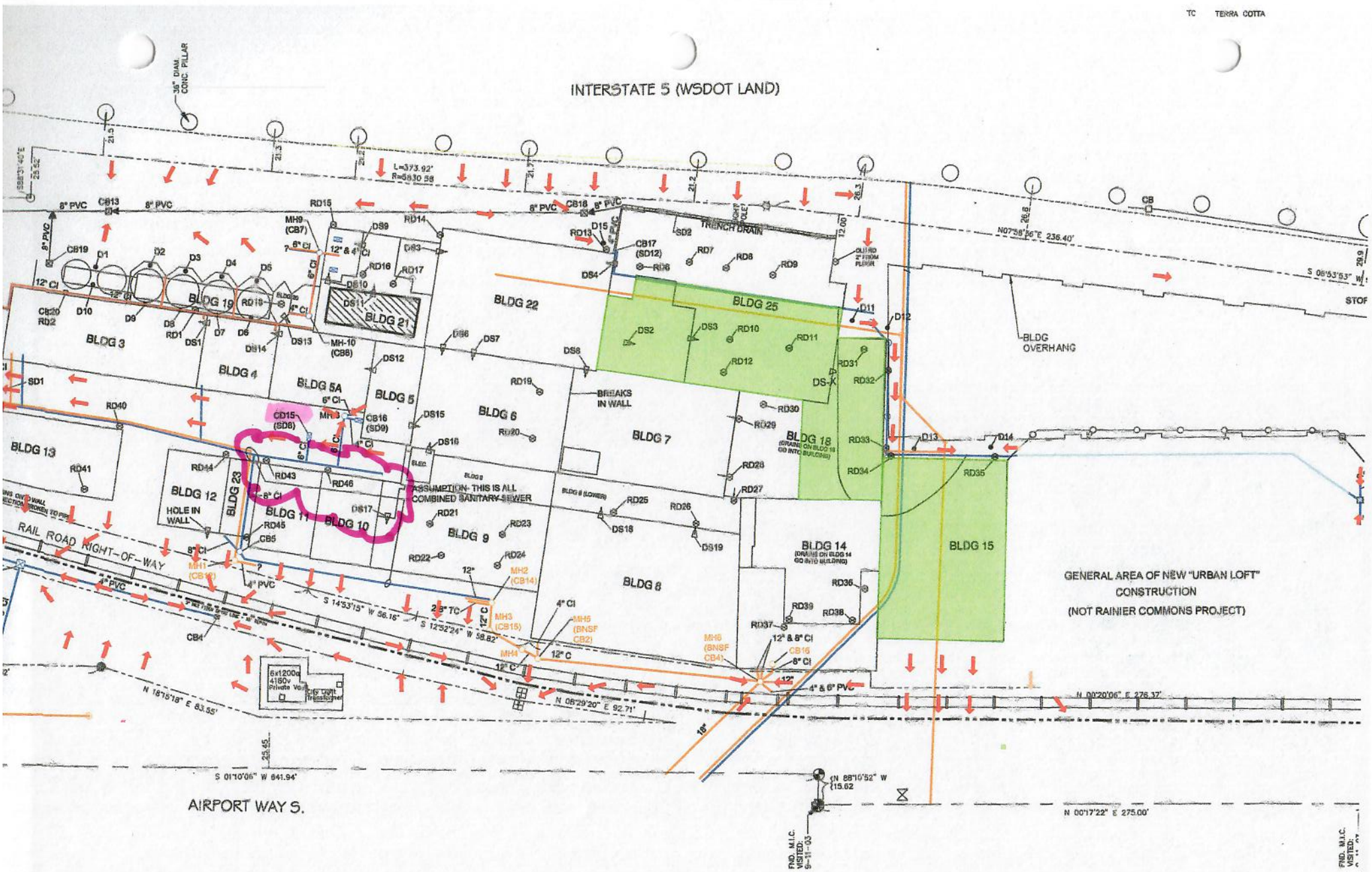
EAST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION





DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3883 Bellevue, Washington 98009 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	

Phase 3 Set-up 5

Location: Building 5 West Elevation, Building 9 and Catwalk North Elevations

Stories: Building 5 = 6
Building 9 = 1

Material: Building 5 Brick, Building 9 Concrete

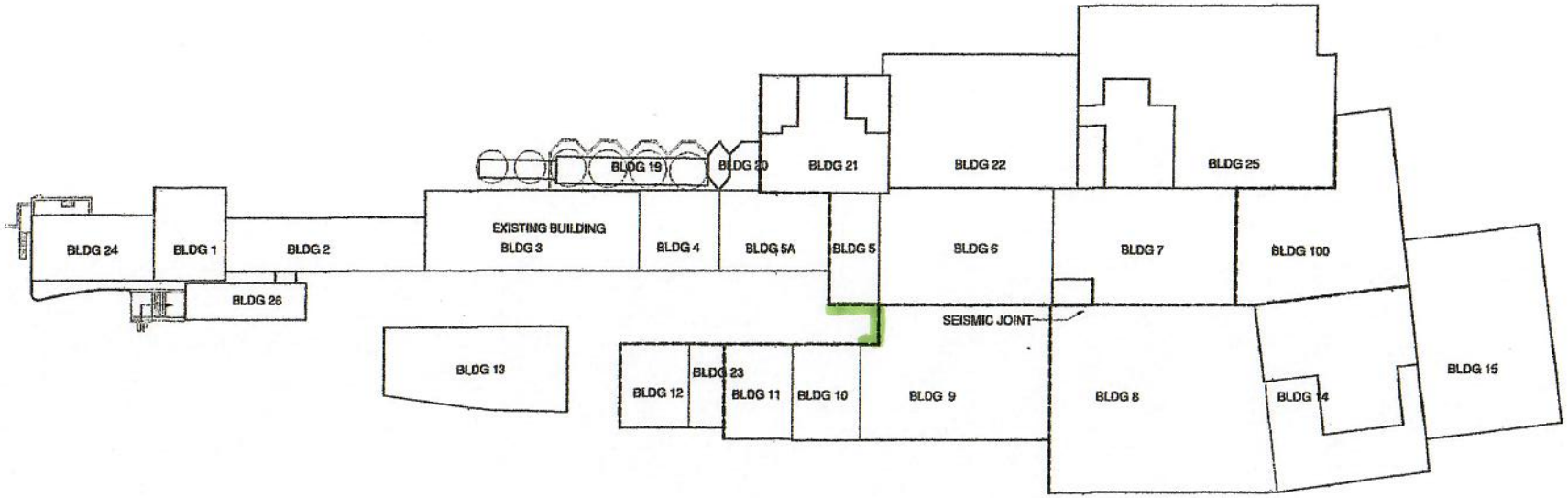
Square Feet: 2,345

Tenants: Commercial

C/B Zone: Orange

Roof Drain: None

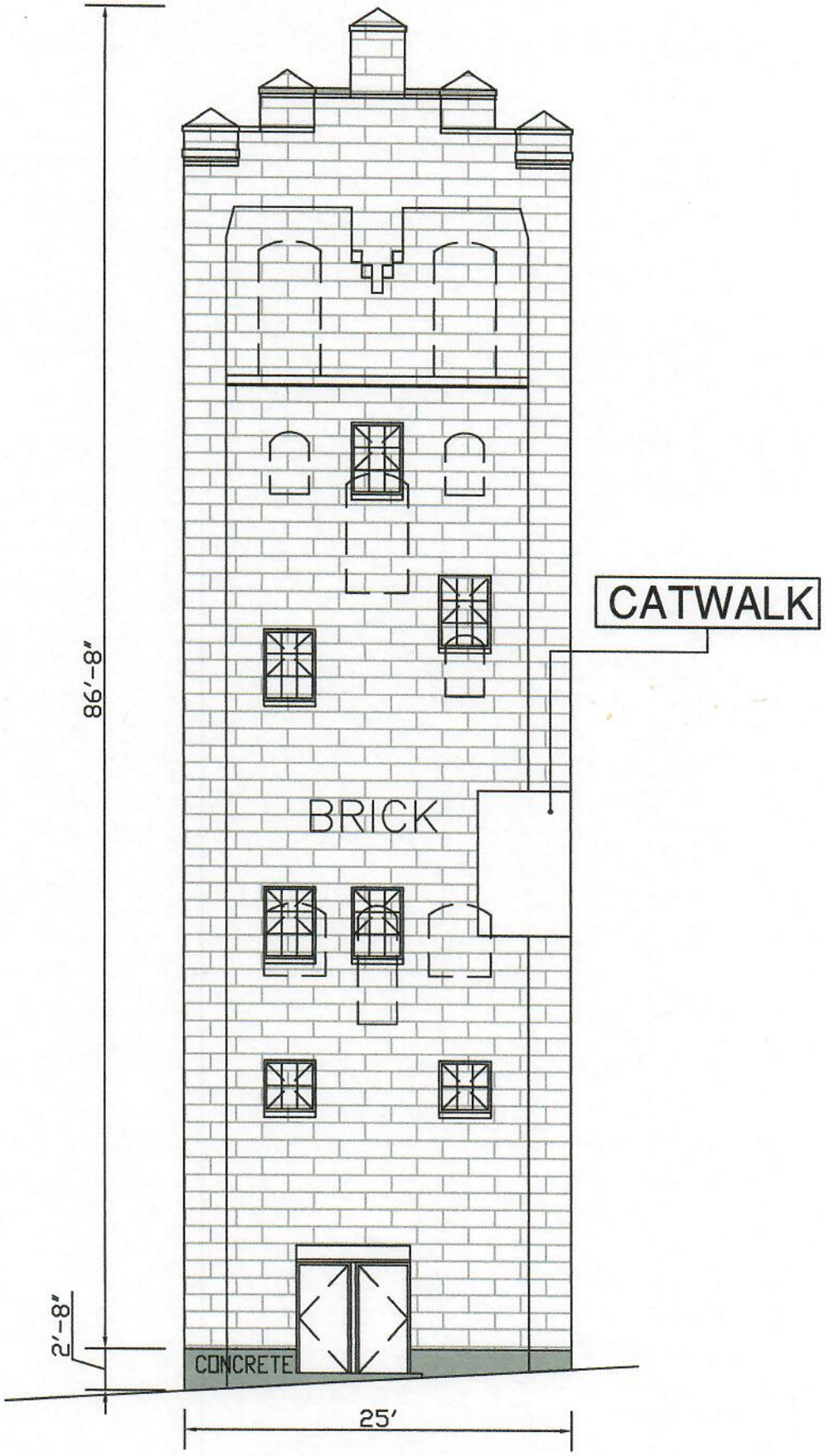
Roof Protection: Special Protection Not Required



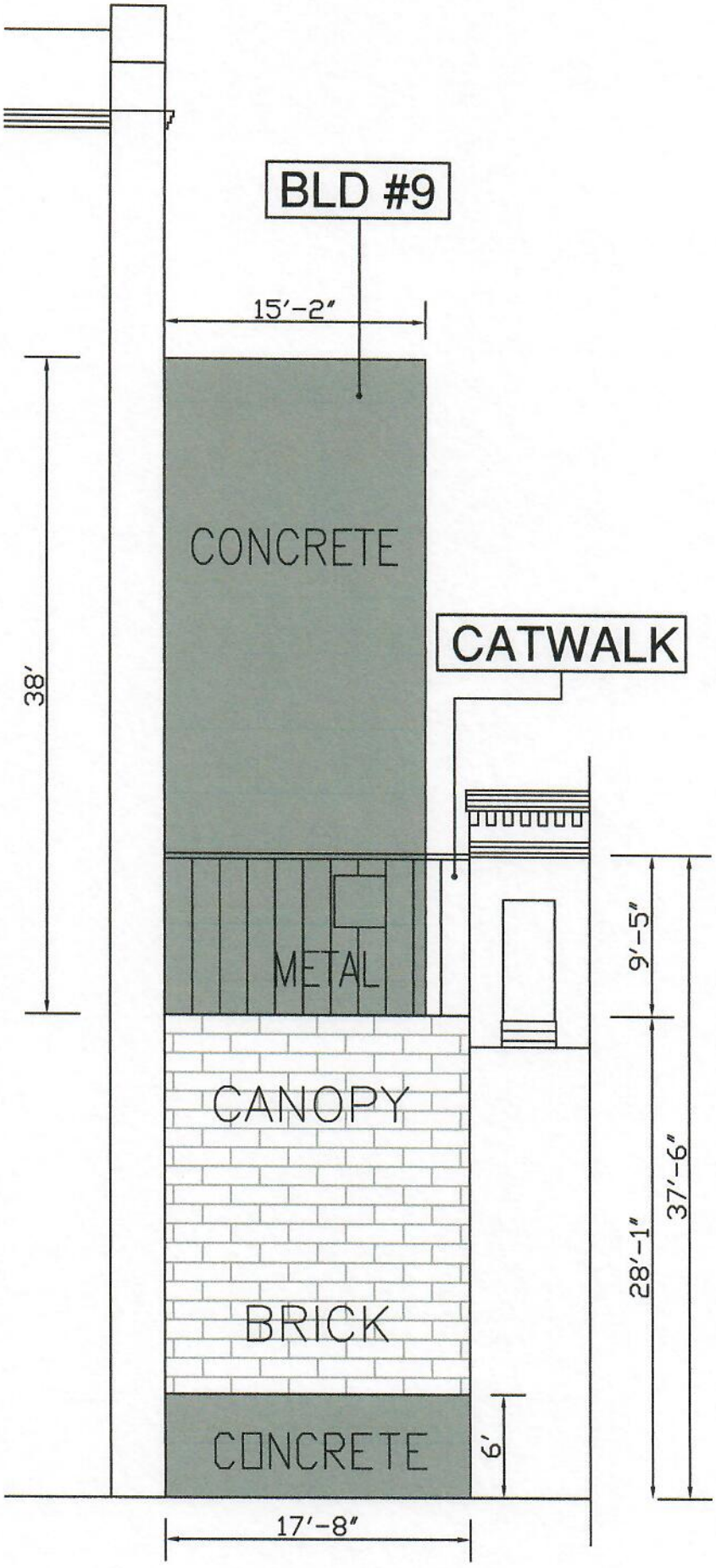
BUILDING 9, NORTH ELEVATION

BUILDING 5, WEST ELEVATION

CATWALK, NORTH ELEVATION



WEST ELEVATION
BLDG 5



NORTH ELEVATION
BLDG 9, CATWALK

PHASE THREE, SETUP 5

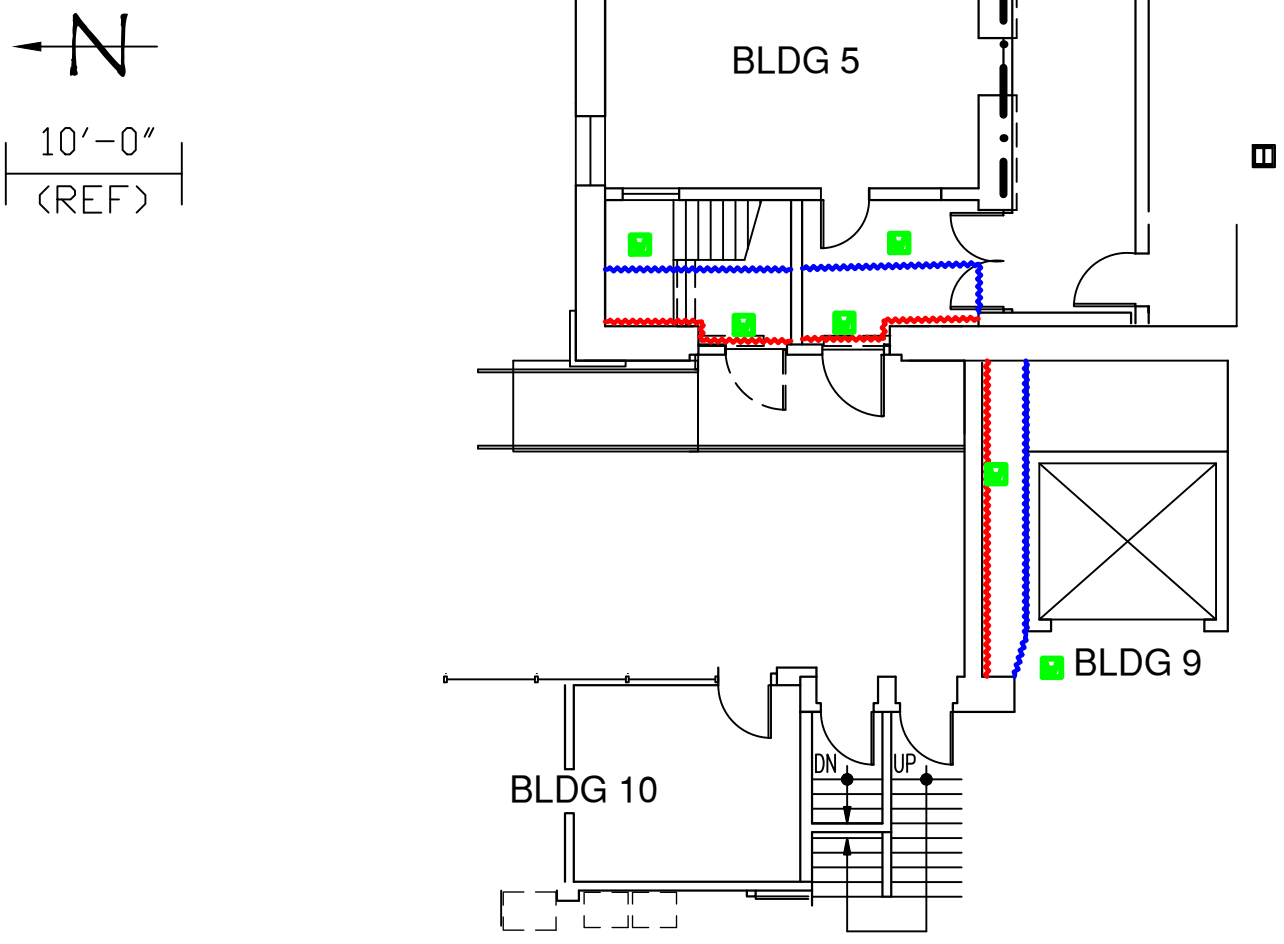
BUILDING 5 & 9, 200 LEVEL

WEST (5) & NORTH (9)ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 5

BUILDING 5 & 9, 300 LEVEL

WEST (5) ELEVATION

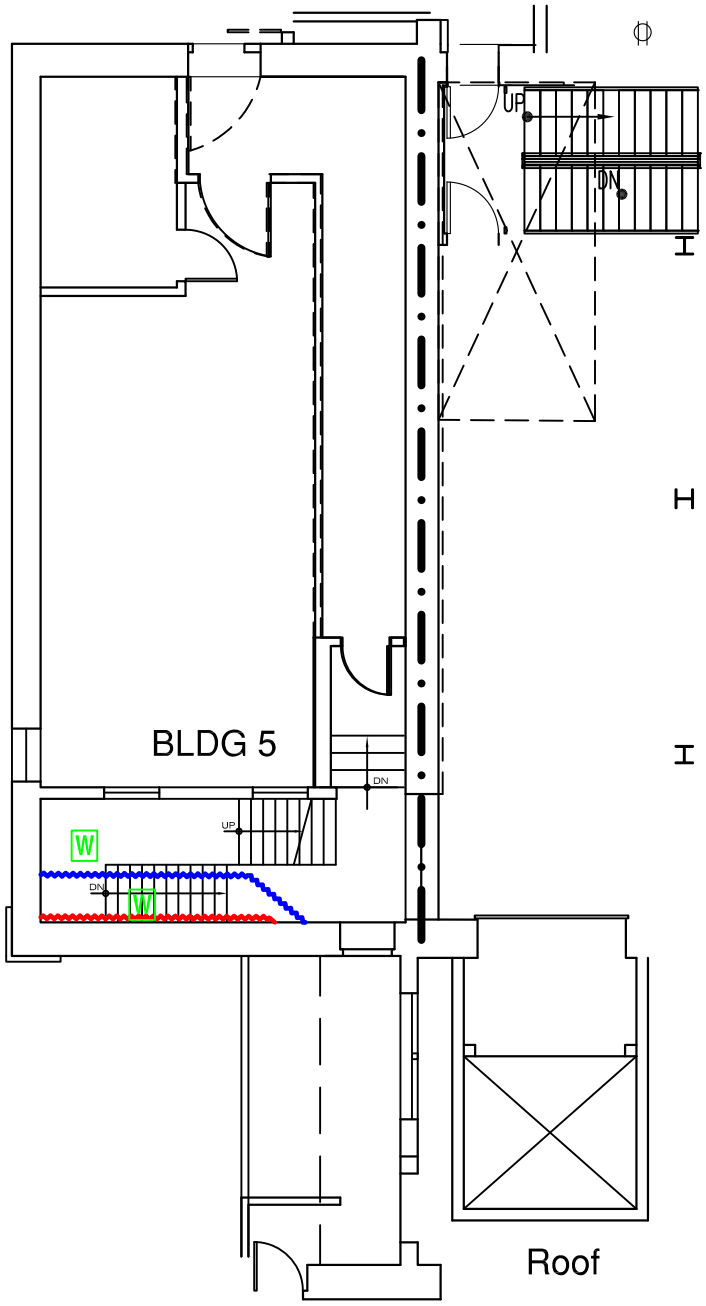
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE SETUP 5

BUILDING 5, 400 LEVEL

WEST ELEVATION

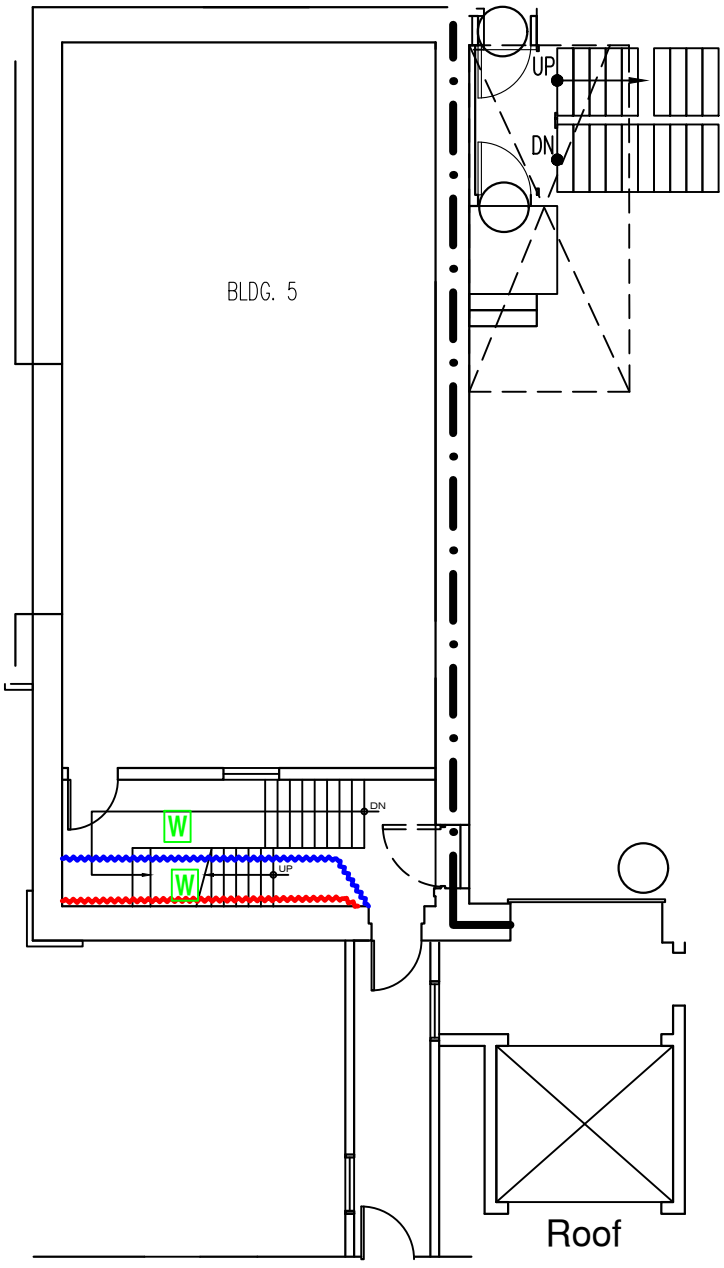
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0"
(REF)



PHASE THREE, SETUP 5

BUILDING 5, 500 LEVEL

WEST ELEVATION

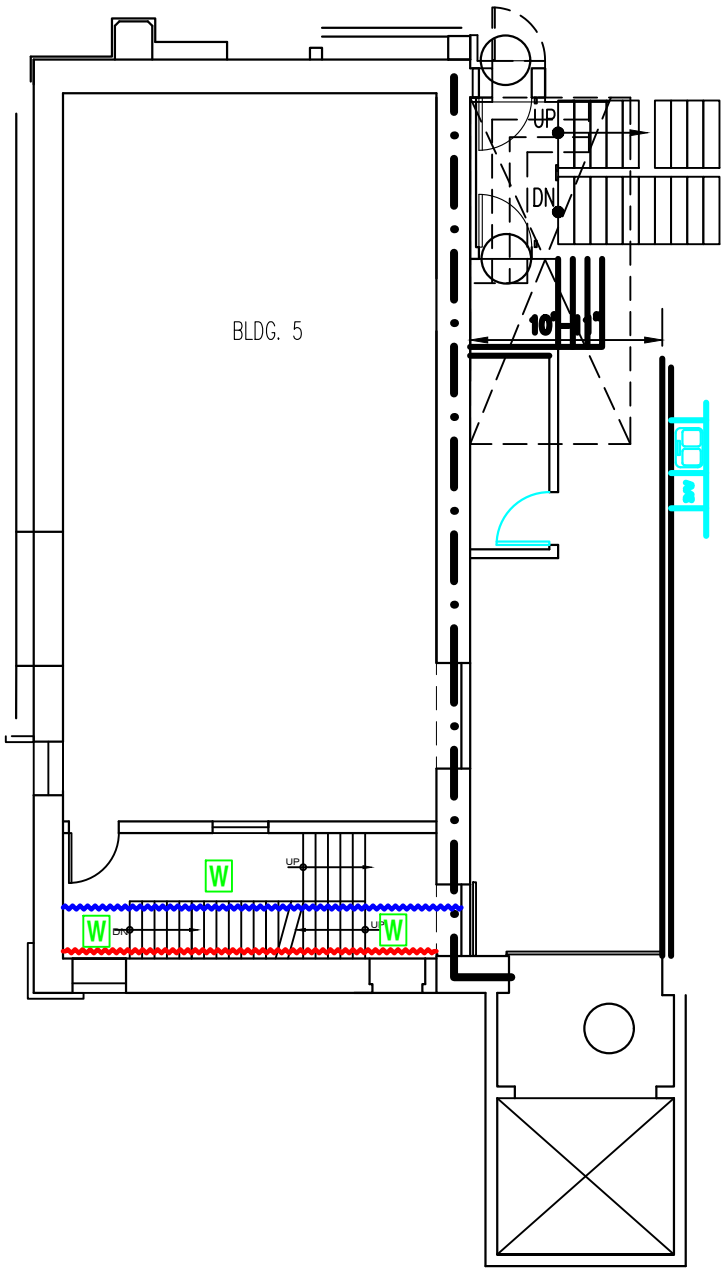
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 5

BUILDING 5, 600 LEVEL

WEST ELEVATION

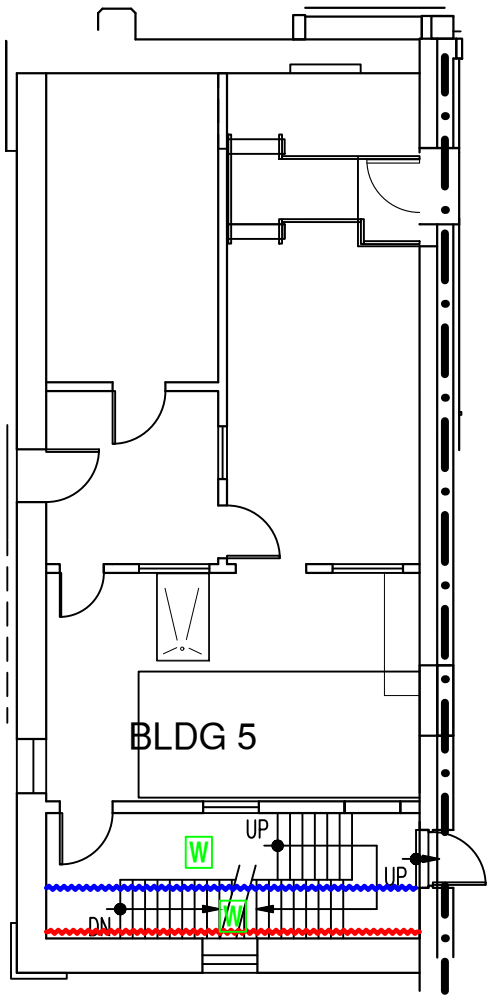
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0"
(REF)



PHASE THREE, SETUP 5

BUILDING 5, 700 LEVEL

WEST ELEVATION

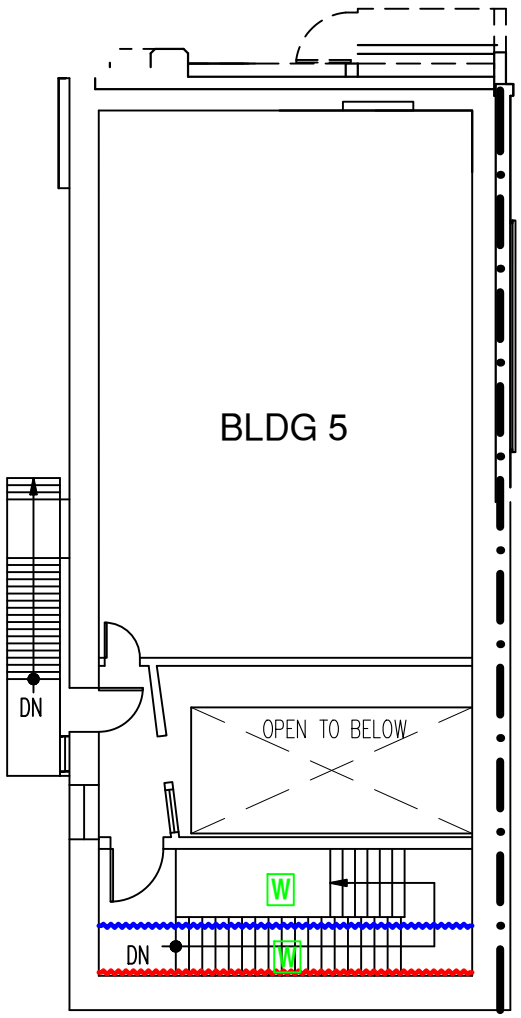
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)

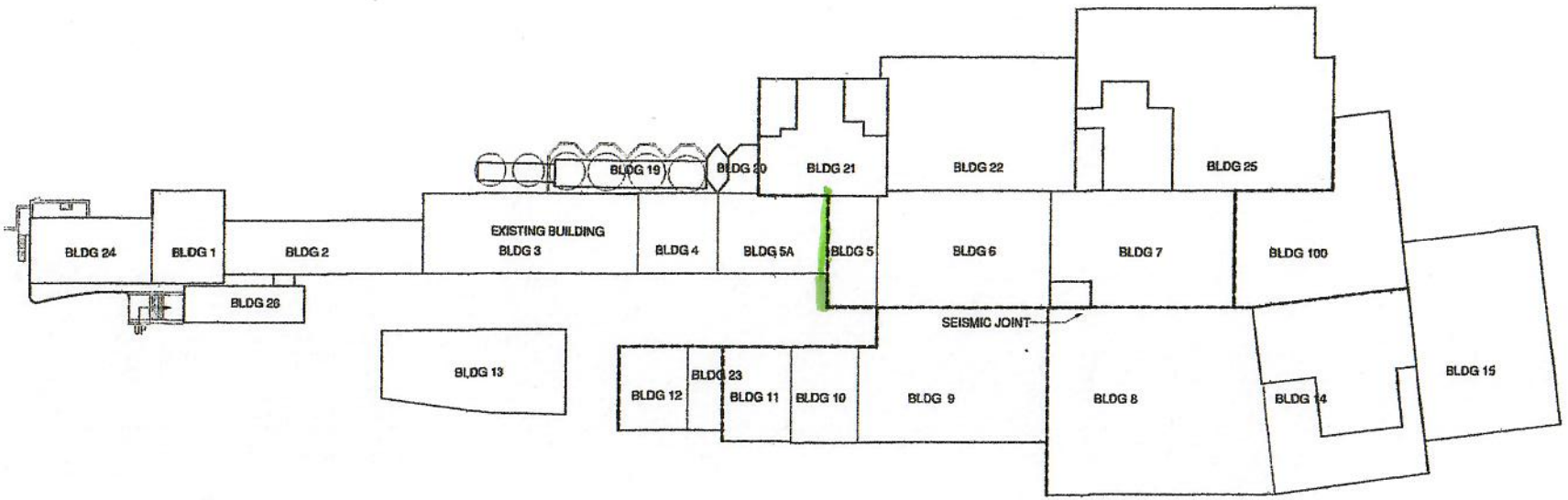


DESIGNED BY: AEM DRAWN BY: PJP SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98009 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	

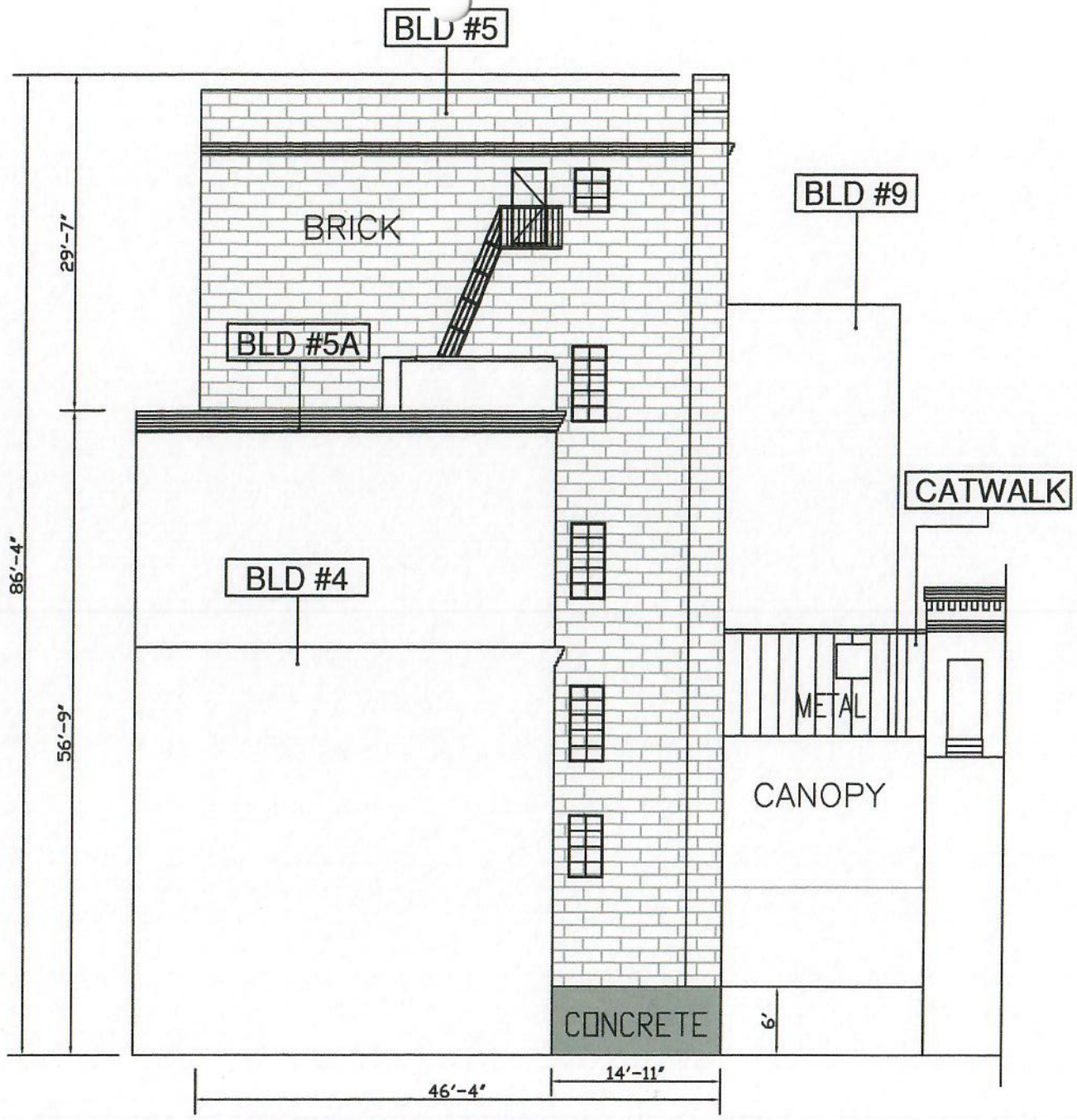
Phase 3 Set-up 6

Location:	Building 5 North Elevation
Stories:	Building 5 = 6
Material:	Brick
Square Feet:	1,899
Tenants:	Commercial
C/B Zone:	Yellow, Orange
Roof Drain:	Gutter to Downspout to Roof Below

Roof Protection: Re-route with Flex Pipe & Filters



BUILDING 5, NORTH ELEVATION



NORTH ELEVATION
BLDG 5

PHASE THREE, SETUP 6

BUILDING 5, 200 LEVEL

NORTHT ELEVATION

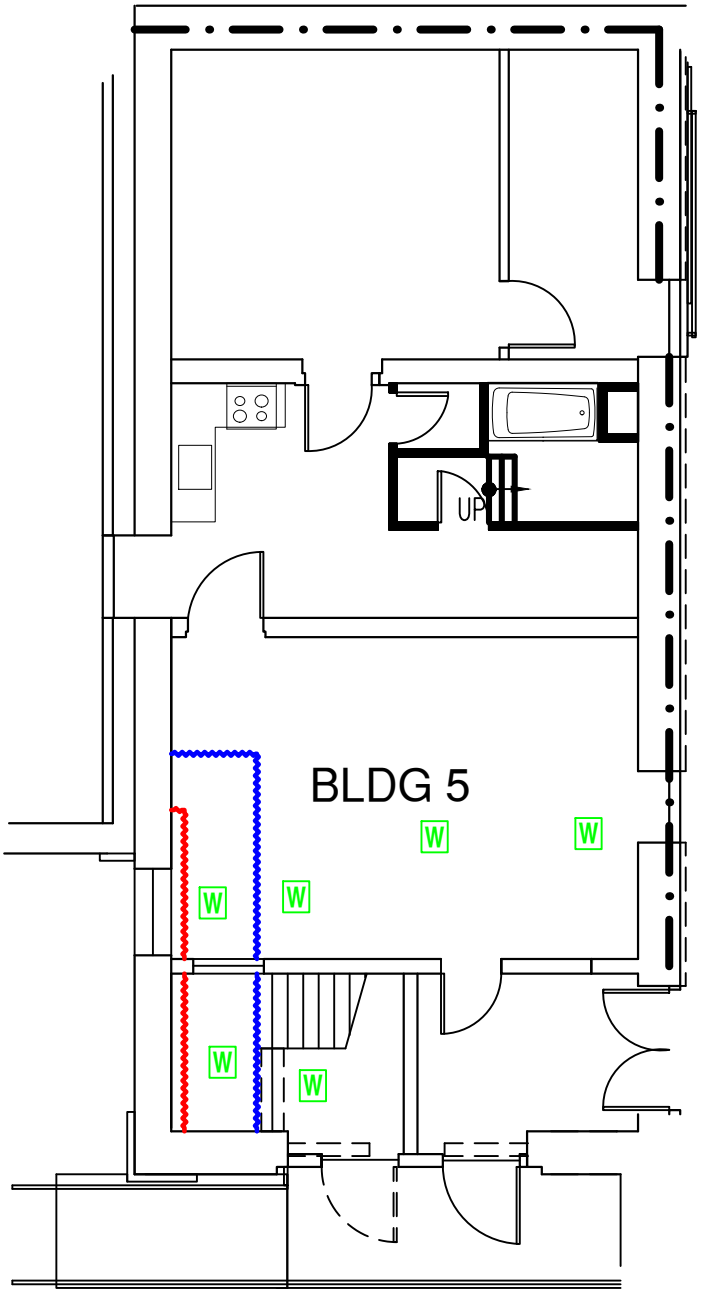
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 6

BUILDING 5, 300 LEVEL

NORTH ELEVATION

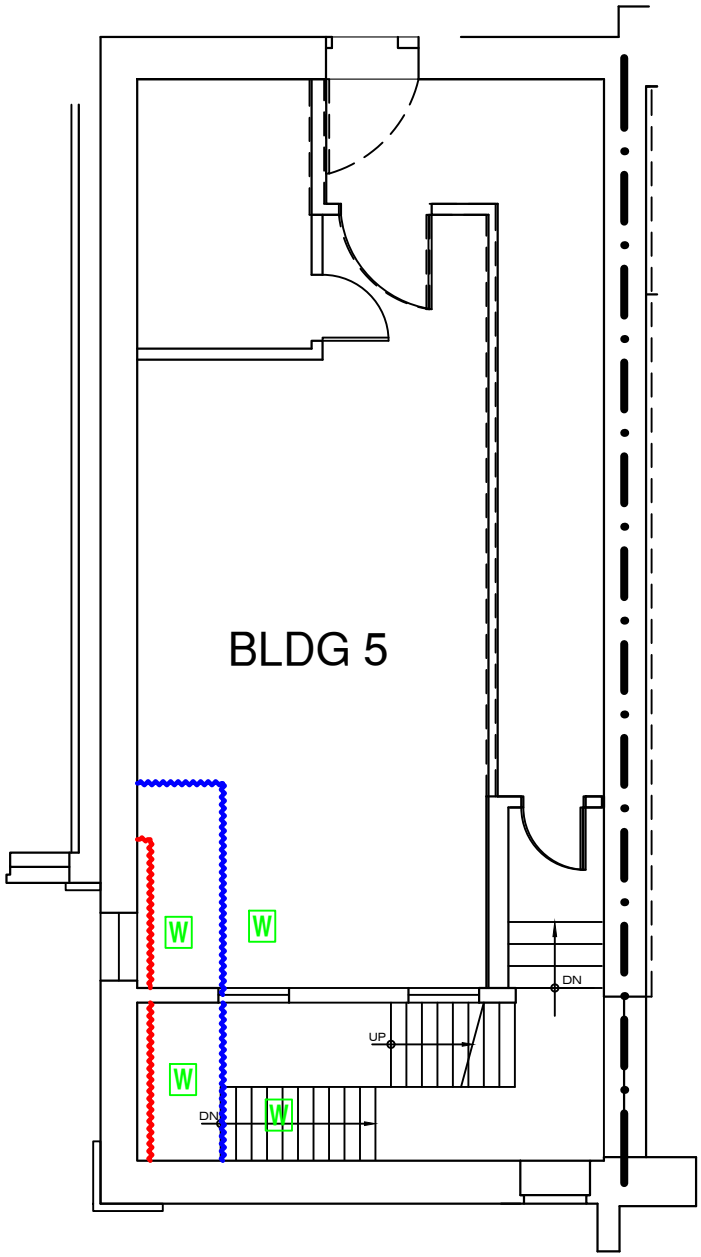
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 6

BUILDING 5, 400 LEVEL

NORTH ELEVATION

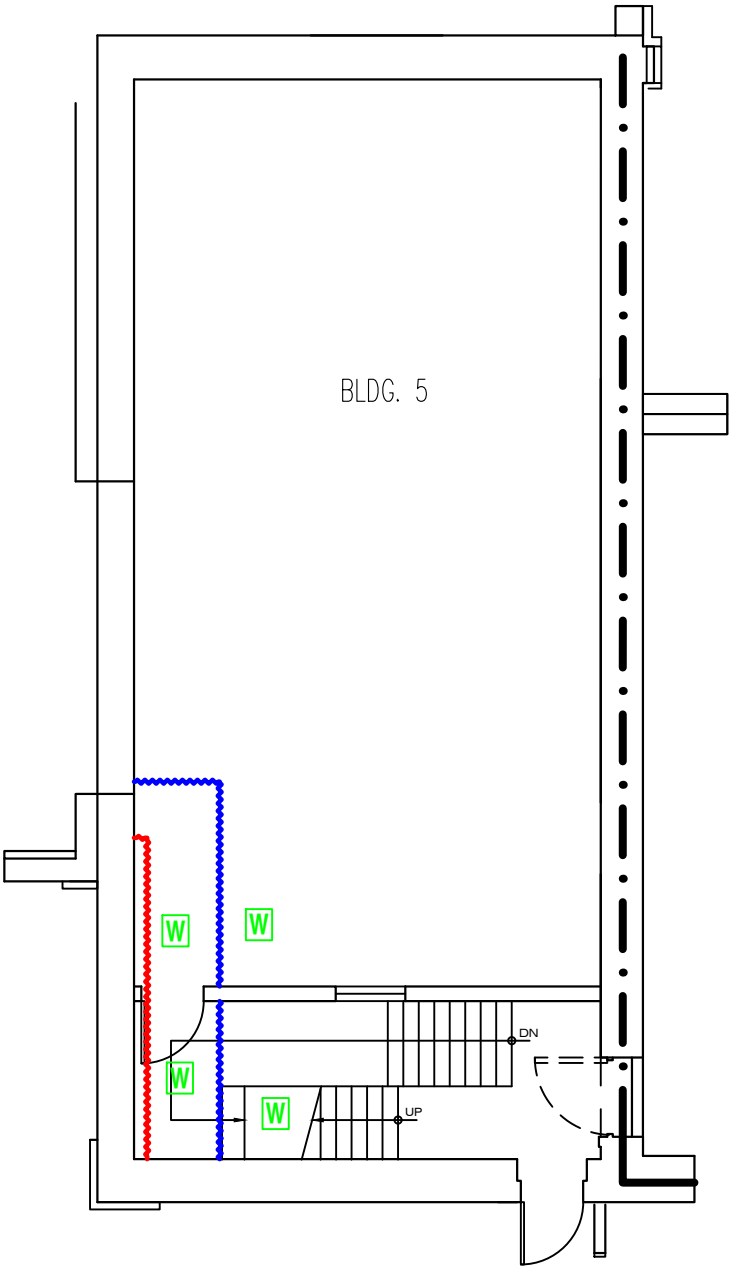
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 6

BUILDING 5, 500 LEVEL

NORTH ELEVATION

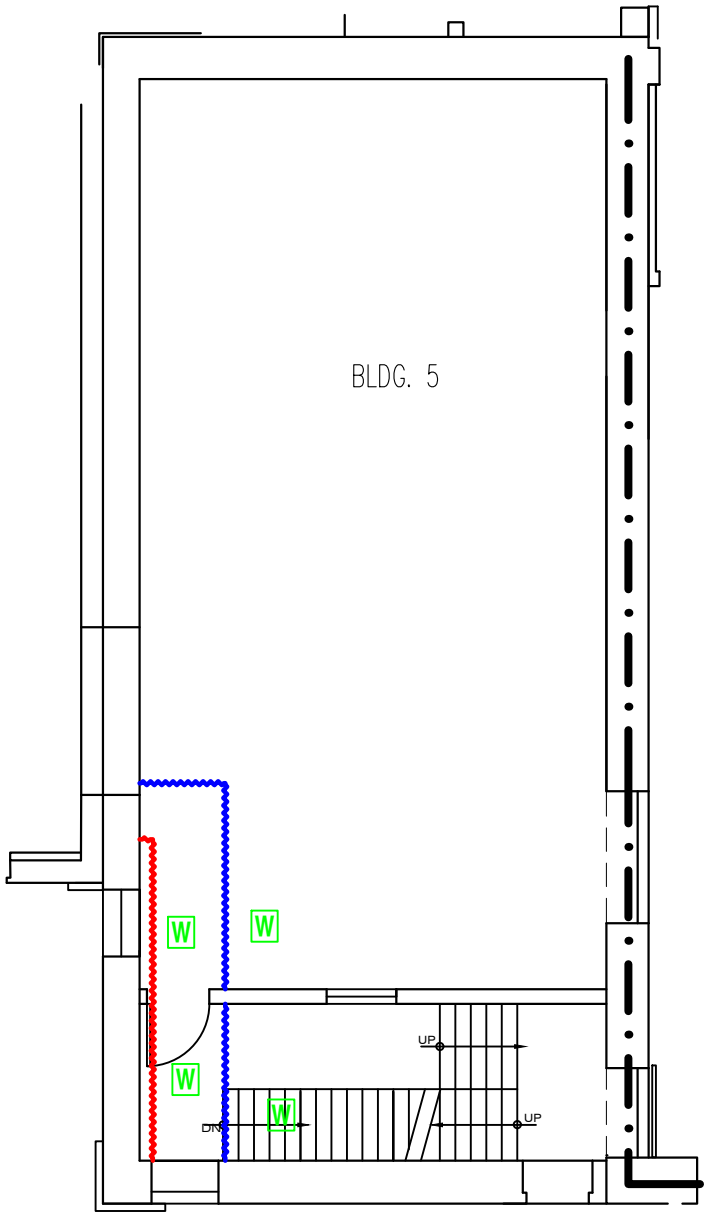
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 6

BUILDING 5, 600 LEVEL

NORTH ELEVATION

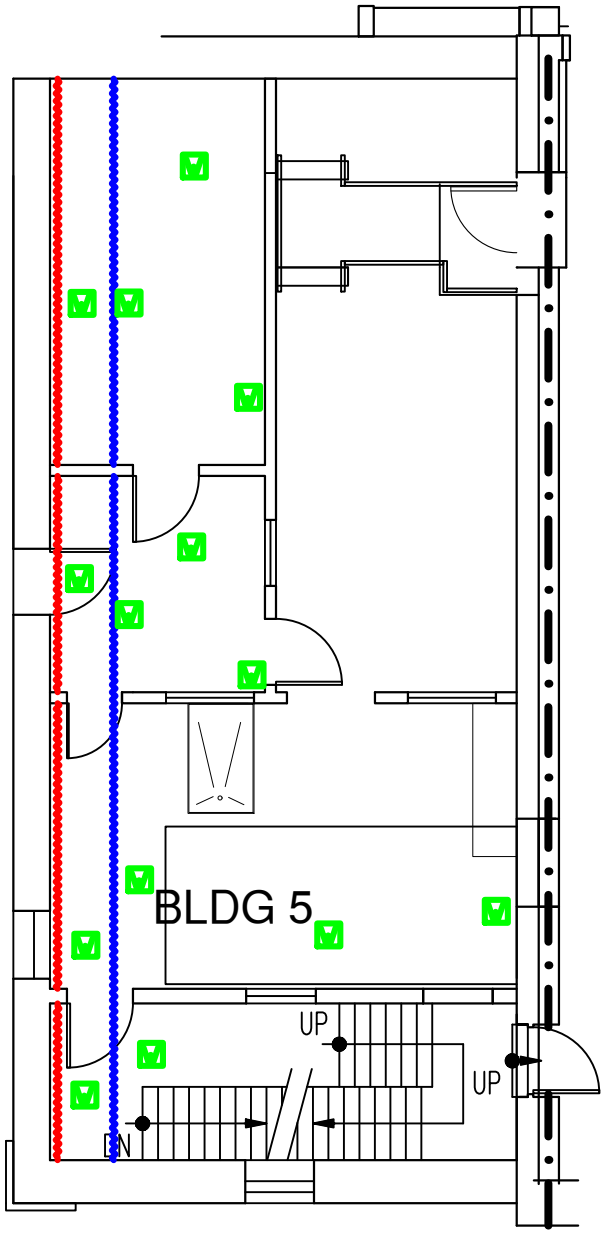
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 6

BUILDING 5, 700 LEVEL

NORTH ELEVATION

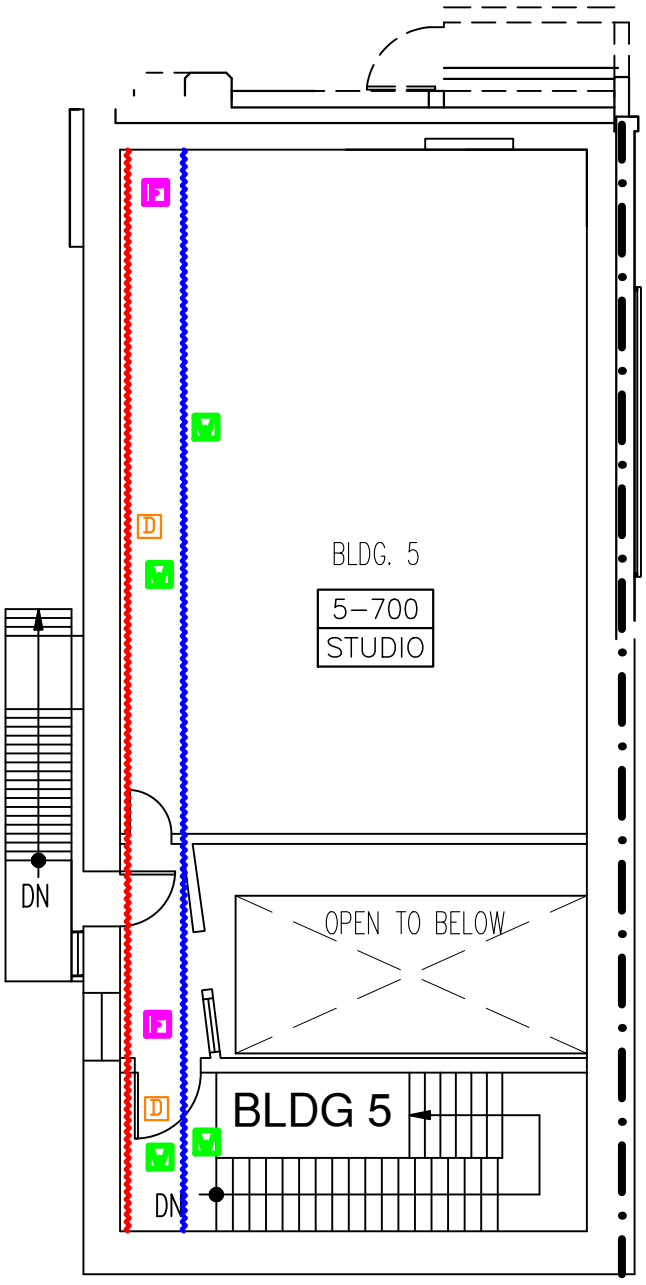
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

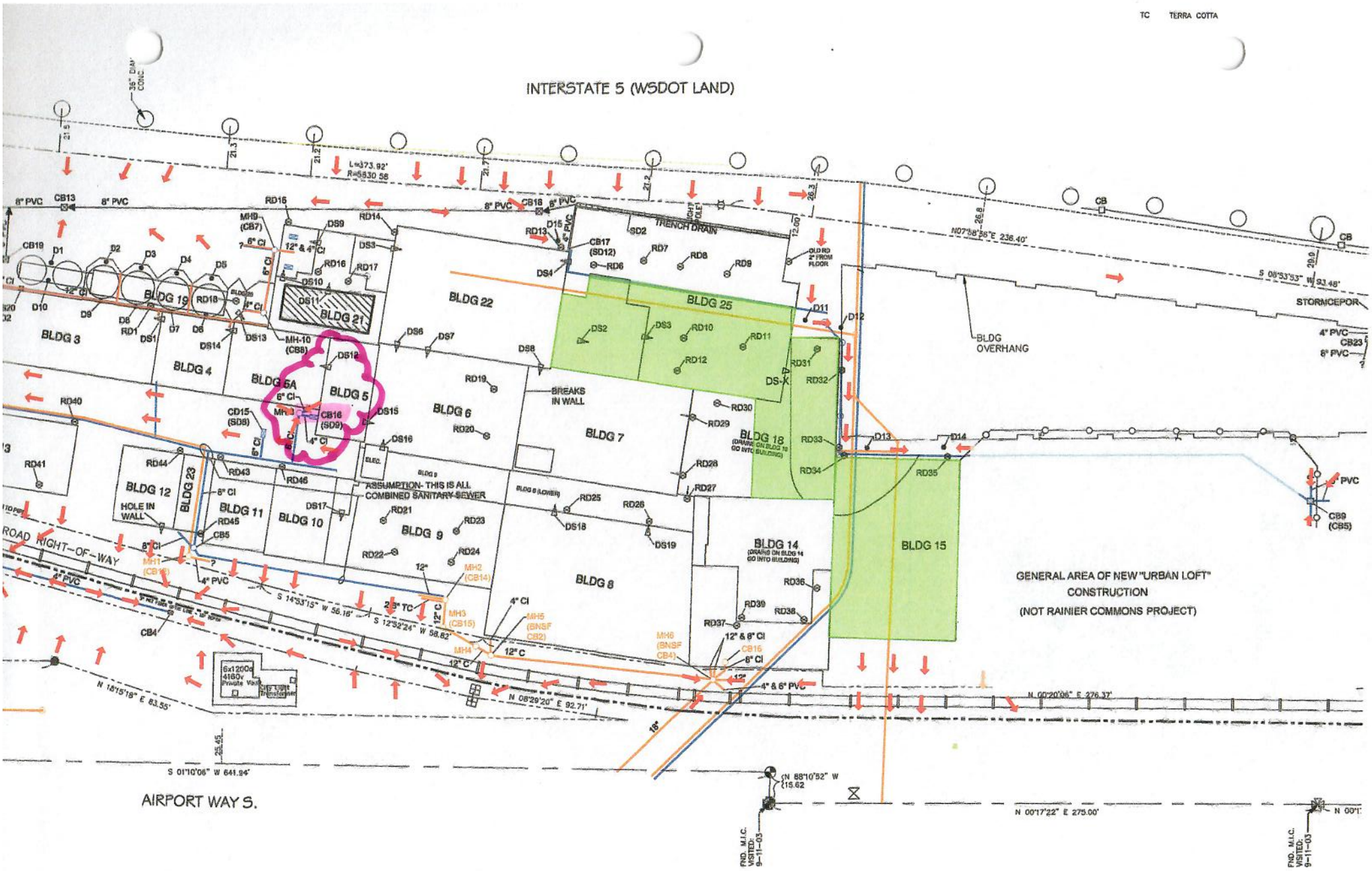
OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



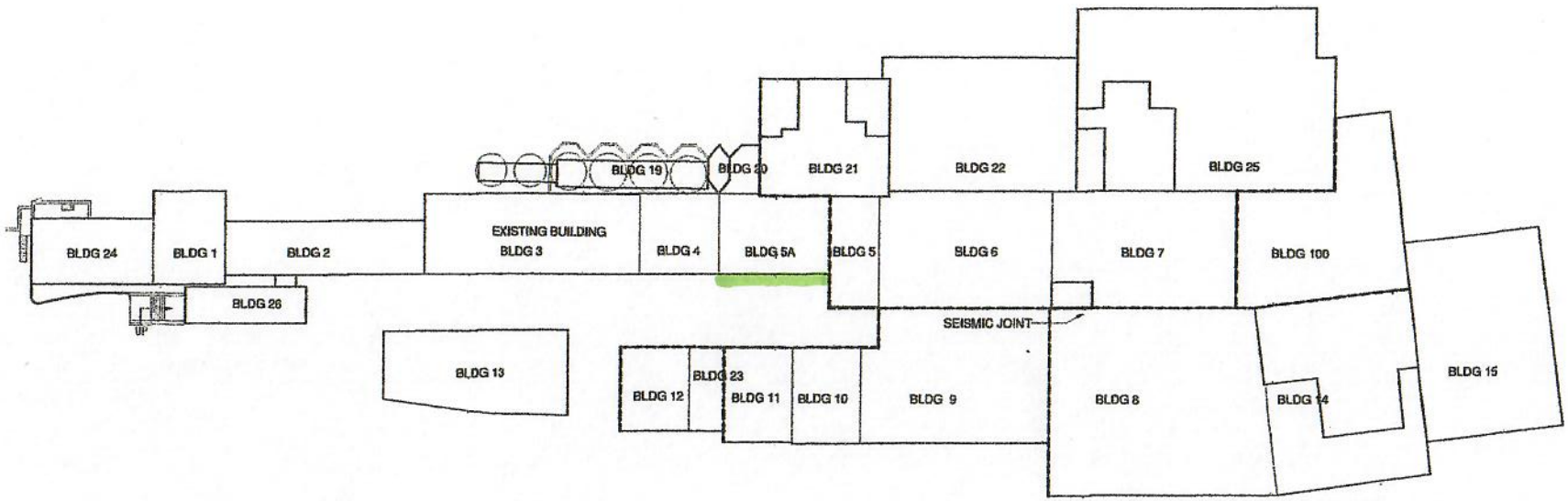


DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	PROJECT N FILE NAME.

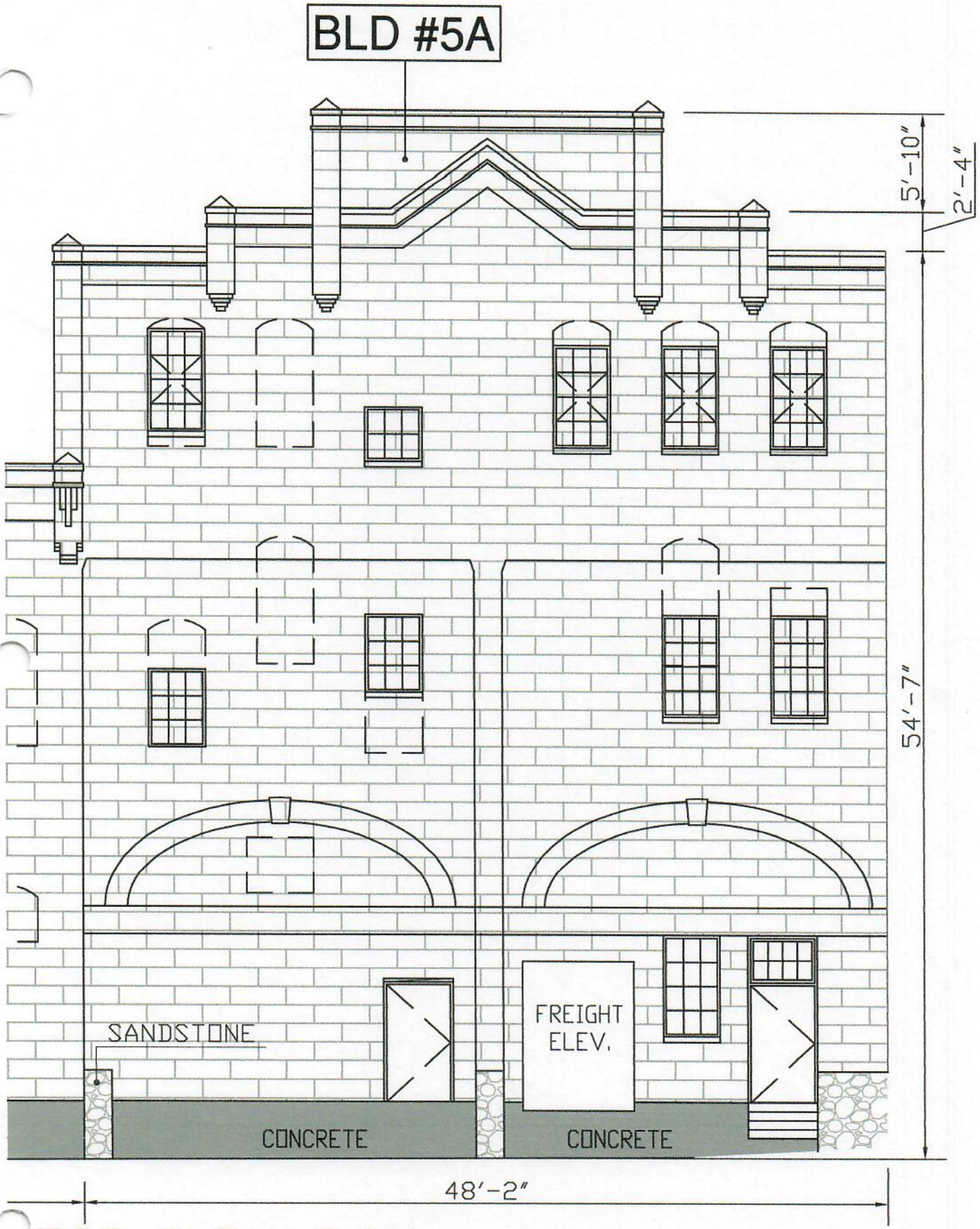
Phase 3 Set-up 7

Location:	Building 5A West Elevation
Stories:	Building 5A = 4
Material:	Brick
Square Feet:	2,829
Tenants:	Commercial
C/B Zone:	Orange
Roof Drain:	None

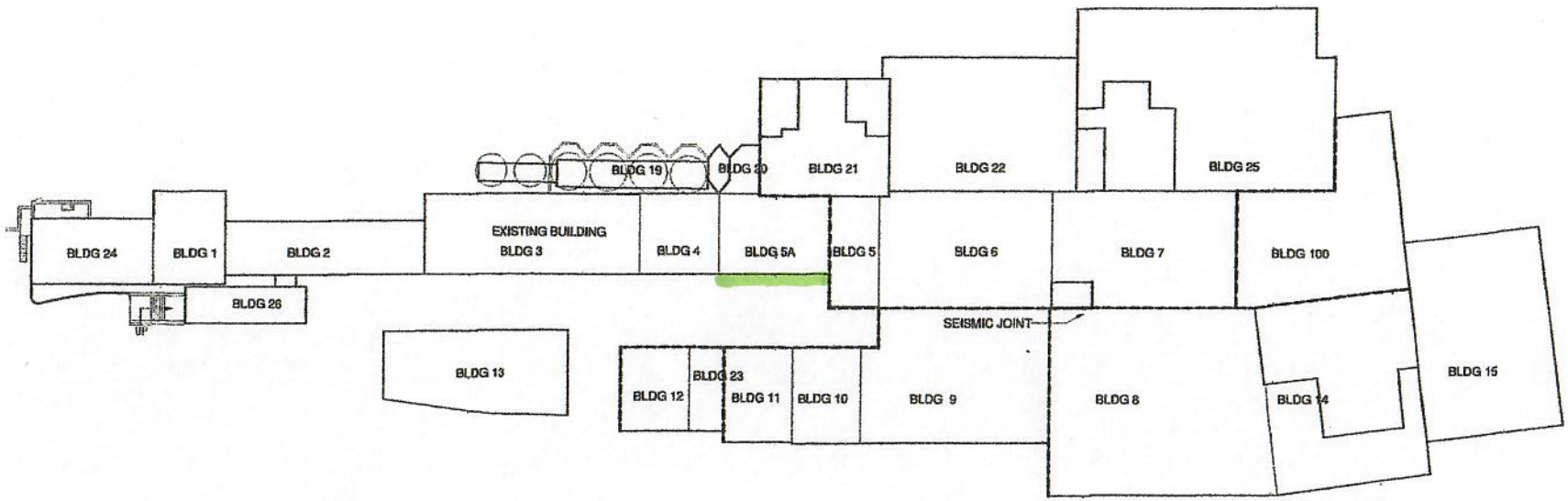
Roof Protection: Special Protection Not Required



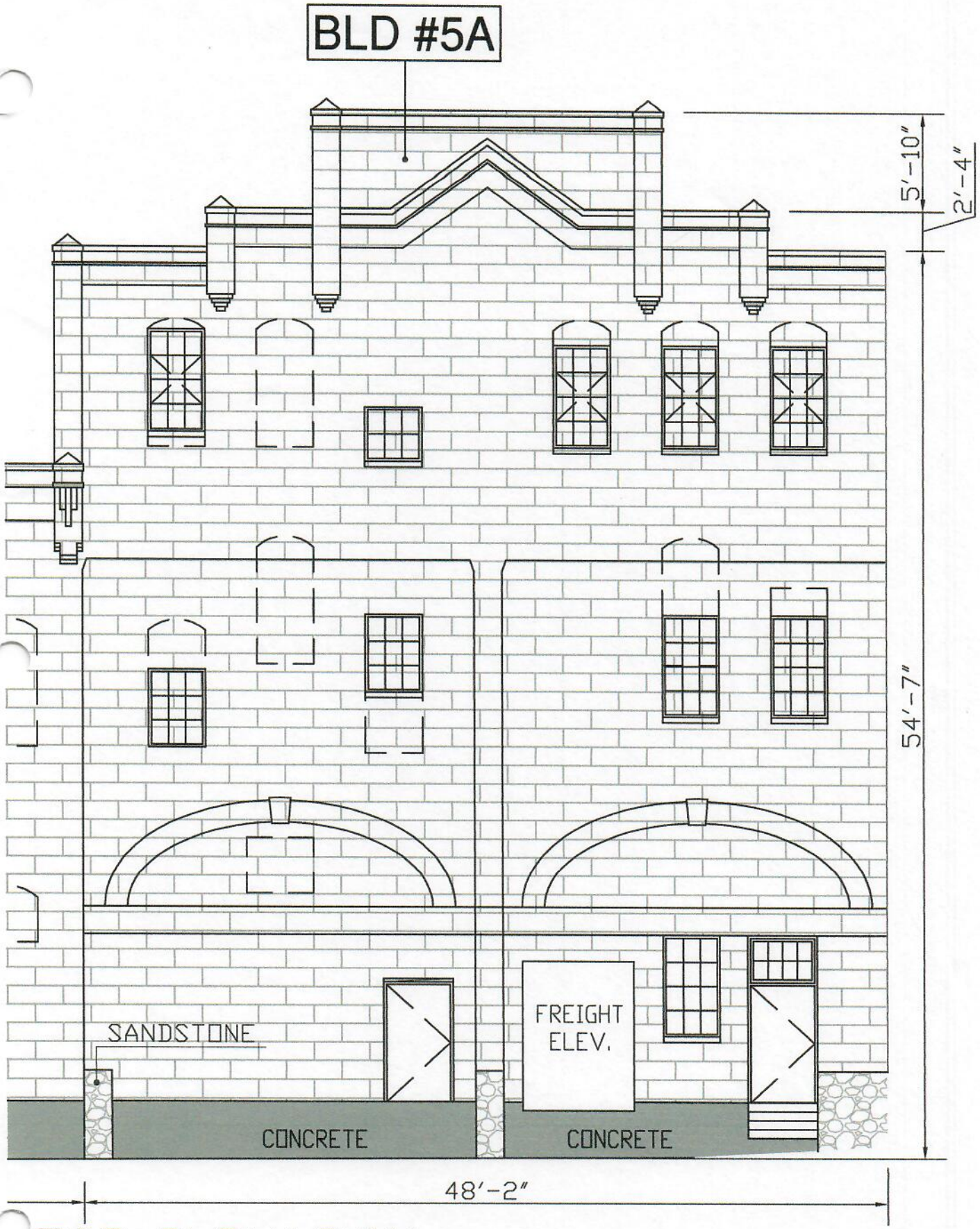
BUILDING 5A, WEST ELEVATION



WEST ELEVATION
BLDG 4, 5A



BUILDING 5A, WEST ELEVATION



WEST ELEVATION
BLDG 4, 5A

PHASE THREE, SETUP 7

BUILDING 5A, 200 LEVEL

WEST ELEVATION

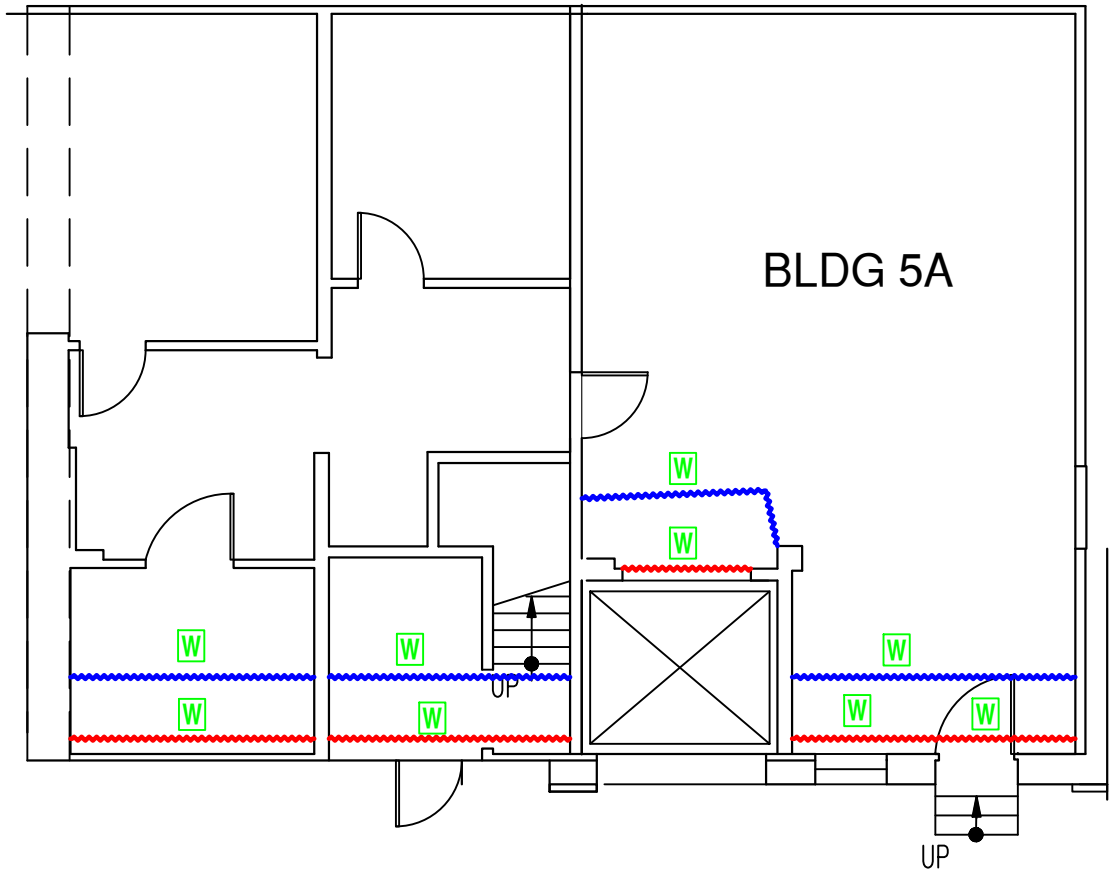
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 7

BUILDING 5A, 300 LEVEL

WEST ELEVATION

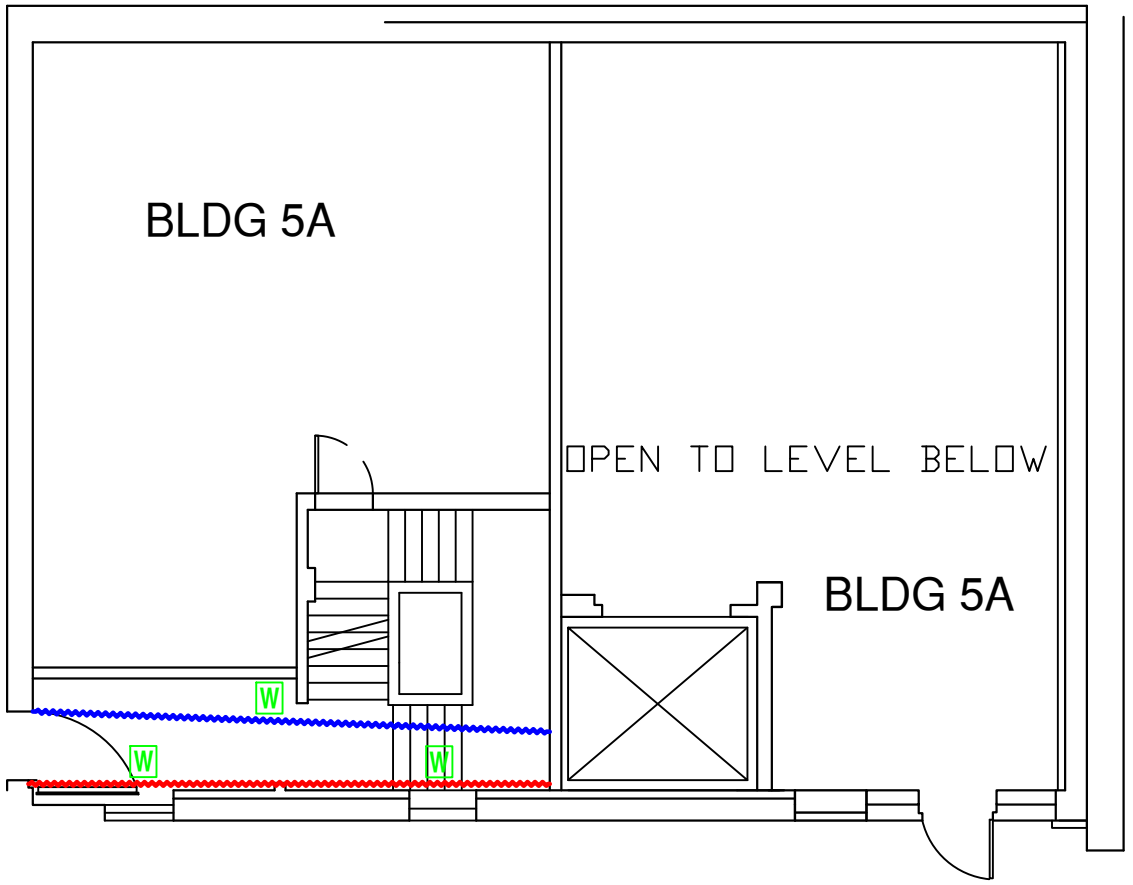
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 7

BUILDING 5A, 400 LEVEL

WEST ELEVATION

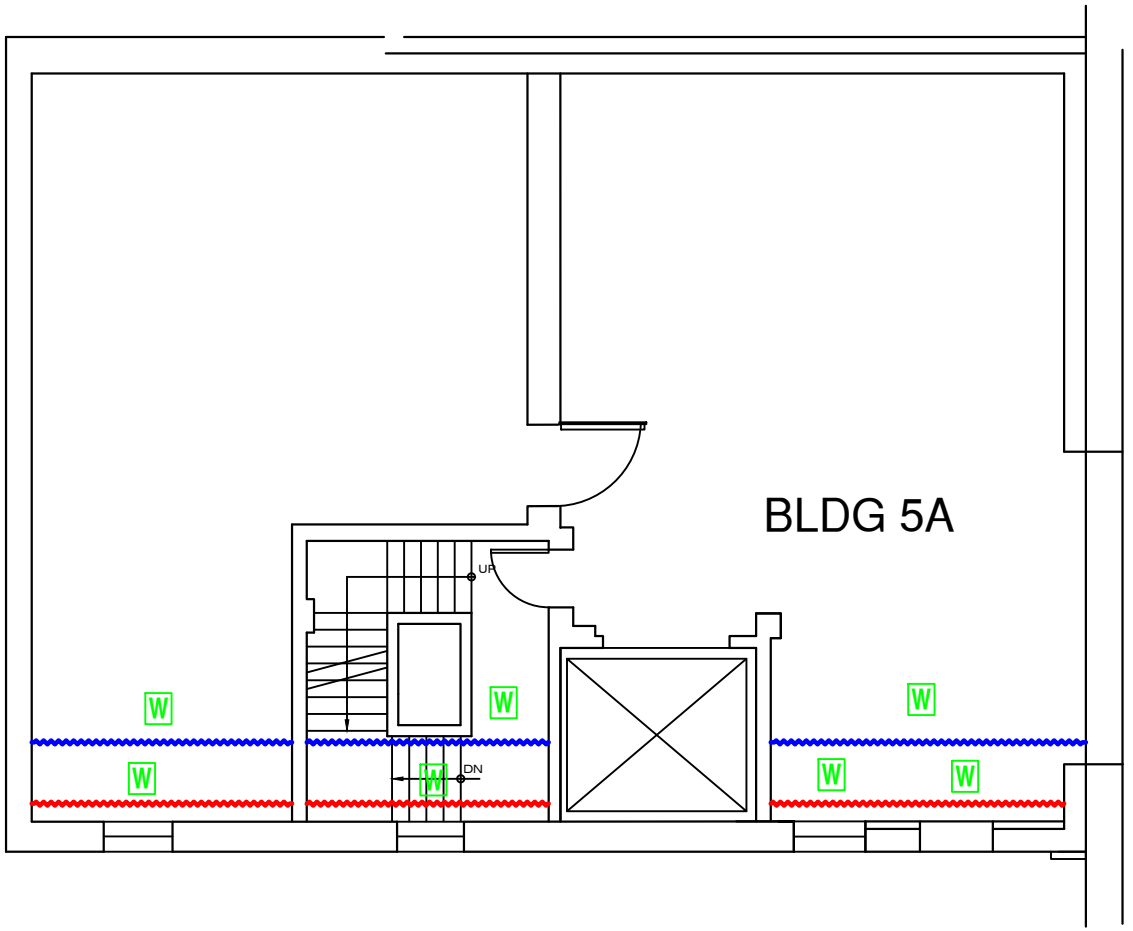
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 7

BUILDING 5A, 500 LEVEL

WEST ELEVATION

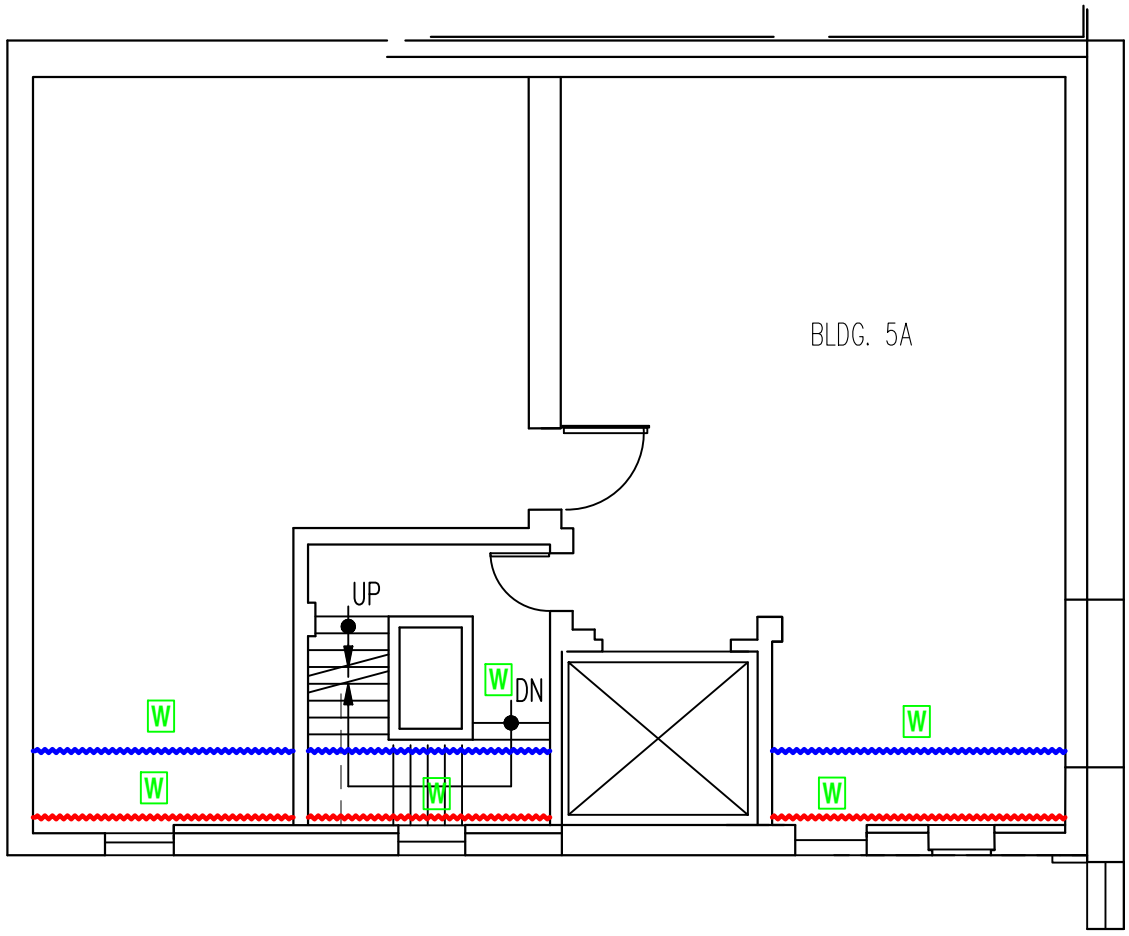
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

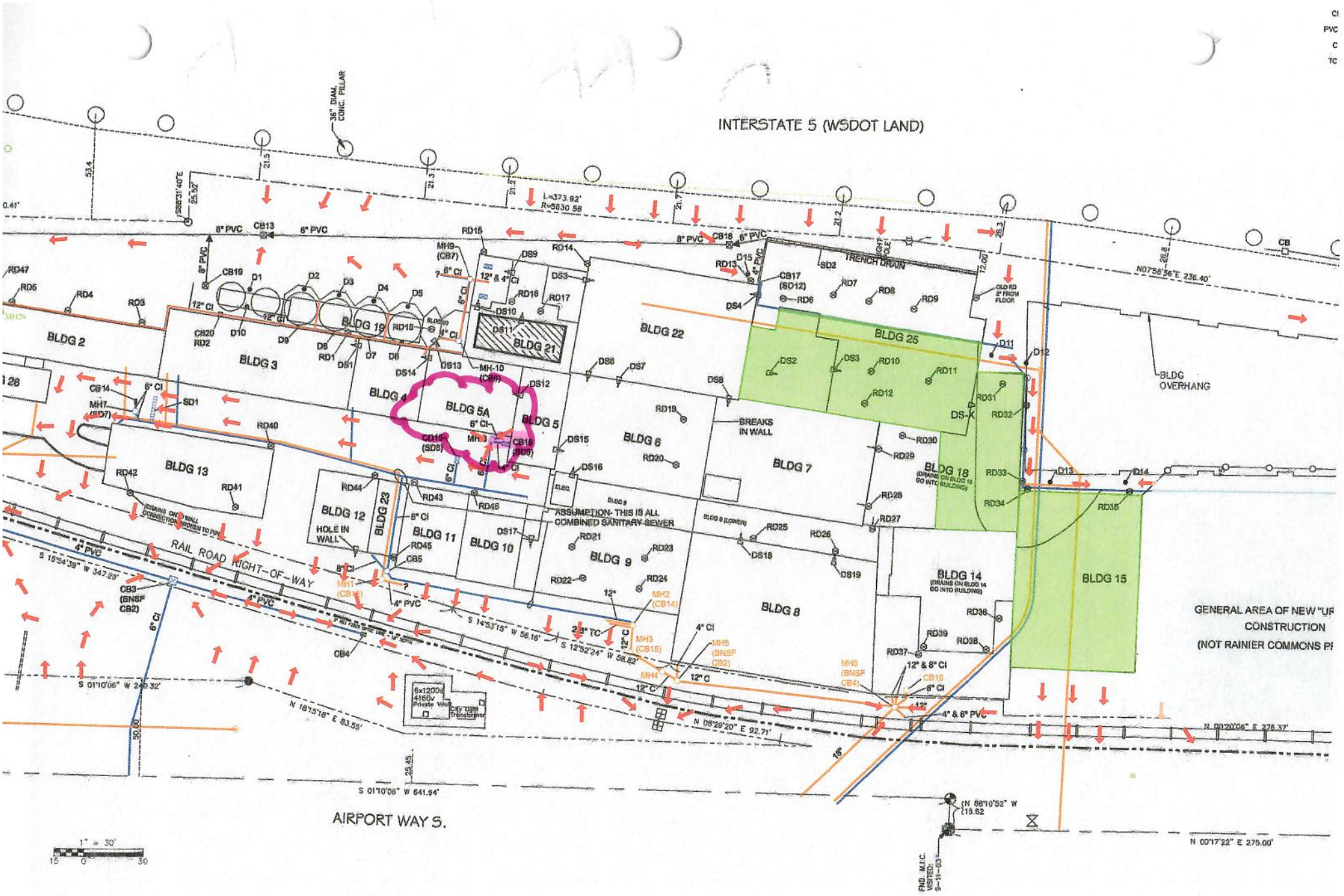
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)





ER DRAINAGE FLOW MAP
OUTH OF BLDG 25 (D11-D14)
H OF BLDG 25 (D15)

REMARKS

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st Street, Suite 201, P.O. Box 3885
Bellevue, Washington 98005
Tel: (425) 453-8383
consulting • engineering • construction • operations

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

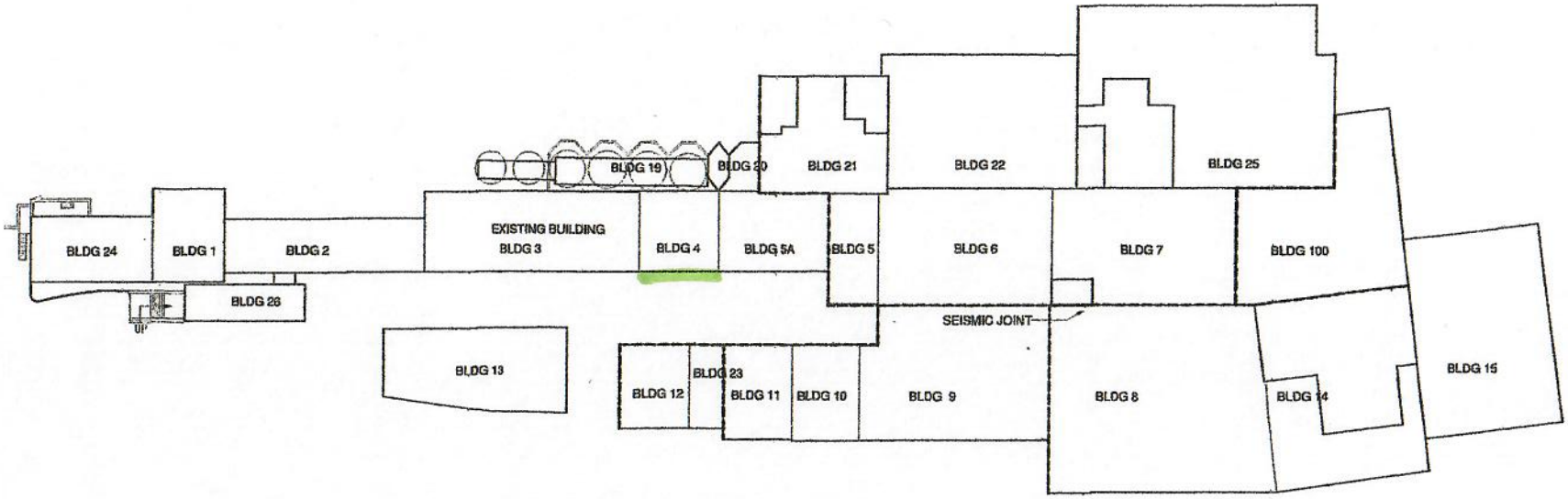
CATCH BASIN STUDY

CATCH BASIN LOCA
PLAN

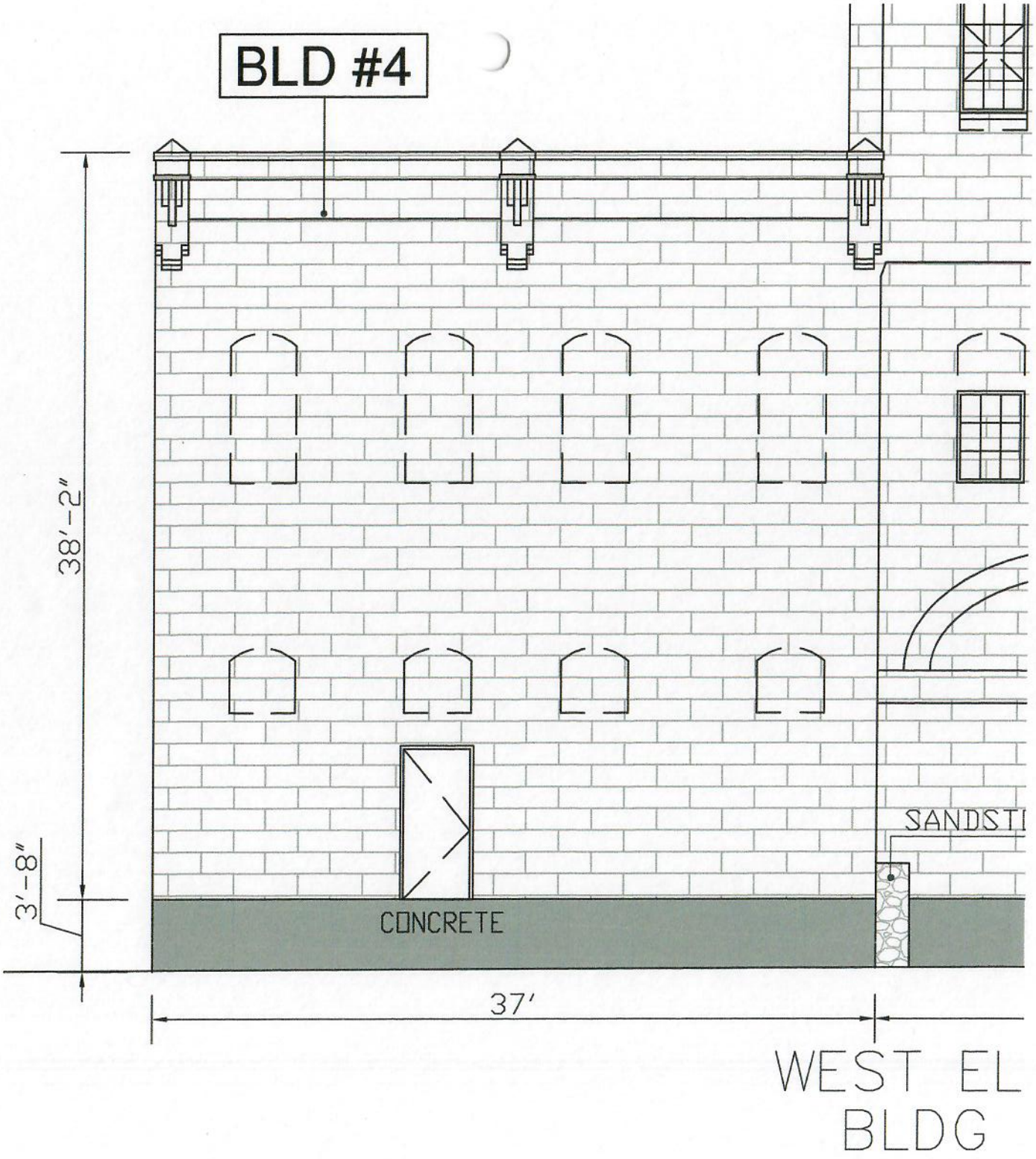
Phase 3 Set-up 8

Location:	Building 4 West Elevation
Stories:	Building 4 = 2
Material:	Brick
Square Feet:	1,453
Tenants:	Commercial
C/B Zone:	Orange
Roof Drain:	None

Roof Protection: Special Protection Not Required



BUILDING 4, WEST ELEVATION


BLD #4
38'-2"
3'-8"
CONCRETE
SANDSTI
37'
WEST EL
BLDG

PHASE THREE, SETUP 8

BUILDING 4, 200 LEVEL

WEST ELEVATION

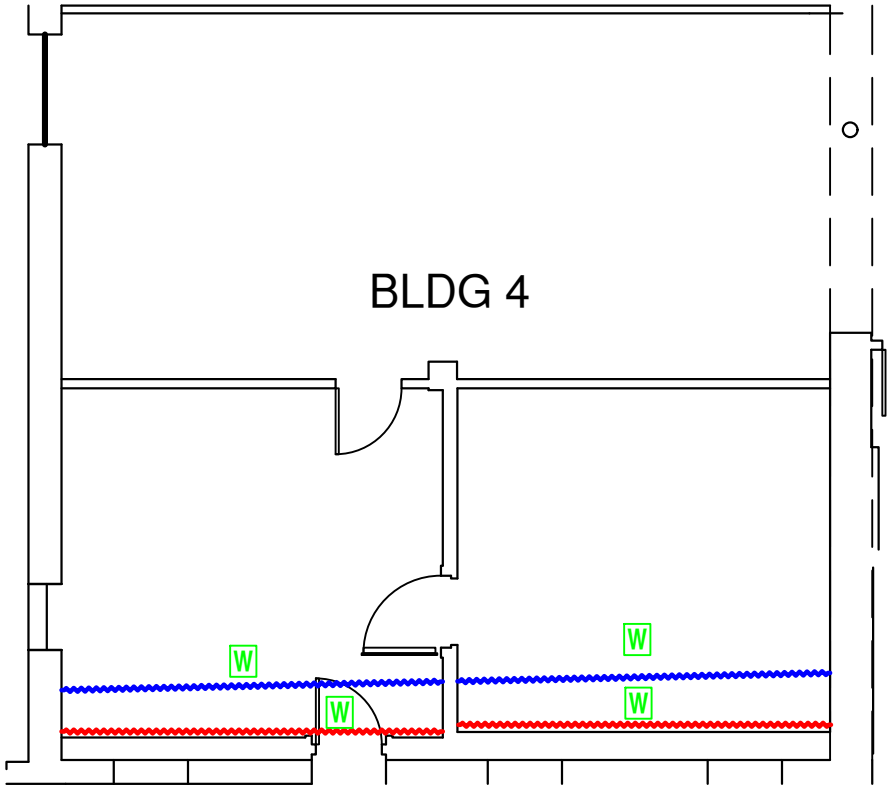
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 8

BUILDING 4, 300 LEVEL

WEST ELEVATION

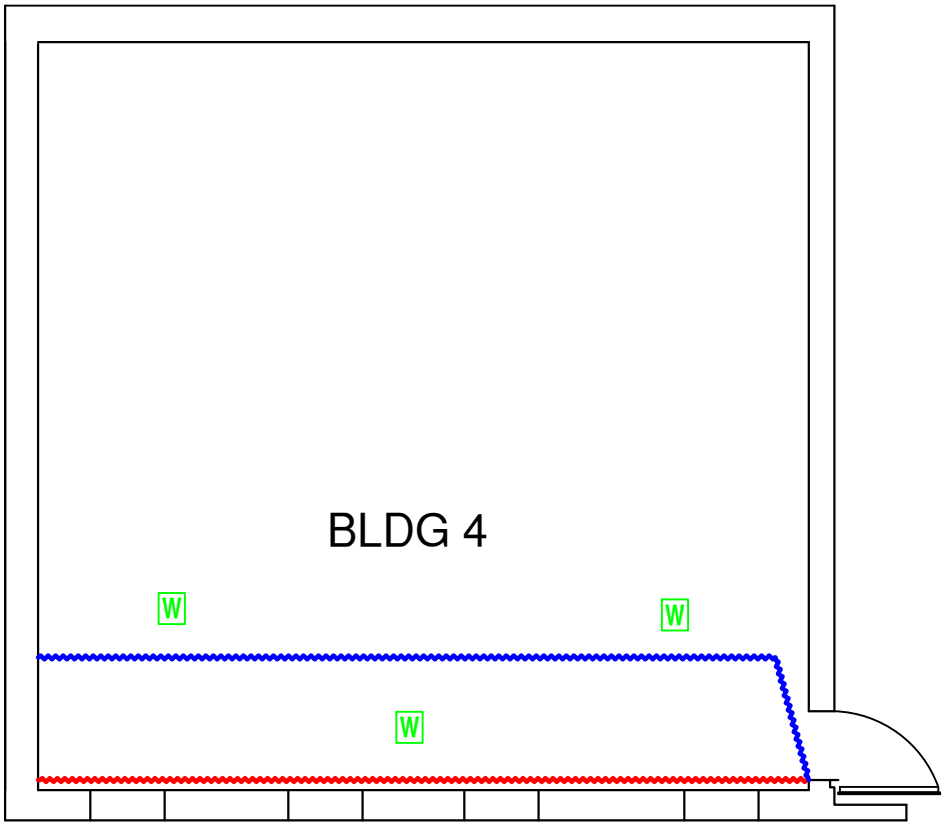
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

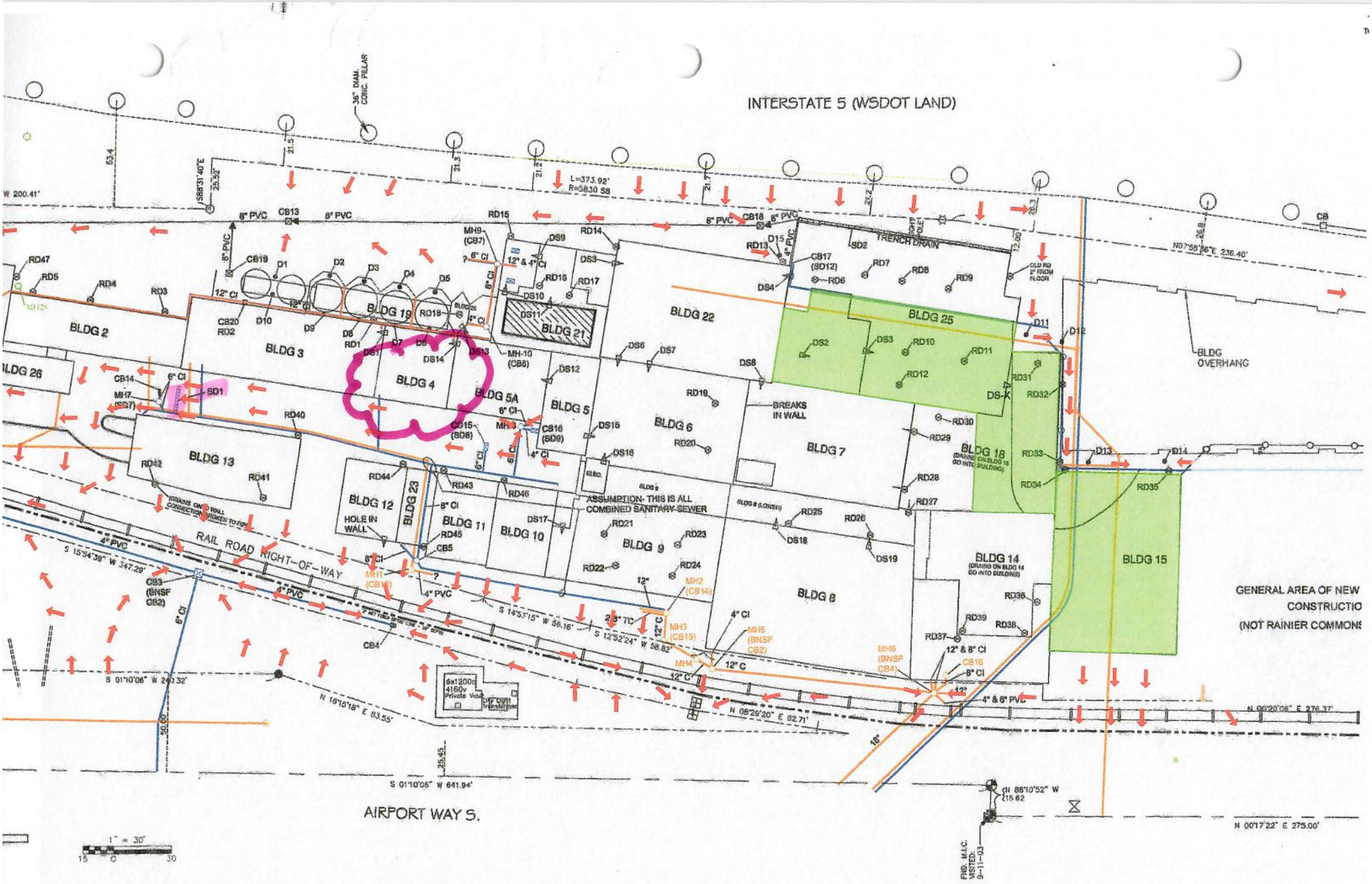
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)





CE WATER DRAINAGE FLOW MAP
ATED SOUTH OF BLDG 25 (D11-D14)
NORTH OF BLDG 25 (D15)

REMARKS

DESIGNED BY:	AEM
DRAWN BY:	PJR
SHEET CHK'D BY:	PJM
CROSS CHK'D BY:	
APPROVED BY:	
DATE:	JANUARY 2009

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VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

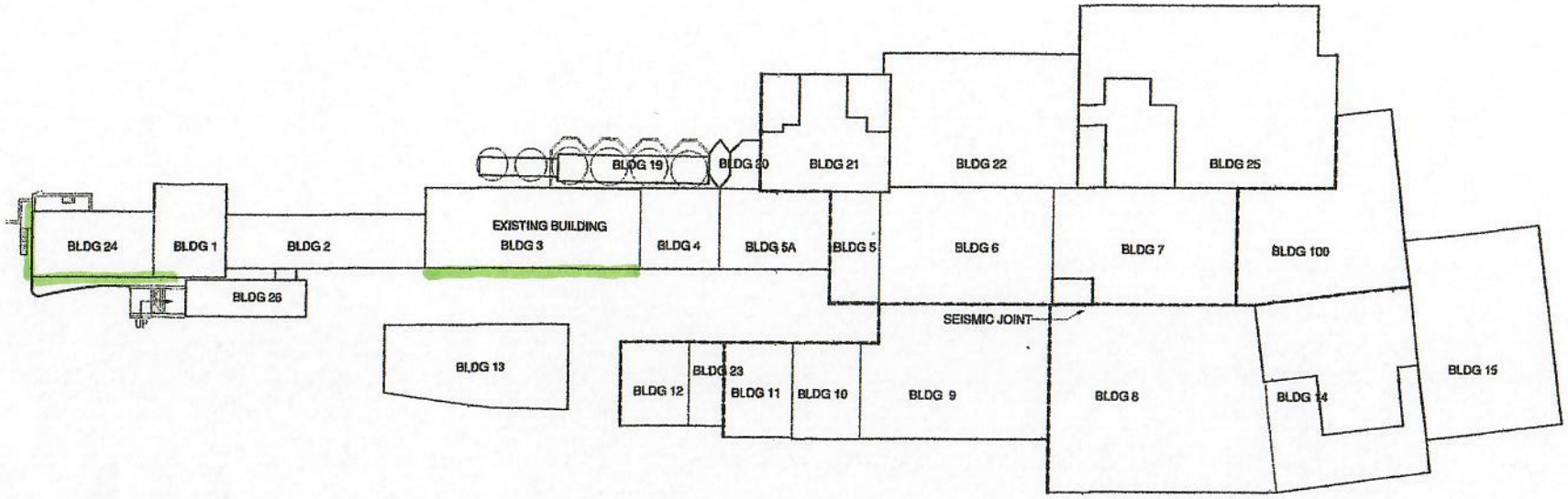
CATCH BASIN STUDY

CATCH BASIN LO
PLAN

Phase 3 Set-up 9

Location:	Building 3 West Elevation, Building 24 West & North Foundation
Stories:	Building 3 = 1 Building 24 = Foundation Only
Material:	Building 3 = Concrete Building 24 = Foundation Concrete
Square Feet:	2,879
Tenants:	Commercial
C/B Zone:	Yellow, Blue
Roof Drain:	None

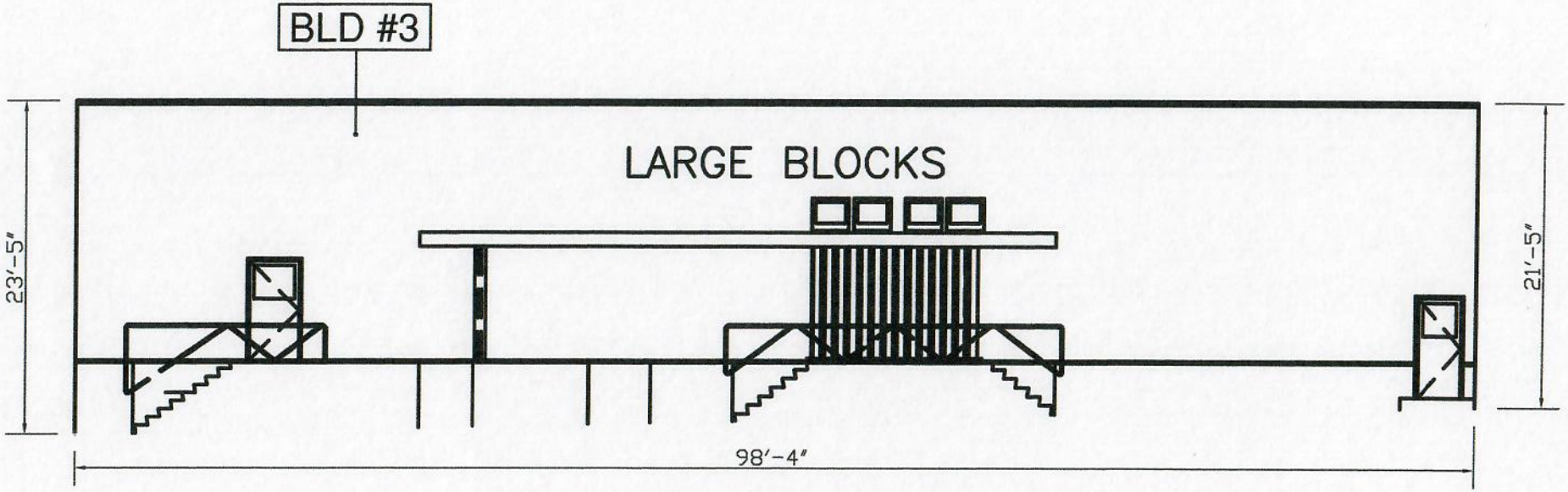
Roof Protection: Special Protection Not Required



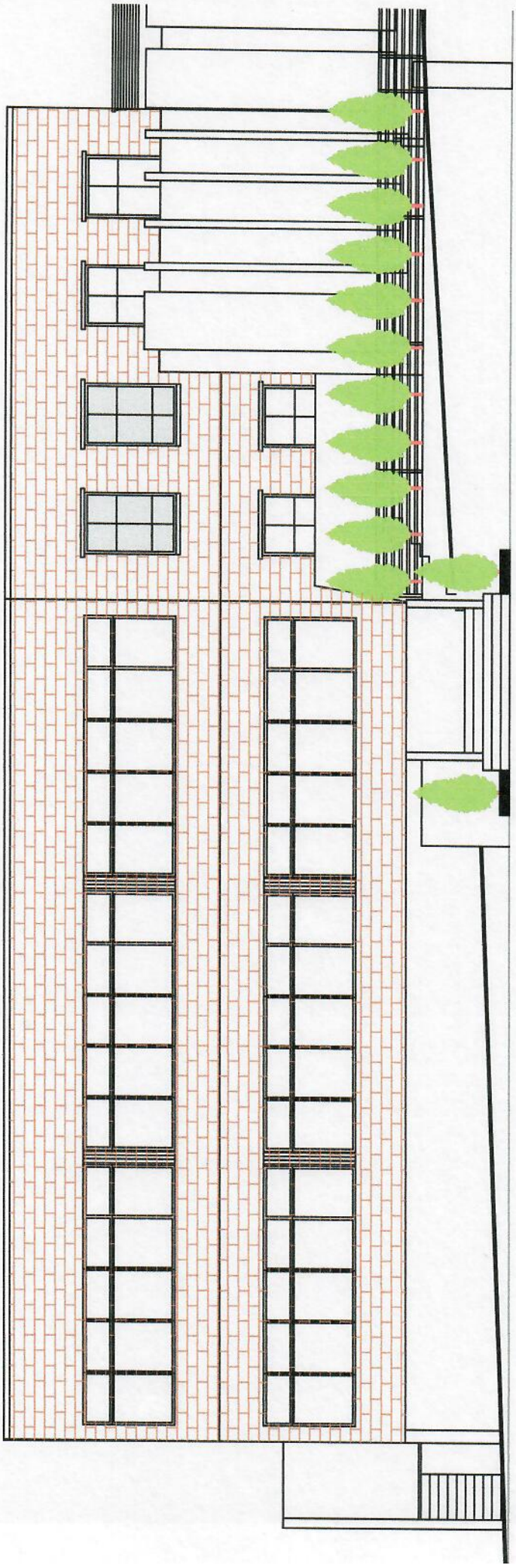
BUILDING 3, WEST ELEVATION

BUILDING 24, NORTH FOUNDATION

BUILDING 24, WEST FOUNDATION



WEST ELEVATION
BLDG 3




BLD #1
BLD #24
BLD #

PHASE THREE, SETUP 9

BUILDING 3, 200 LEVEL

WEST ELEVATION

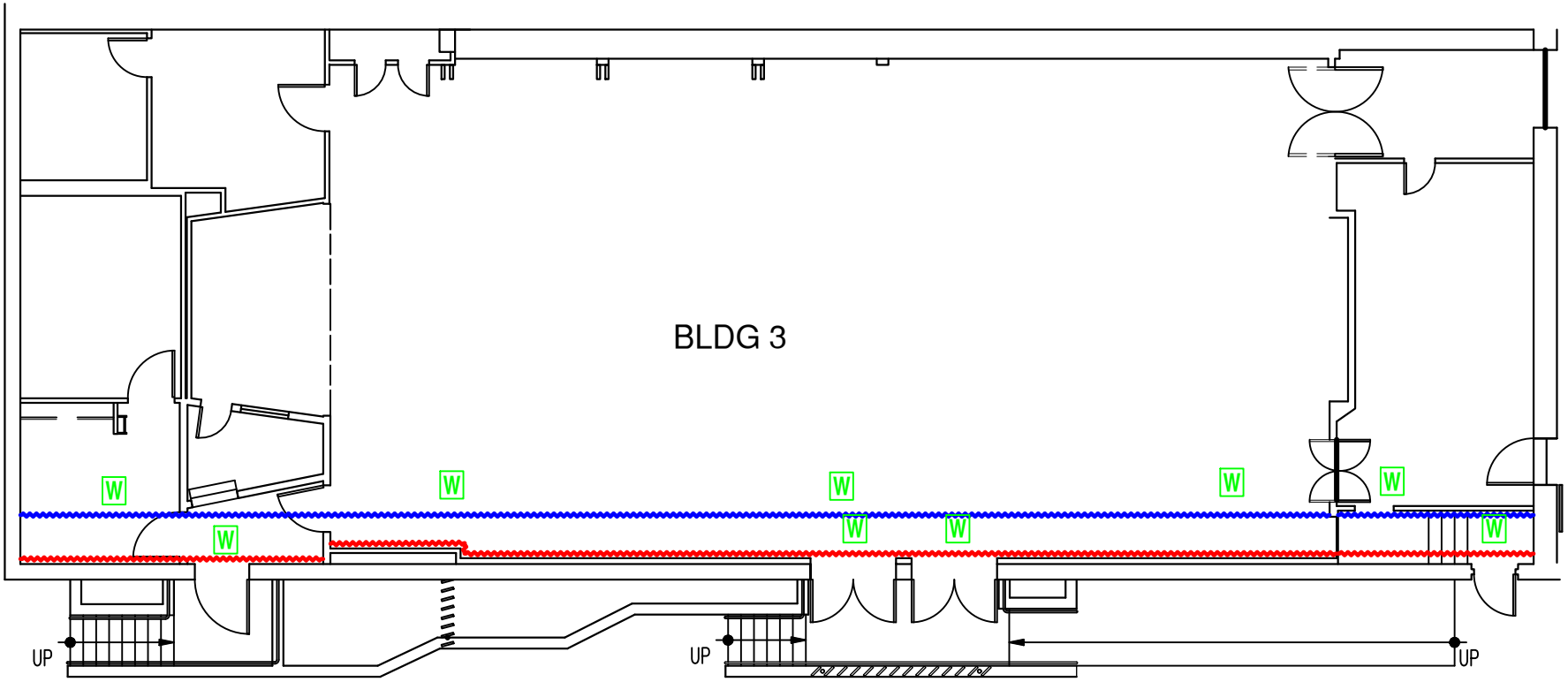
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 9

BUILDING 24, BASEMENT LEVEL

NORTH & WEST ELEVATIONS

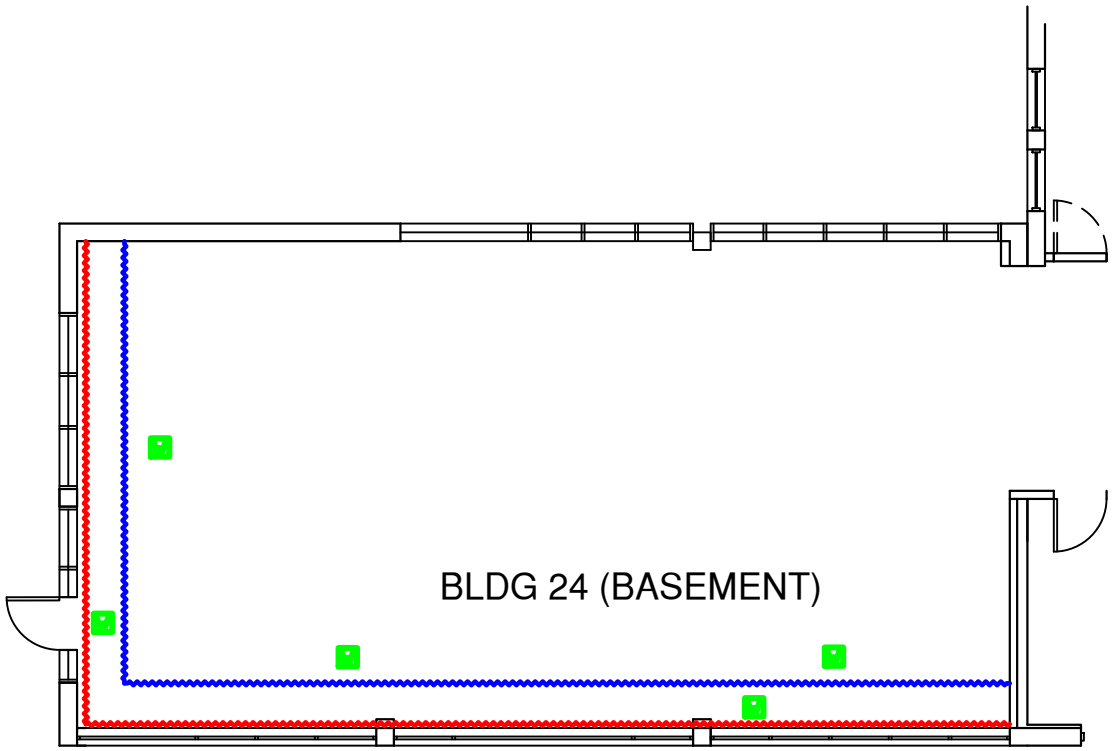
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

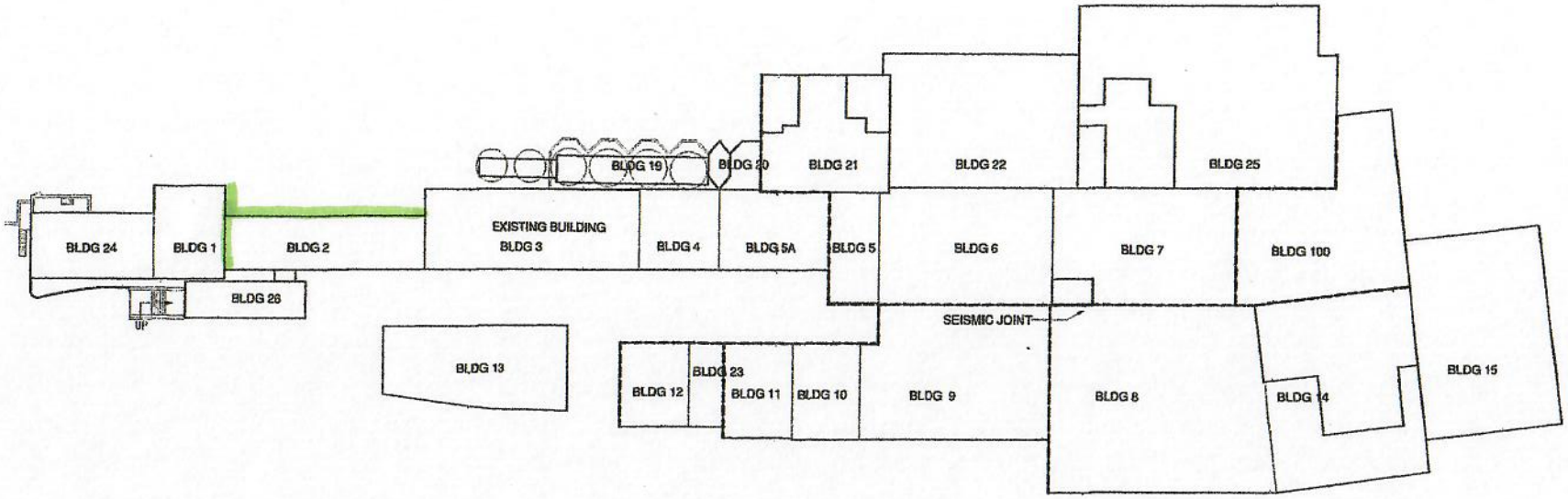
10'-0" (REF)



Phase 3 Set-up 10

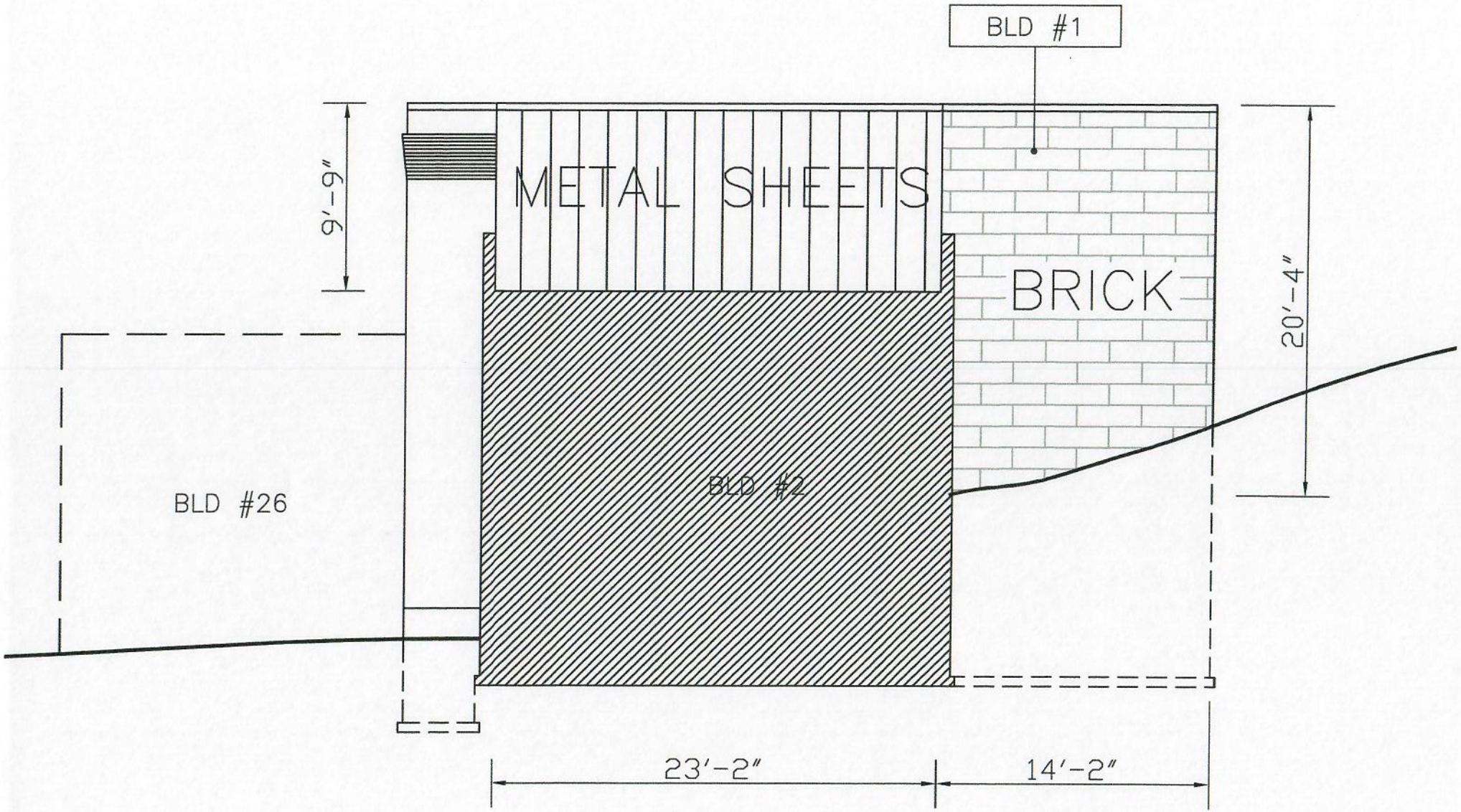
Location:	Building 1 South Elevation Building 2 East Elevation
Stories:	Building 1 = Top Floor Only Building 2 = 1
Material:	Brick
Square Feet:	1,478
Tenants:	Commercial
C/B Zone:	Purple
Roof Drain:	(4) Scupper to downspout, tied to storm

Roof Protection: Re-route w/ Flex Pipe & Filters to CB-22

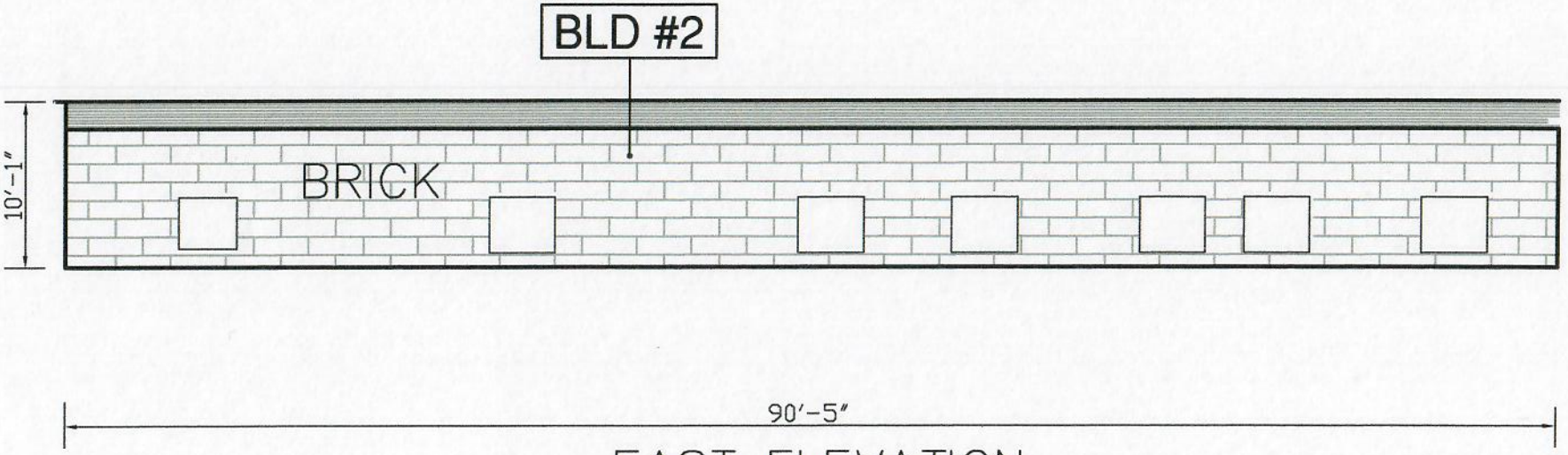


BUILDING 1, SOUTH ELEVATION

BUILDING 2, EAST ELEVATION



SOUTH ELEVATION
BLDG 1



EAST ELEVATION
BLDG 2

PHASE THREE, SETUP 10

BUILDING 1, 200 LEVEL

SOUTH ELEVATION

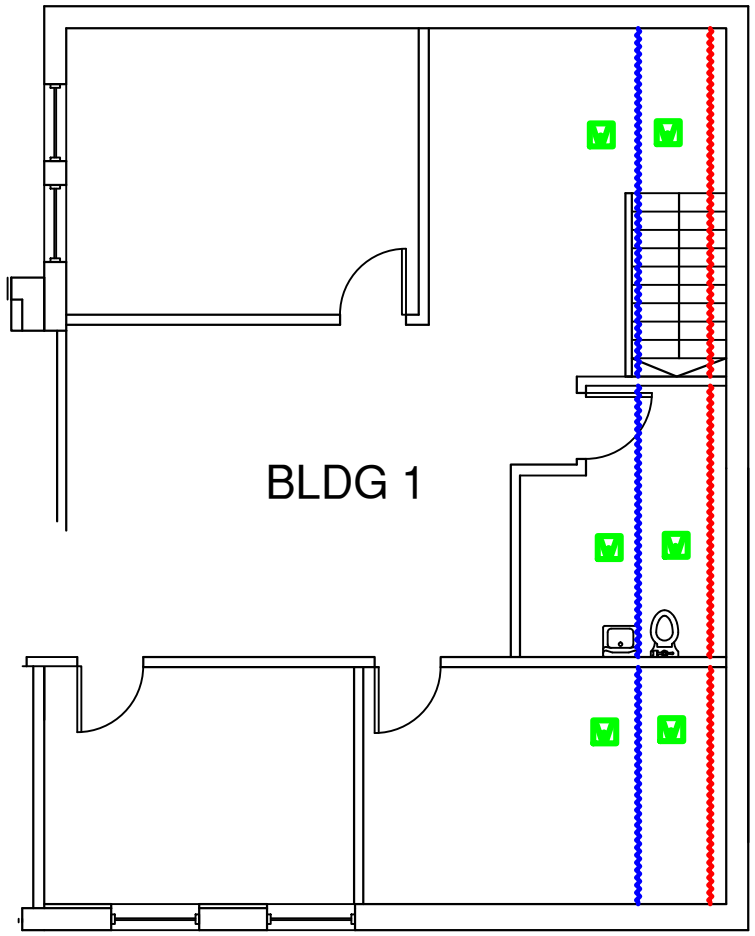
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 10

BUILDING 2, 200 LEVEL

EAST ELEVATION

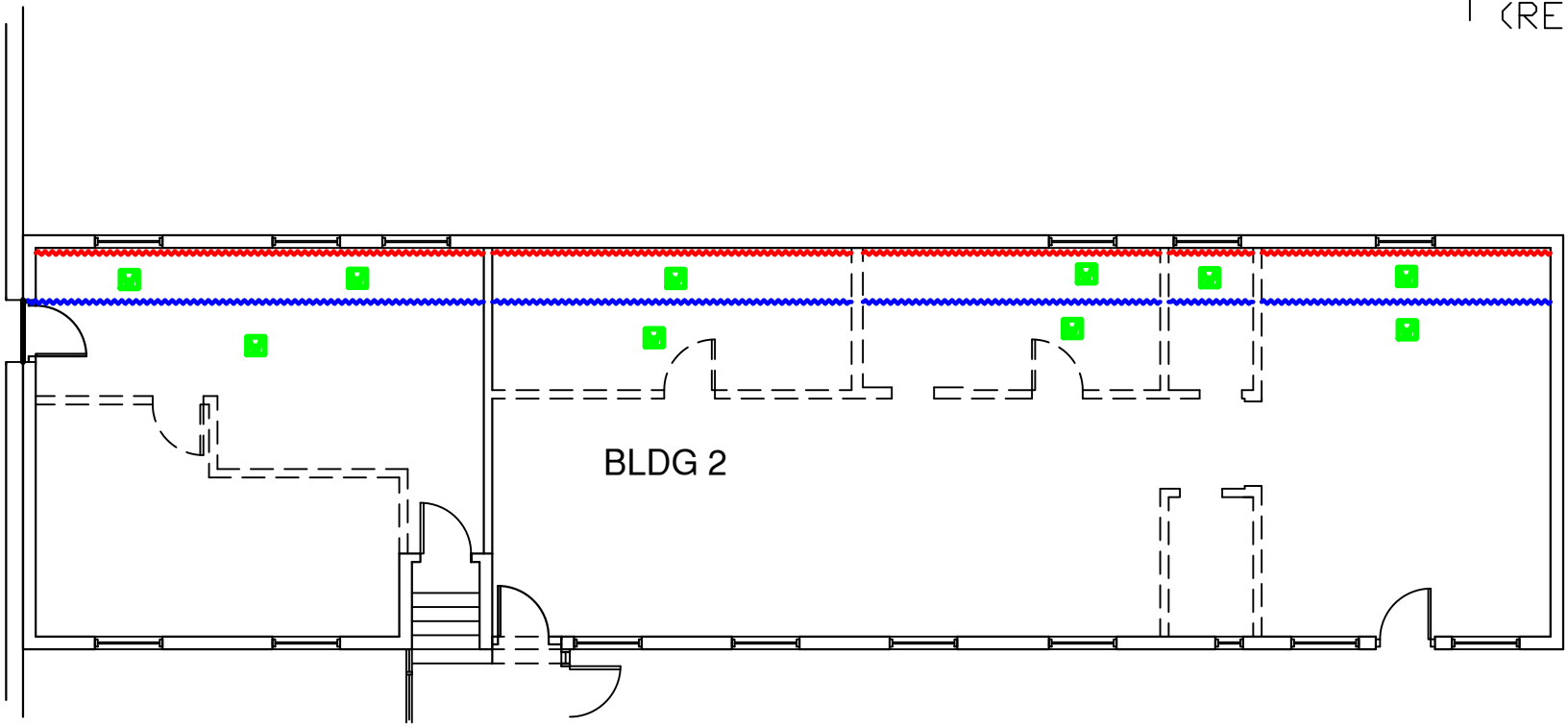
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

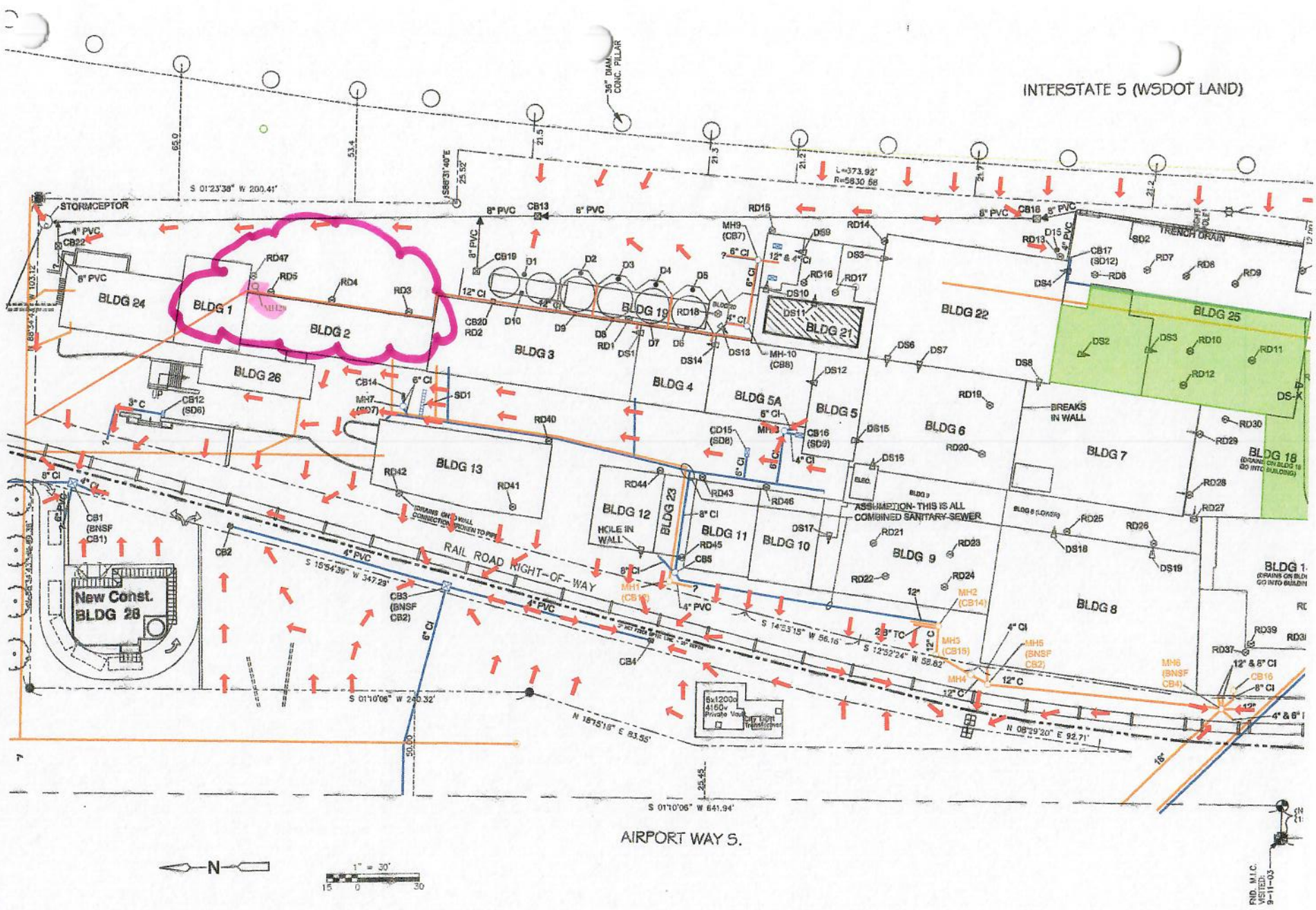
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)





REV. NO.	DATE	DRWN	CHKD	REMARKS
1	07/25/12	RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP
2	07/25/12	RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
3	07/25/12	RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)

DESIGNED BY: AEM
DRAWN BY: PJP
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

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RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN STUI

FND. M.I.C. VISITED: 9-11-03

P:\79179\68845\ CDM-SITE 03/09/09 11:26 rietiepi XREFS: cdm-site-utility, Site Utilities, CDM-22x34bdr, building 100 BASE, SDS Street Improvements, Survey, tonik farm fence (black), Tullys Drive Tr

Phase 3 Set-up 11

Location: Building 3 North & East Elevation
Building 19 North Elevation

Stories: Building 3 = 1
Building 19 = 1

Material: Concrete

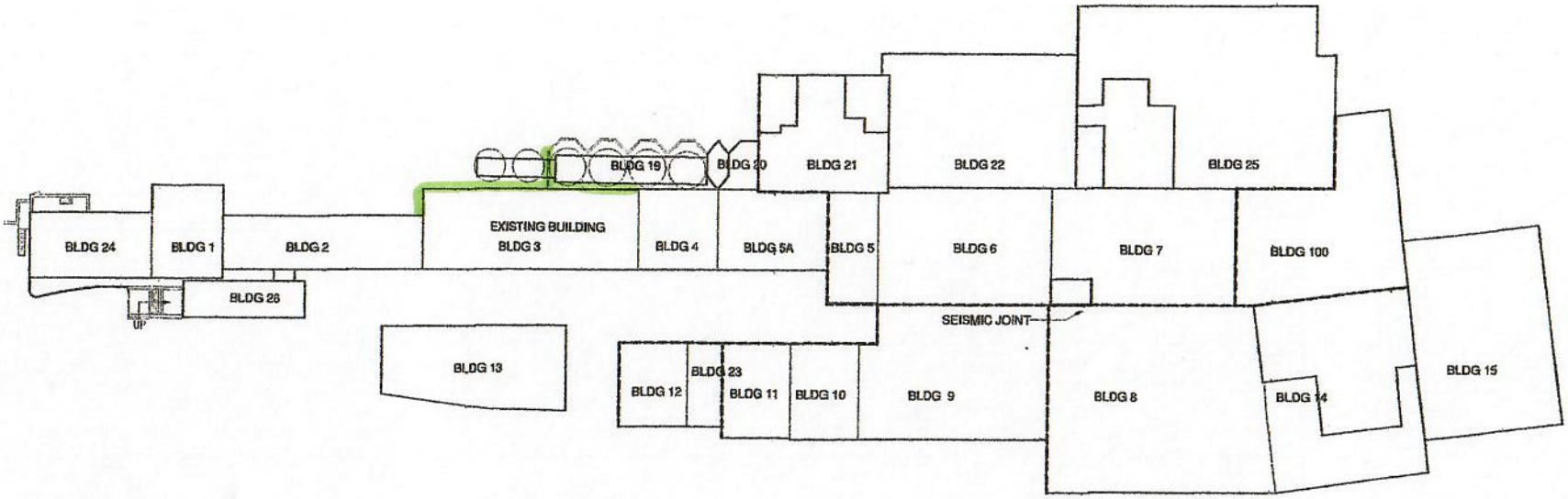
Square Feet: 1,149

Tenants: Commercial

C/B Zone: Yellow

Roof Drain: Scupper to downspout, tied to storm

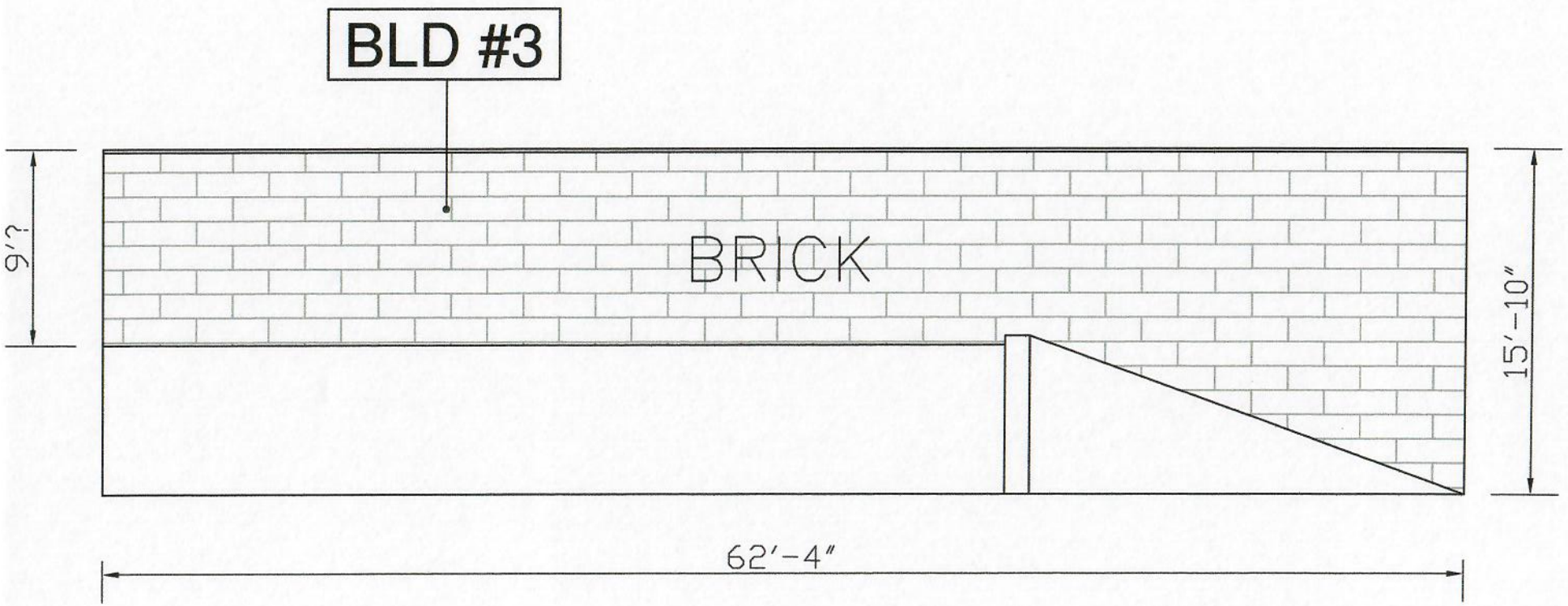
Roof Protection: Plug and pump to Roof Building 2



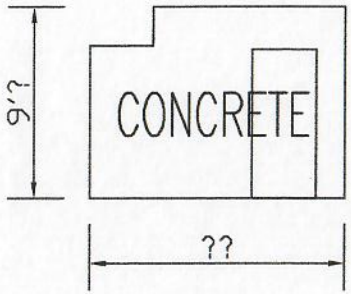
BUILDING 3, NORTH ELEVATION

BUILDING 3, EAST ELEVATION

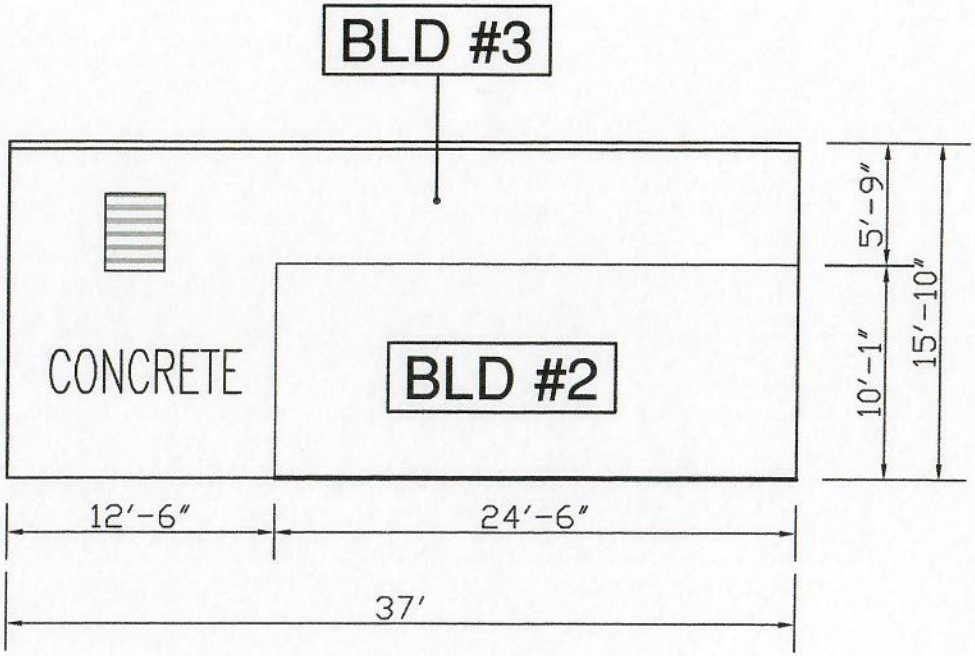
BUILDING 19, NORTH ELEVATION



EAST ELEVATION
BLDG 3



NORTH ELEVATION
BLDG 19–CONCRET
STRUCTURE



NORTH ELEVATION
BLDG 3

PHASE THREE, SETUP 11

BUILDING 3 & 19, 200 LEVEL

NORTH & EAST ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

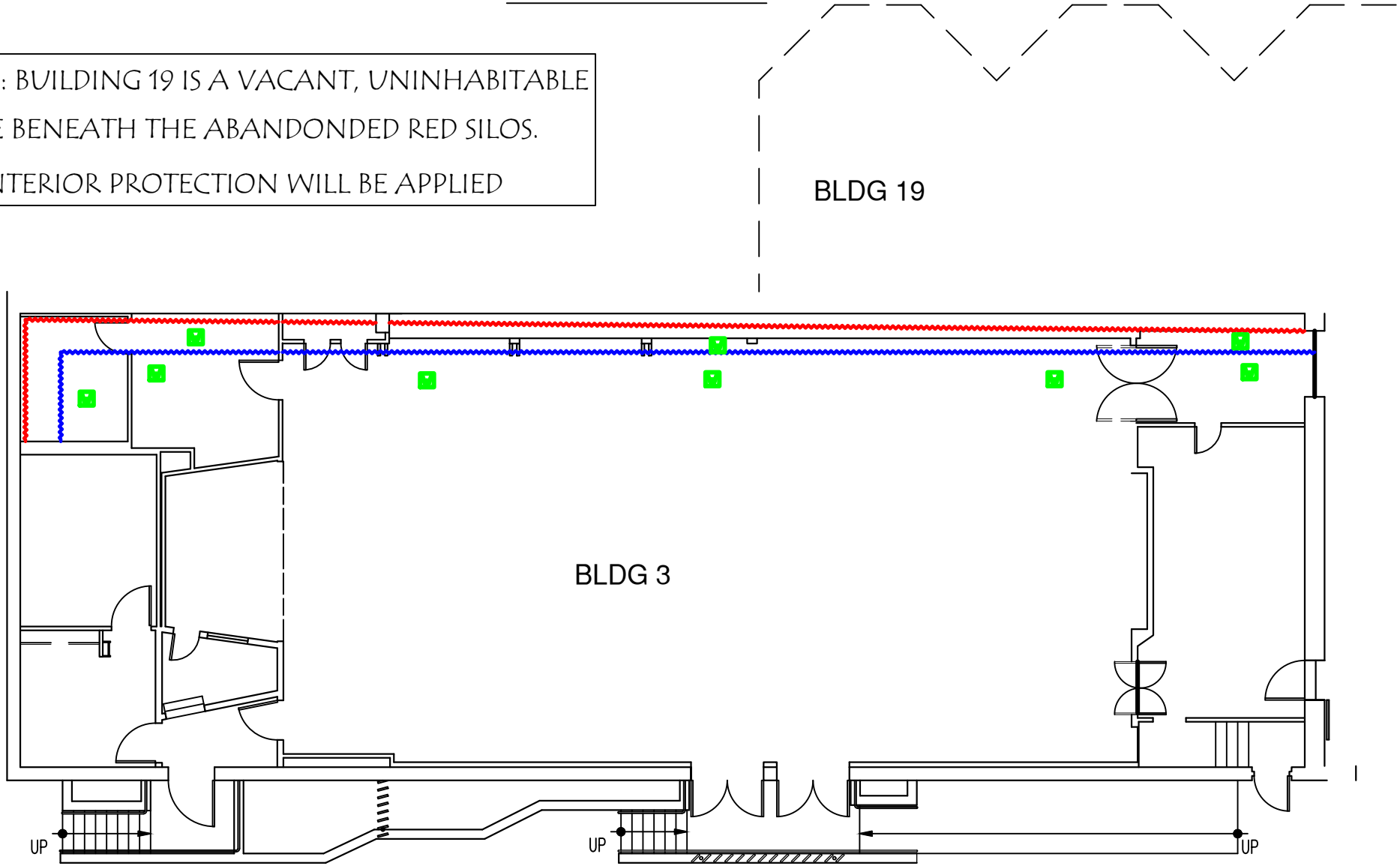
OCCUPANCY TYPE: NON-RESIDENTIAL

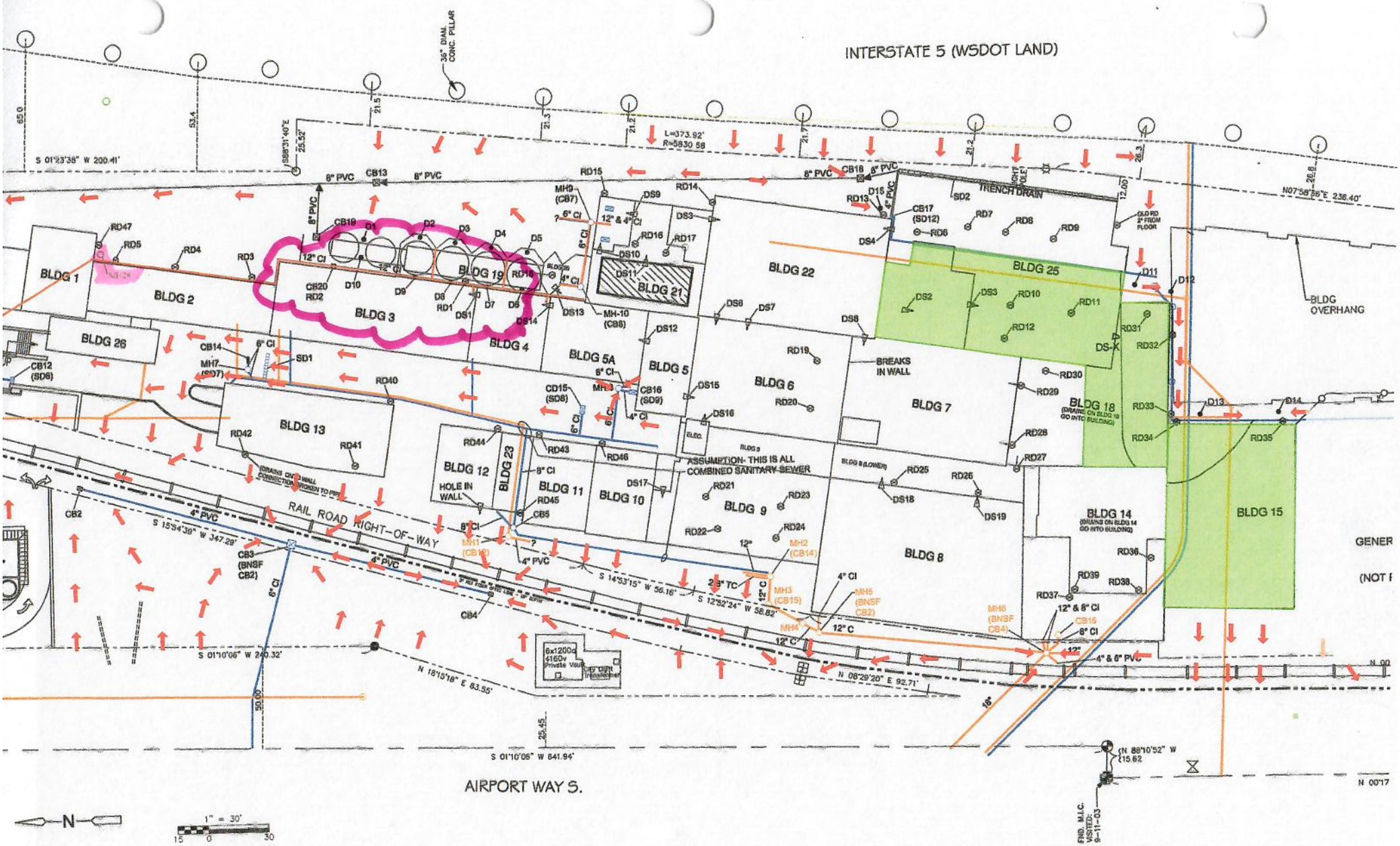
10'-0" (REF)

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

NOTE: BUILDING 19 IS A VACANT, UNINHABITABLE SPACE BENEATH THE ABANDONDED RED SILOS.

NO INTERIOR PROTECTION WILL BE APPLIED





RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP
BUILDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
BUILDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)

REMARKS

DESIGNED BY:	AEM
DRAWN BY:	PJR
SHEET CHK'D BY:	PJM
CROSS CHK'D BY:	
APPROVED BY:	
DATE:	JANUARY 2009

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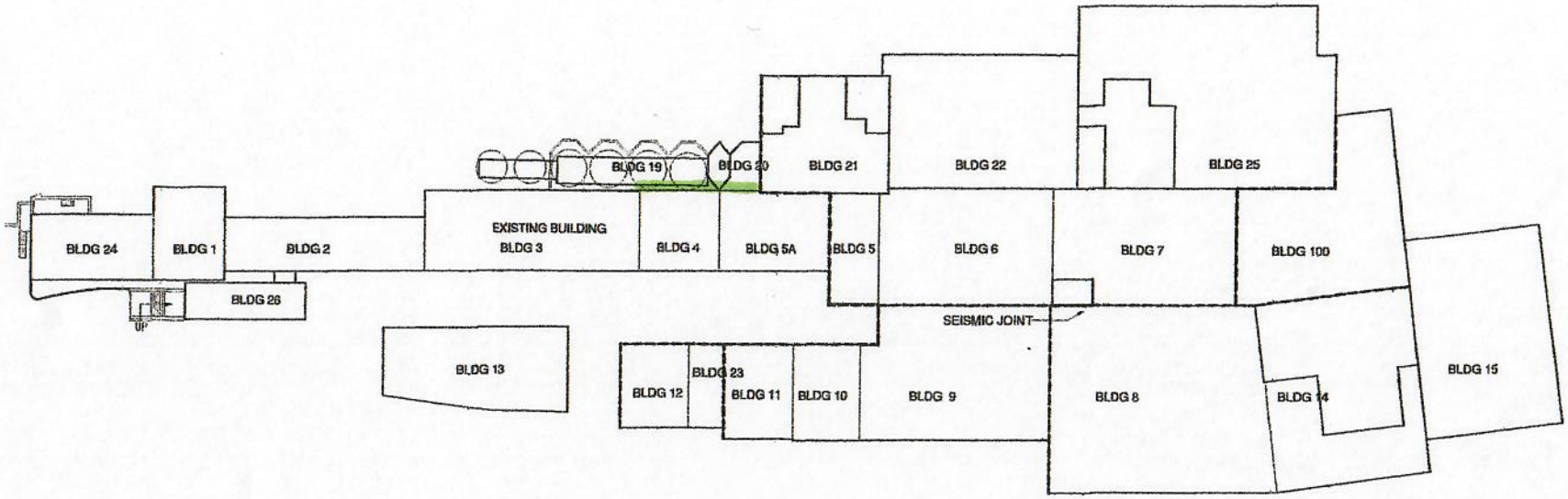
SEATTLE, WASHINGTON

CATCH BASIN STUDY

CATCH

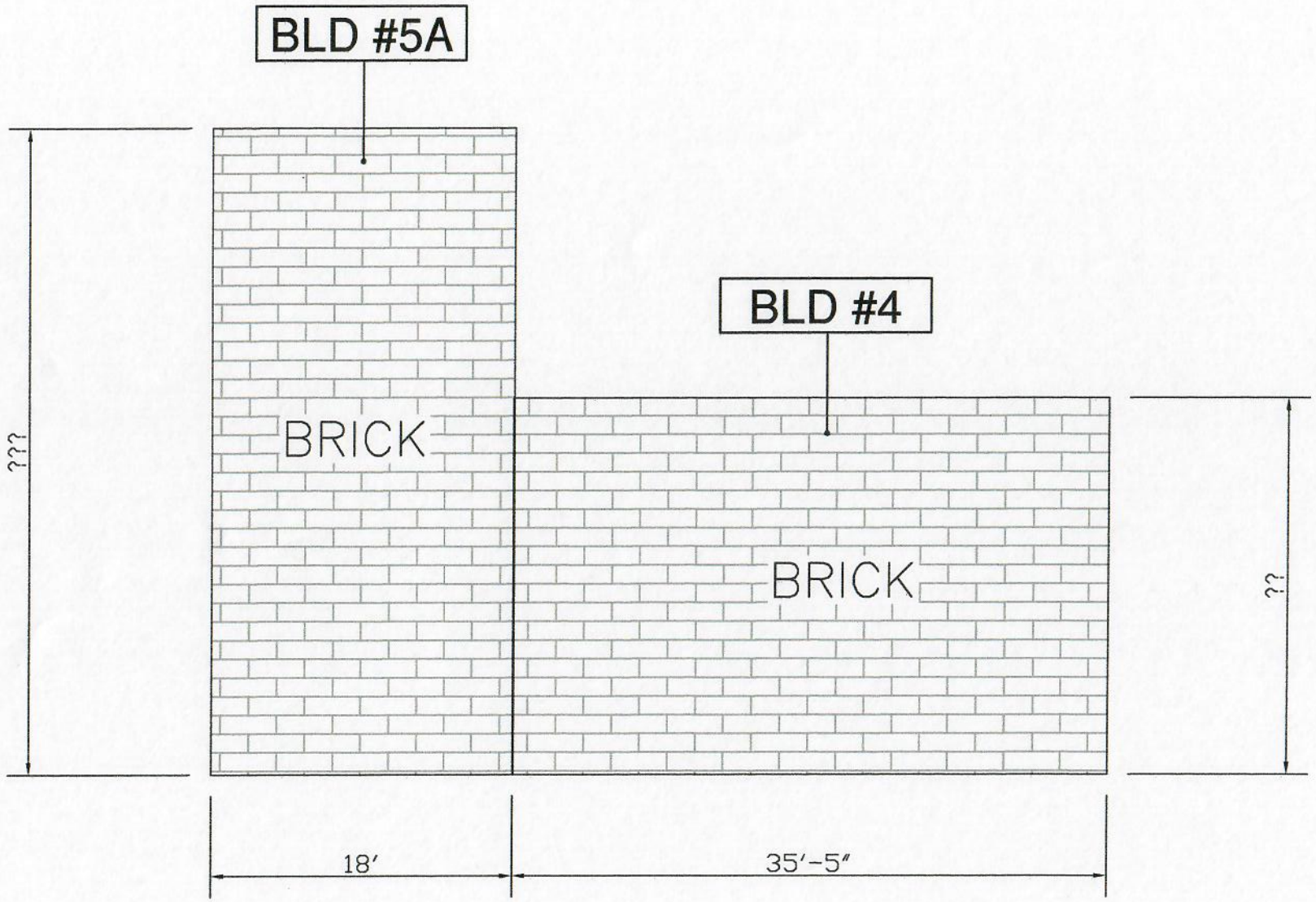
Phase 3 Set-up 12

Location:	Building 4 & 5A East Elevation
Stories:	Building 4 = 2 Building 5A = 4
Material:	Brick
Square Feet:	1,198
Tenants:	Commercial
C/B Zone:	Yellow
Roof Drain:	None
Roof Protection:	Special Protection Not Required



BUILDING 4, EAST ELEVATION

BUILDING 5A, EAST ELEVATION



EAST ELEVATION
BLDG 4 AND 5A

PHASE THREE, SETUP 12

BUILDING 4 & 5A, 200 LEVEL

EAST ELEVATIONS

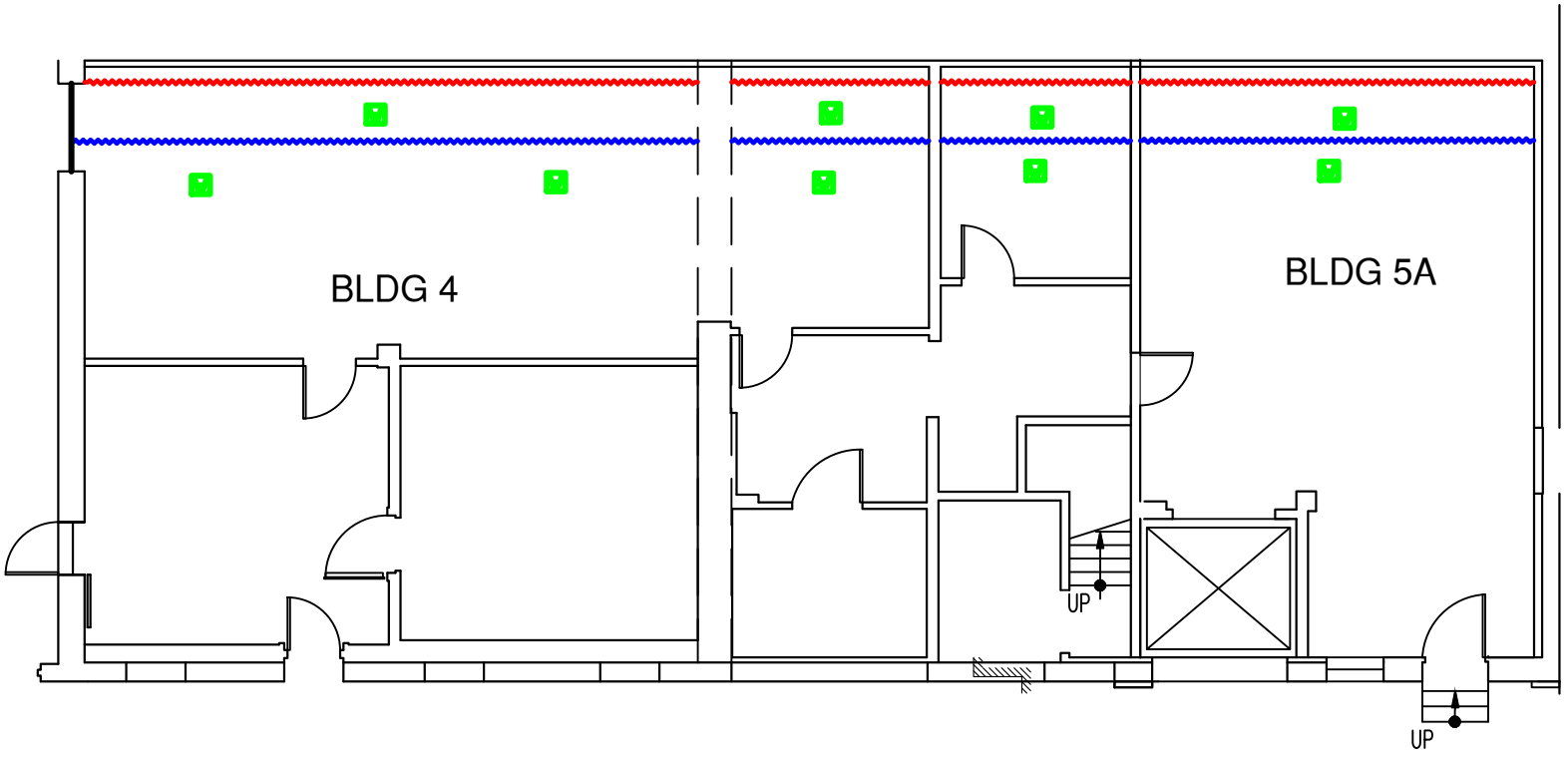
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 12

BUILDING 4 7 5A, 300 LEVEL

EAST ELEVATIONS

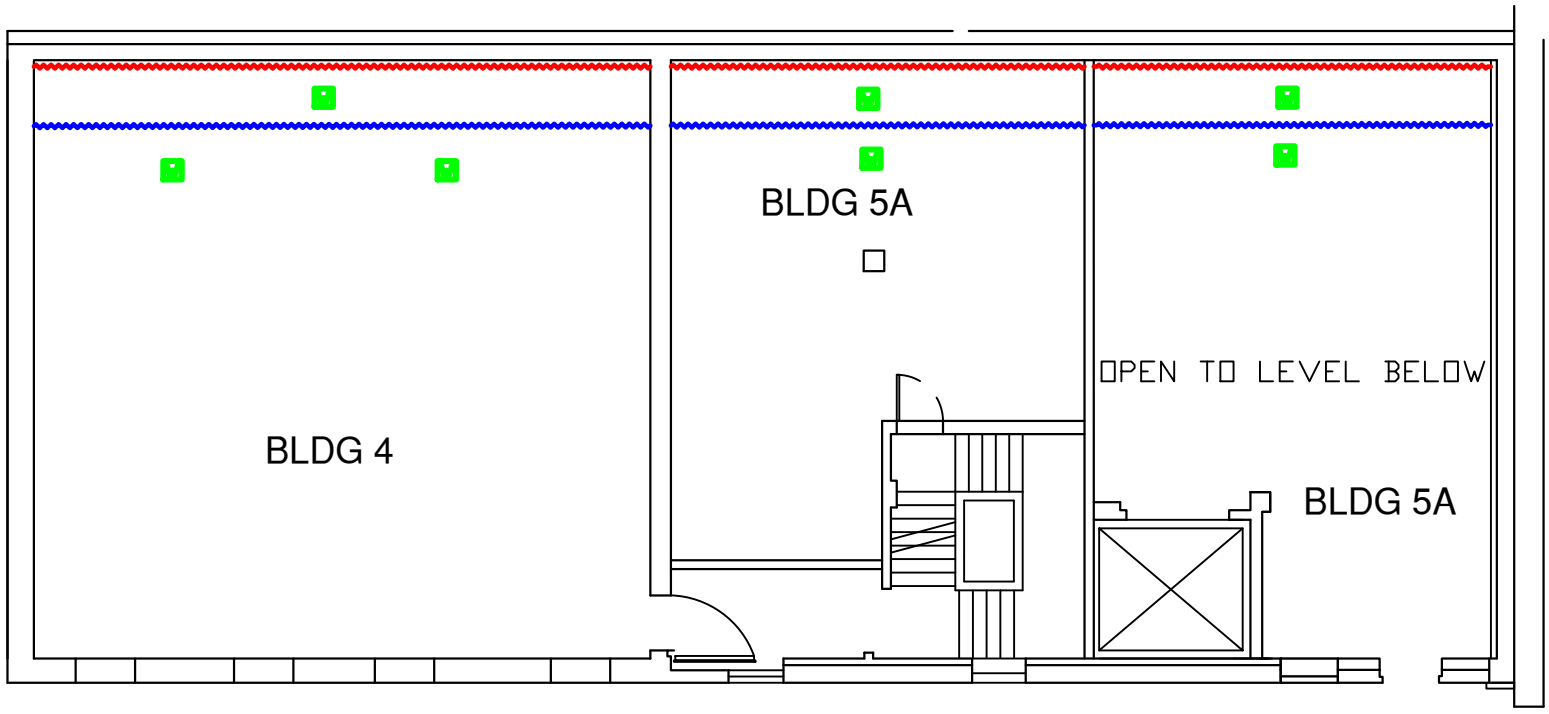
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 12

BUILDING 5A, 400 LEVEL

EAST ELEVATION

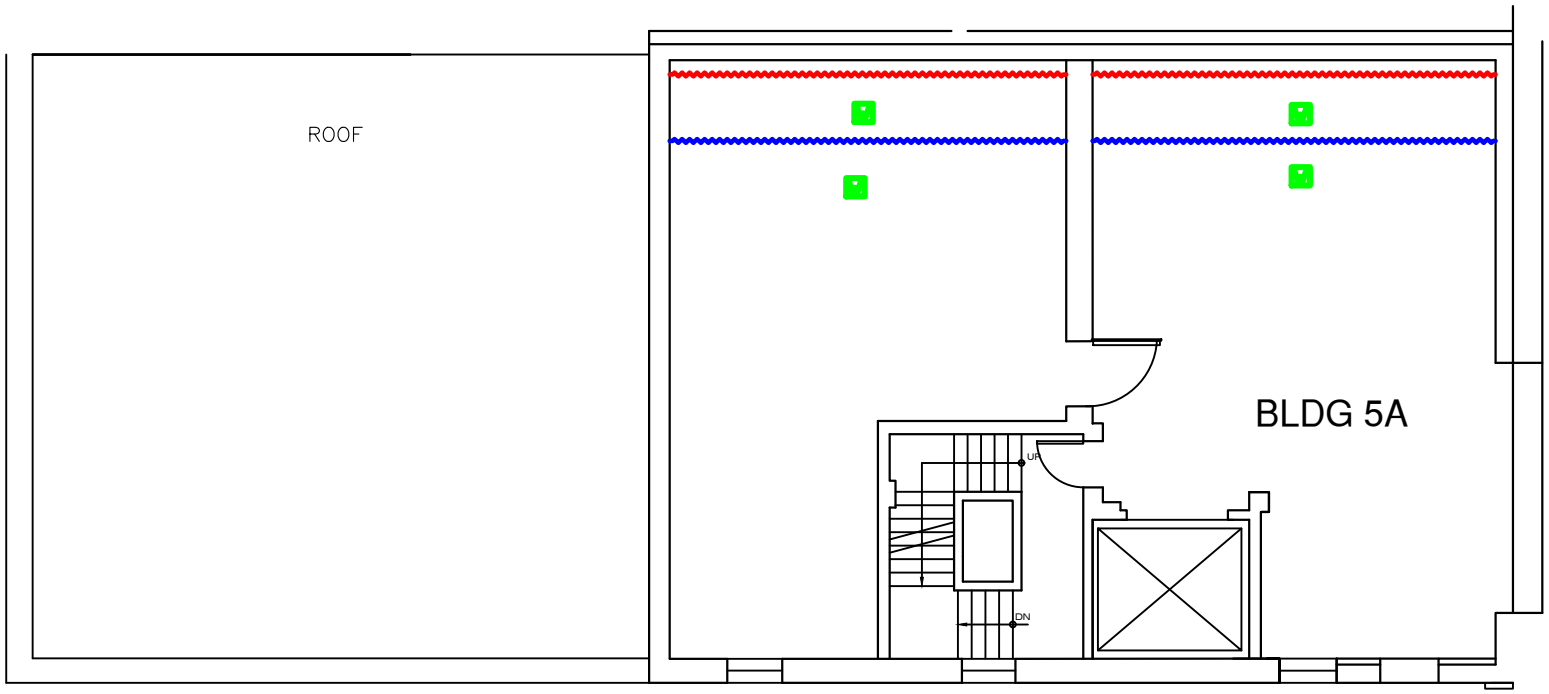
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 12

BUILDING 5A, 500 LEVEL

EAST ELEVATION

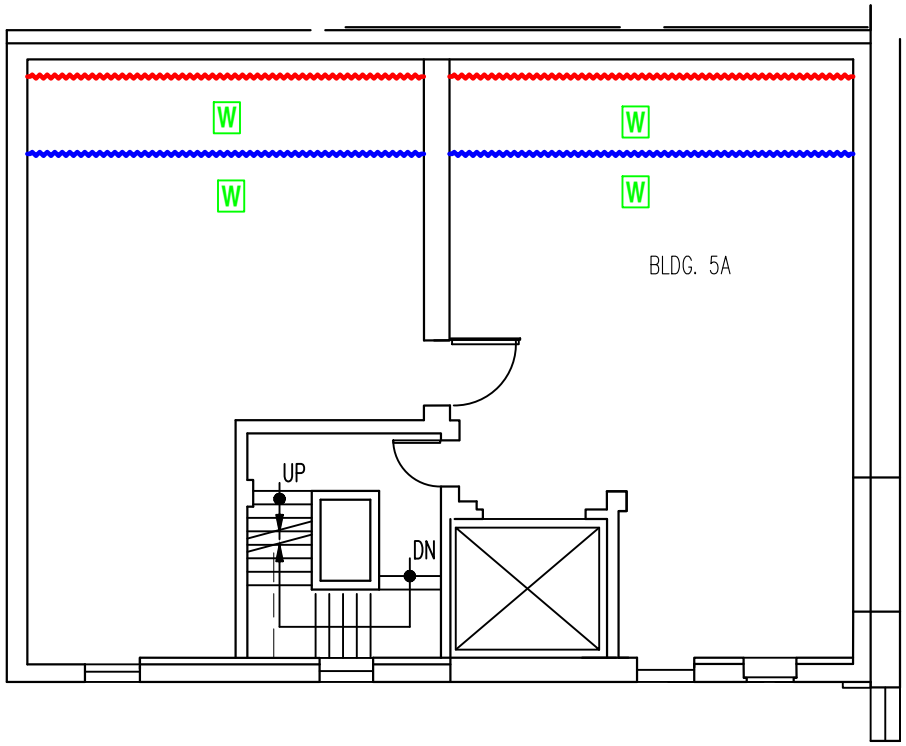
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

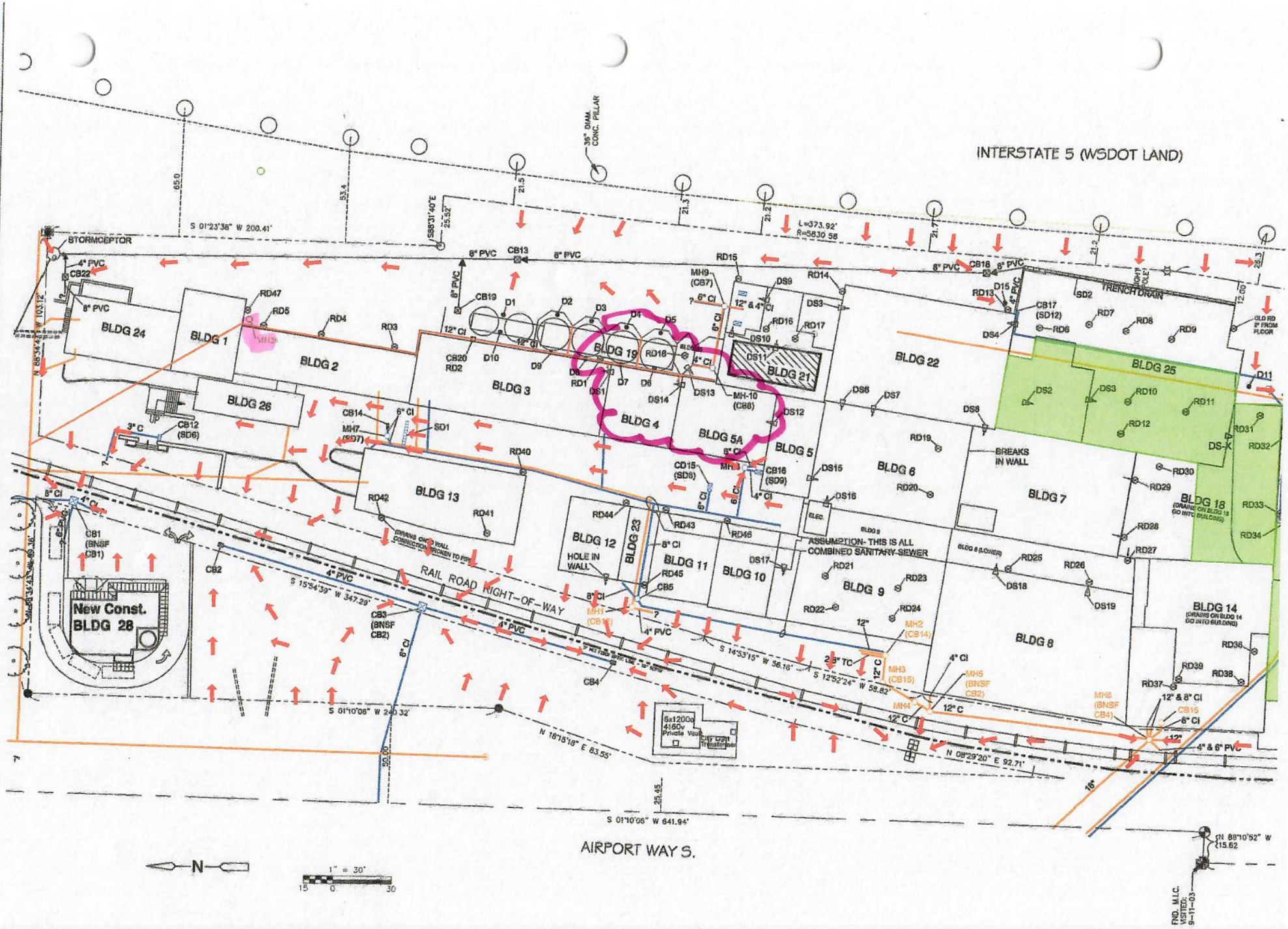
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)





P:\79179\68845\CDM-SITE 03/09/09 11:26 riehlepj XREFS: cdm-site-utility, Site Utilities, CDM-22x34dr, building 100 BASE, SDS Street Improvements, Survey, tank farm fence (block), Tullys Drive Thru, East

REV. NO.	DATE	DRWN	CHK'D	REMARKS
1	07/25/12	RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP
2	07/25/12	RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
3	07/25/12	RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

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RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN STUDY

Phase 3 Set-up 13

Location: Building 20 All Elevations

Stories: Building 20 is a 62’ tall, uninhabited staircase that was used to access the red silos during beer production. Wipe sampling will occur at 20’ vertical increments. Primary barrier and additional window protection will be installed. An interior secondary poly barrier will not be installed, due to confined configuration.

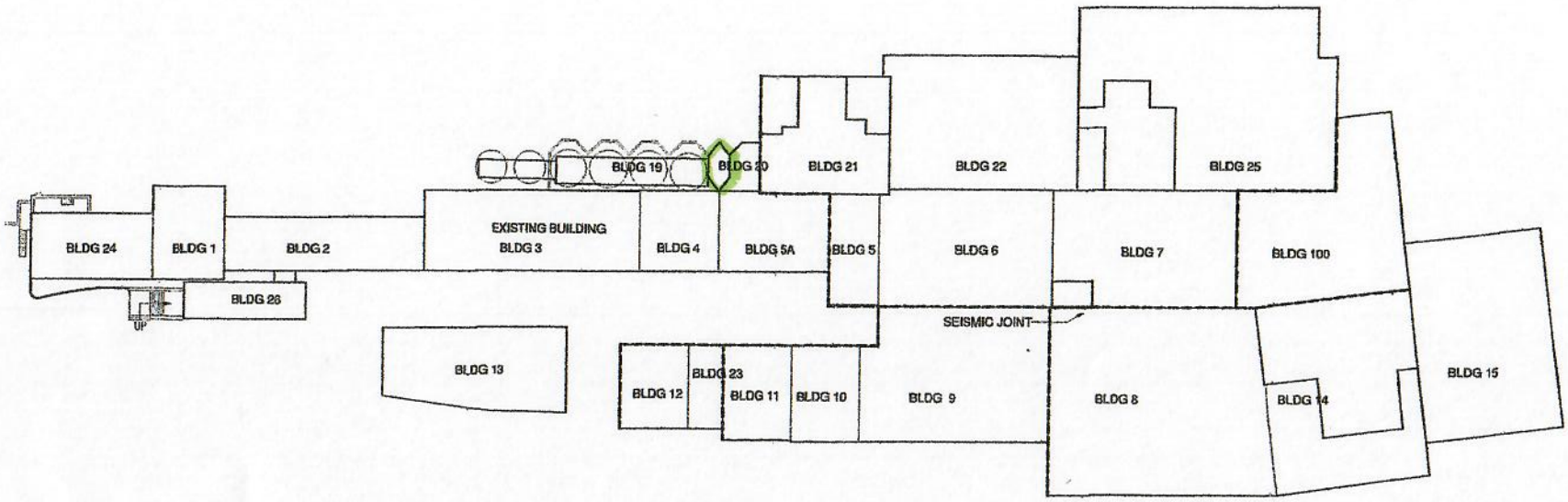
Material: Concrete

Square Feet: 2,681

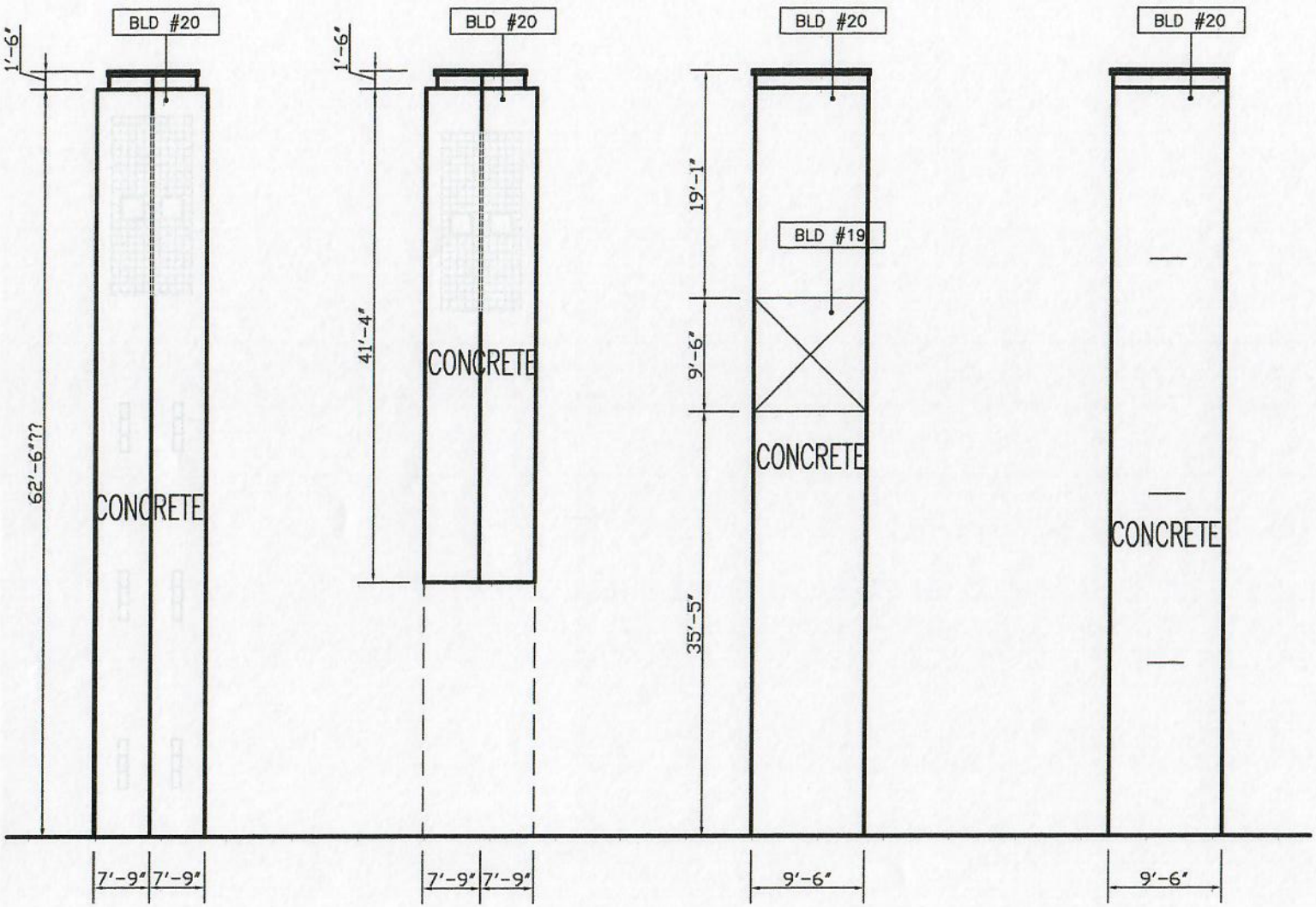
Tenants: Commercial

C/B Zone: Purple

Roof Drain:	Scupper to downspout drains to lower roof
Roof Protection:	Re-route w/ Flex Pipe & Filters to CB-13



BUILDING 20, ALL ELEVATIONS

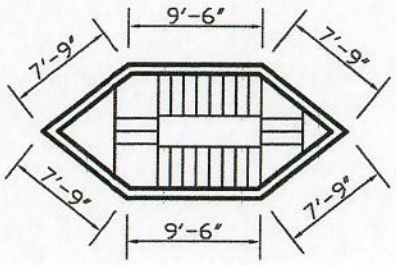


EAST ELEVATION
BLDG 20

WEST ELEVATION
BLDG 20

SOUTH ELEVATION
BLDG 20

NORTH ELEVATION
BLDG 20



PLAN VIEW
BLDG 20

PHASE THREE, SETUP 13

BUILDING 20, ALL LEVELS

ALL ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

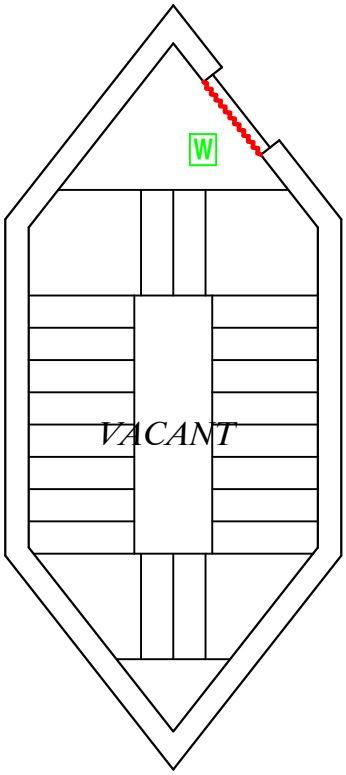
OCCUPANCY: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

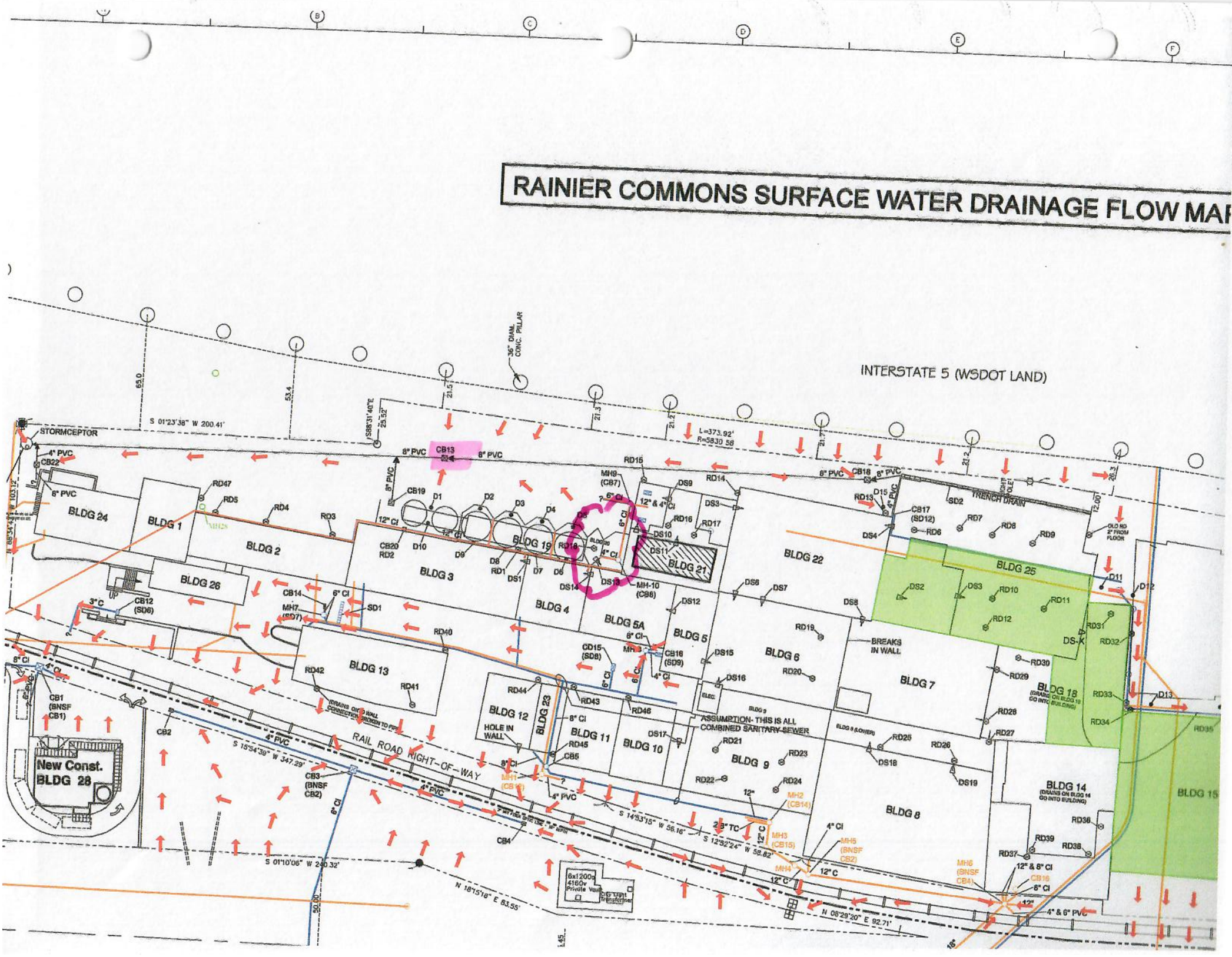
N

10'-0" (REF)

TYPICAL PROTECTION AND SAMPLE LOCATIONS AT OPENINGS



RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 14

Location: Building 21 West Elevation

Stories: Building 21 = 3 , this set-up

Material: Concrete

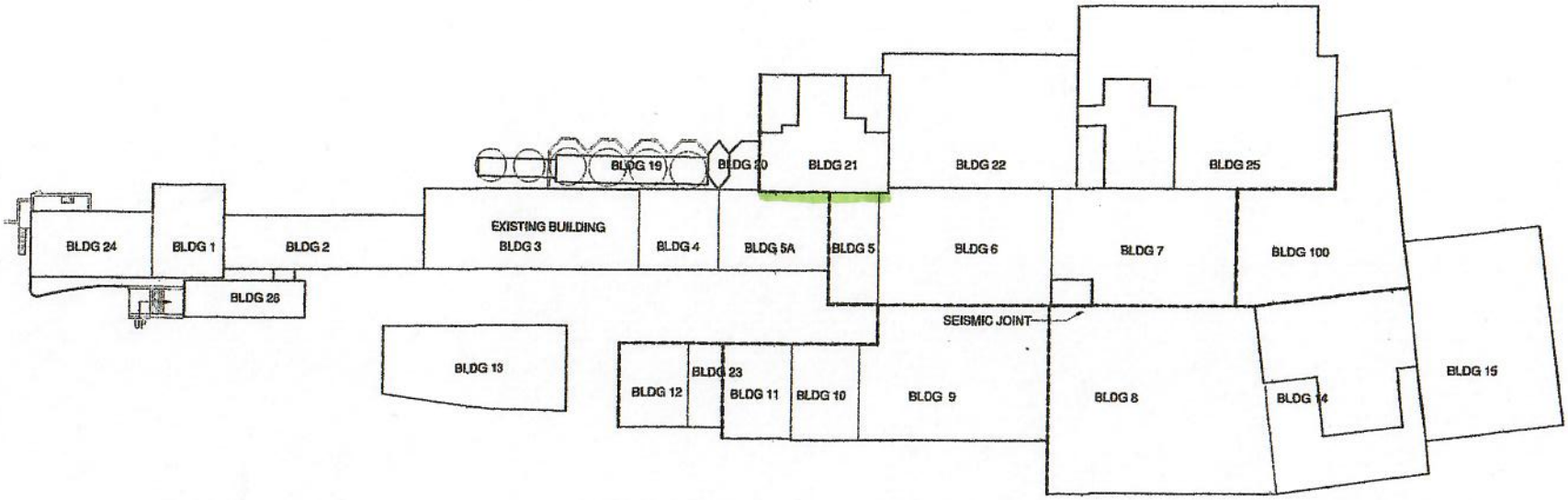
Square Feet: 2,498

Tenants: Residential

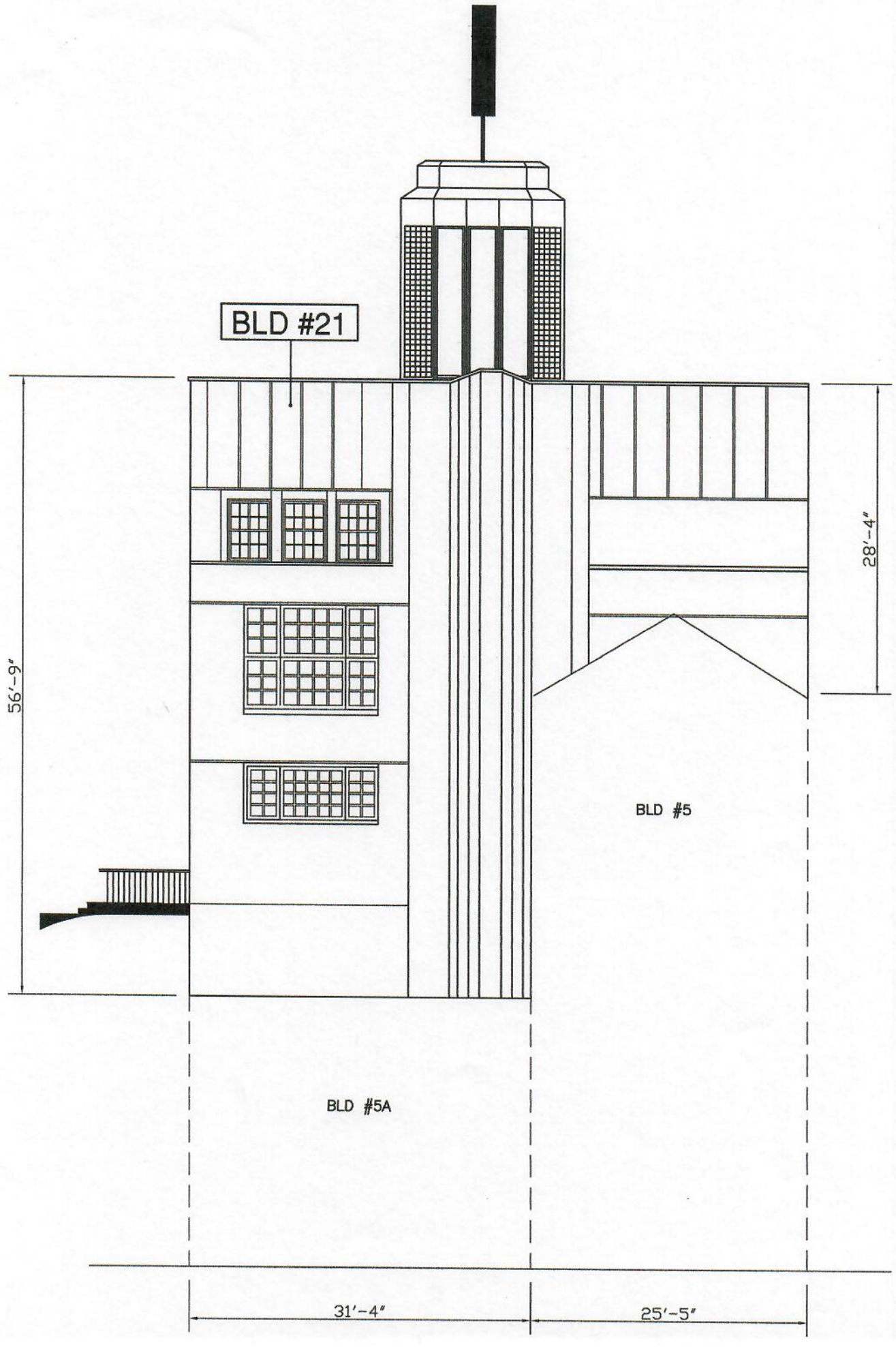
C/B Zone: Yellow

Roof Drain: None, this set-up

Roof Protection: Special Protection not Required



BUILDING 21, WEST ELEVATION


BLD #21
56'-9"
28'-4"
BLD #5
BLD #5A
31'-4"
25'-5"

PHASE THREE, SETUP 14

BUILDING 21, 500 LEVEL

WEST ELEVATION

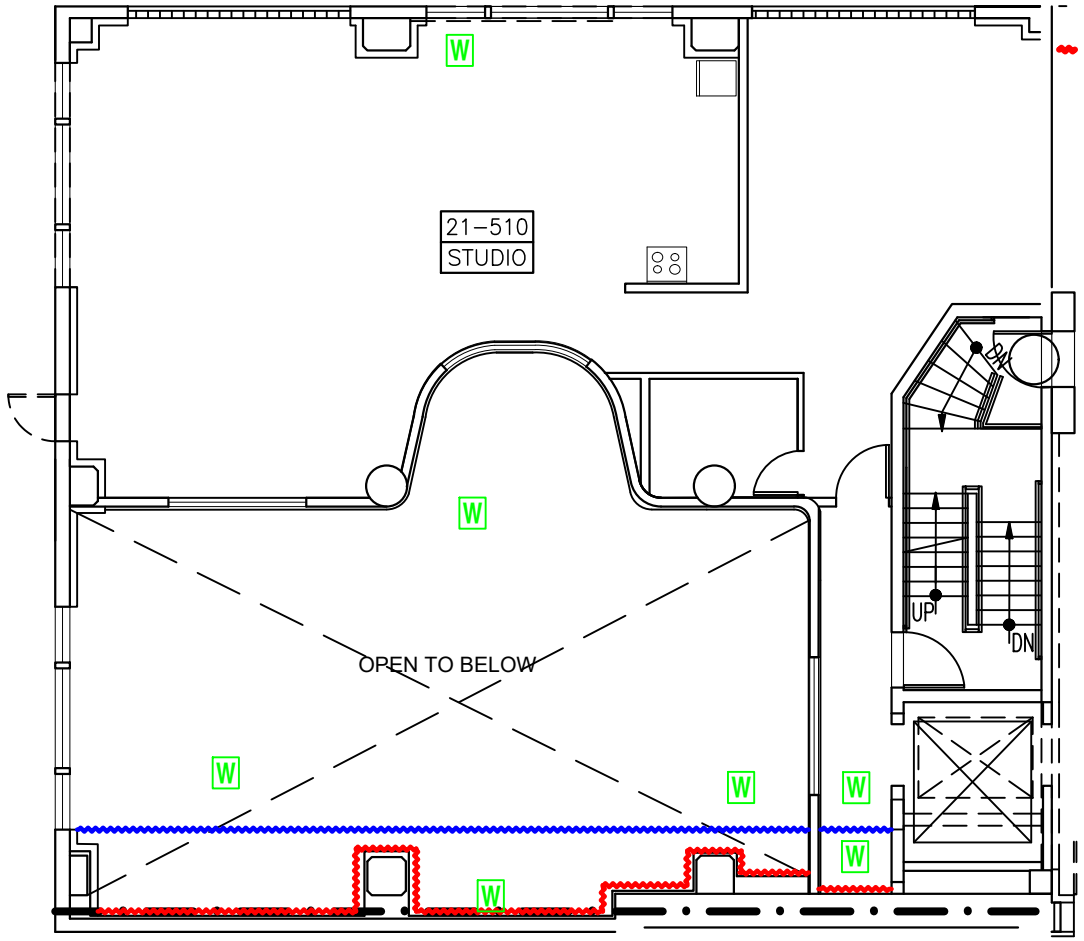
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″ (REF)



PHASE THREE, SETUP 14

BUILDING 21, 600 LEVEL

WEST ELEVATION

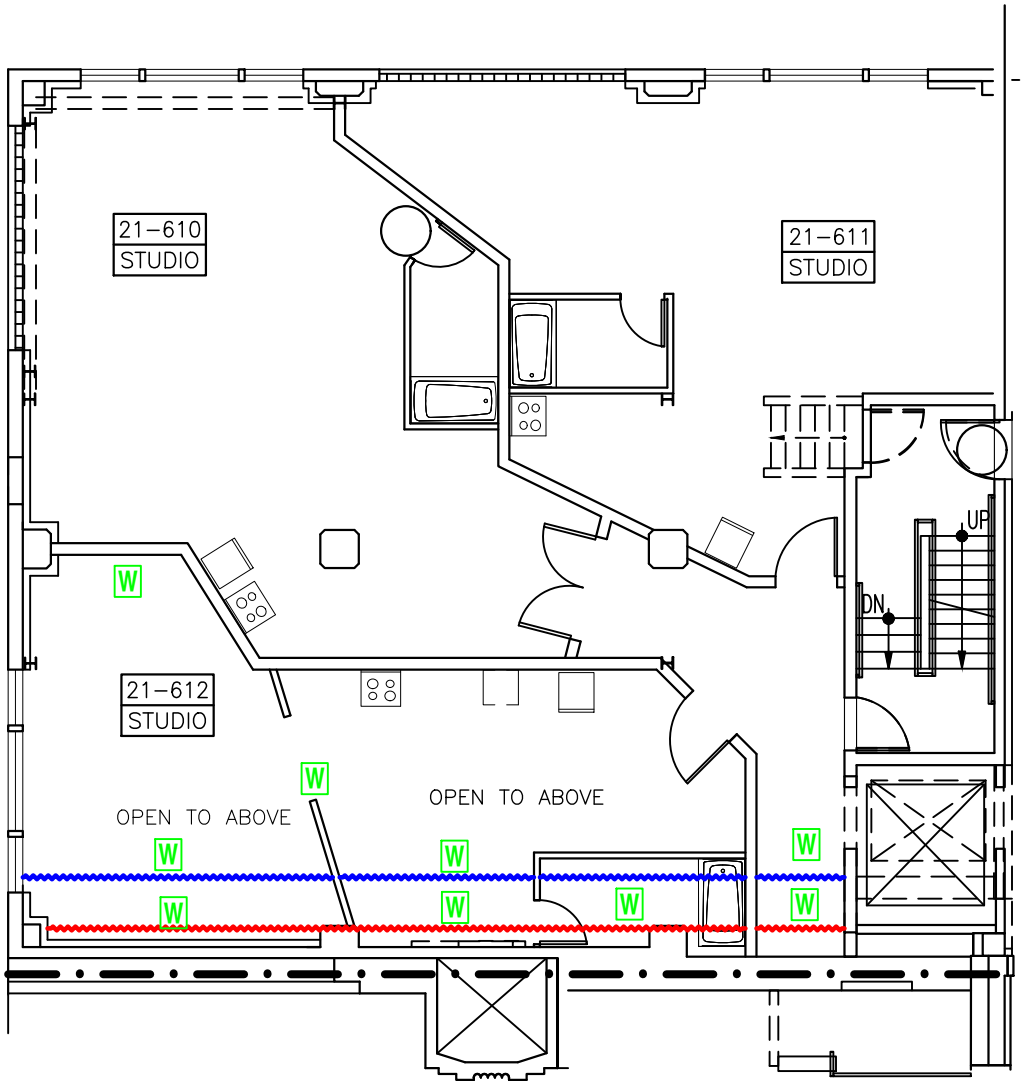
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″ (REF)



PHASE THREE, SETUP 14

BUILDING 21, 700 LEVEL

WEST ELEVATION

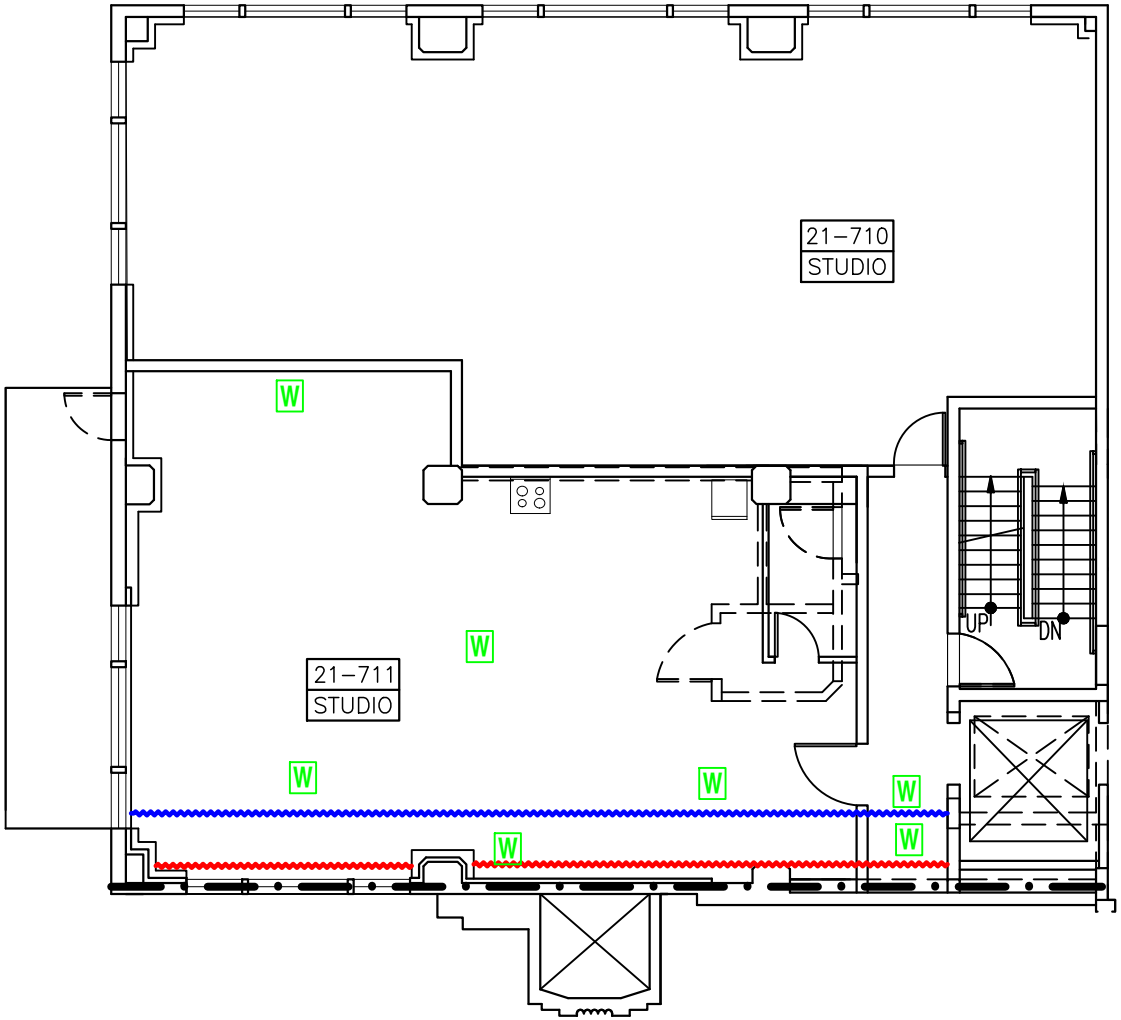
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

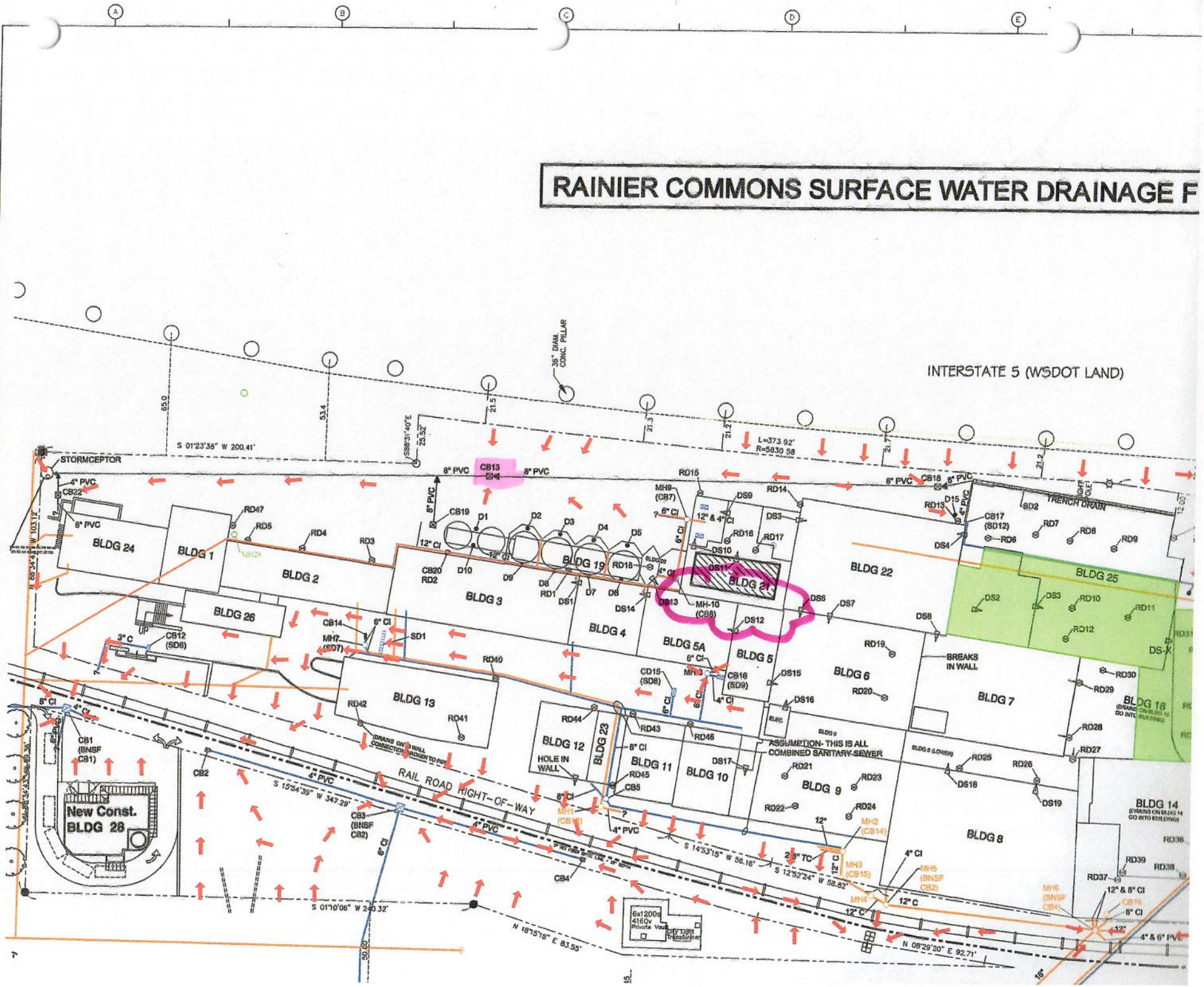
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



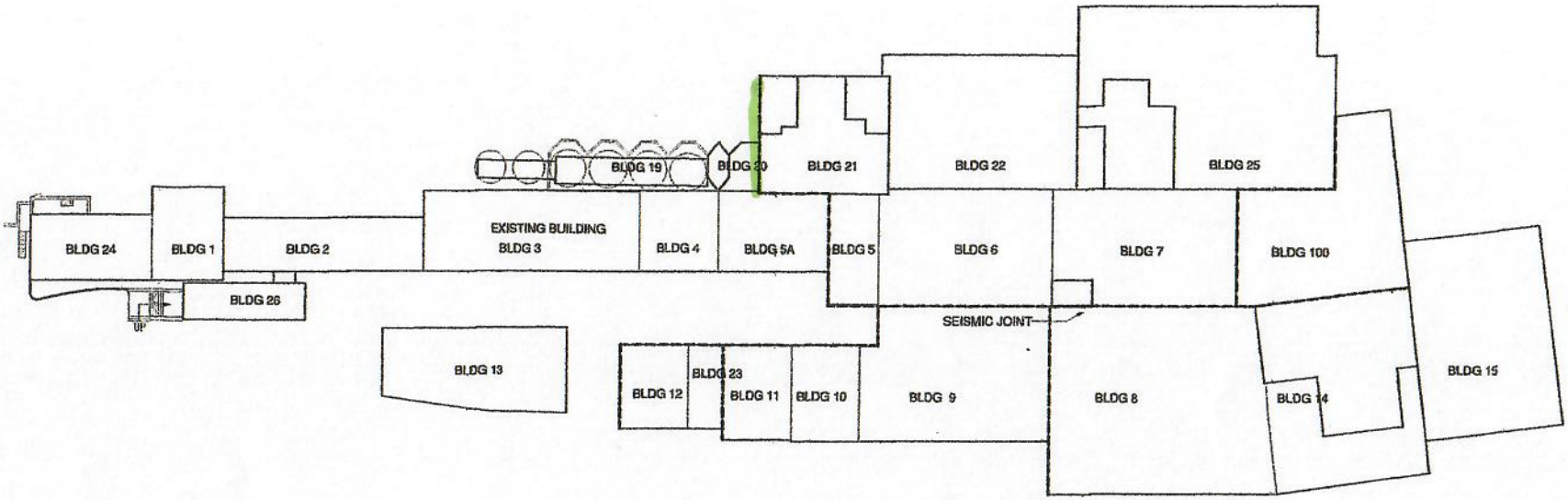
RAINIER COMMONS SURFACE WATER DRAINAGE F



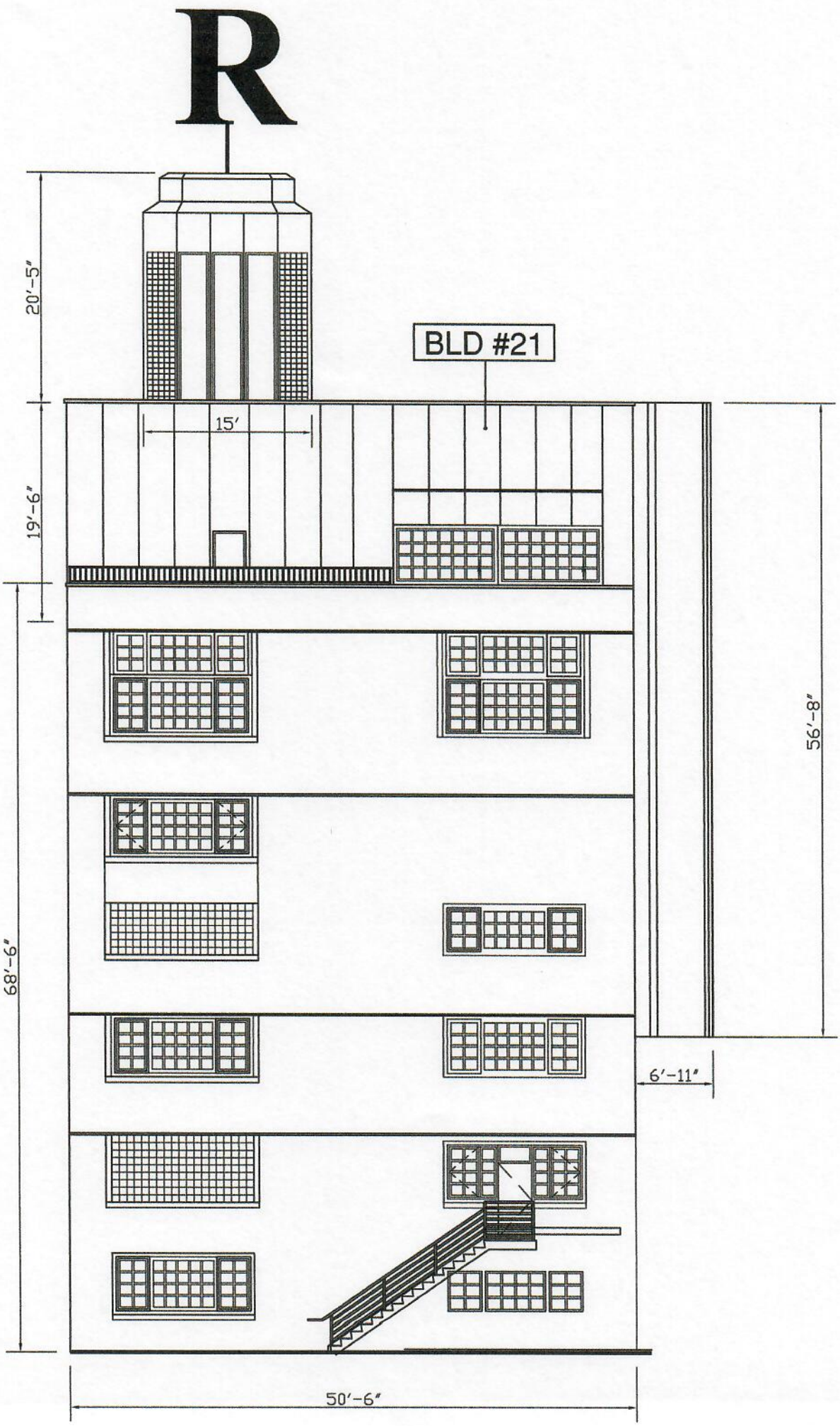
Phase 3 Set-up 15

Location:	Building 21 North Elevation Building 21 Upper East Elevation
Stories:	Building 21 = 6
Material:	Concrete
Square Feet:	5,142
Tenants:	Residential
C/B Zone:	Purple
Roof Drain:	Scupper to downspout, tied to storm

Roof Protection: Re-route w/Flex Pipe and filters to CB-13



BUILDING 21, NORTH ELEVATION


R
BLD #21
20'-5"
19'-6"
15'
68'-6"
56'-8"
6'-11"
50'-6"

PHASE THREE, SETUP 15

BUILDING 21, 300 LEVEL

NORTH ELEVATION

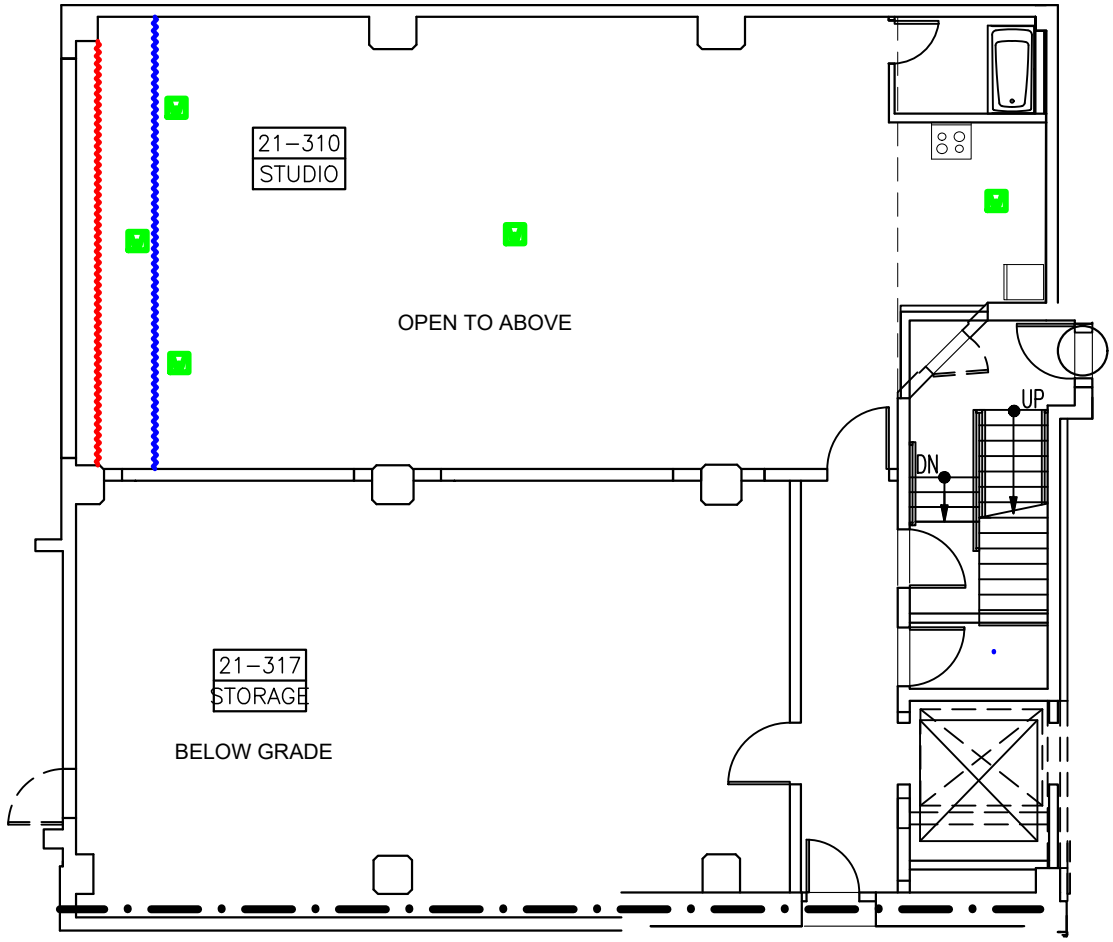
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 15

BUILDING21, 400 LEVEL

NORTH ELEVATION

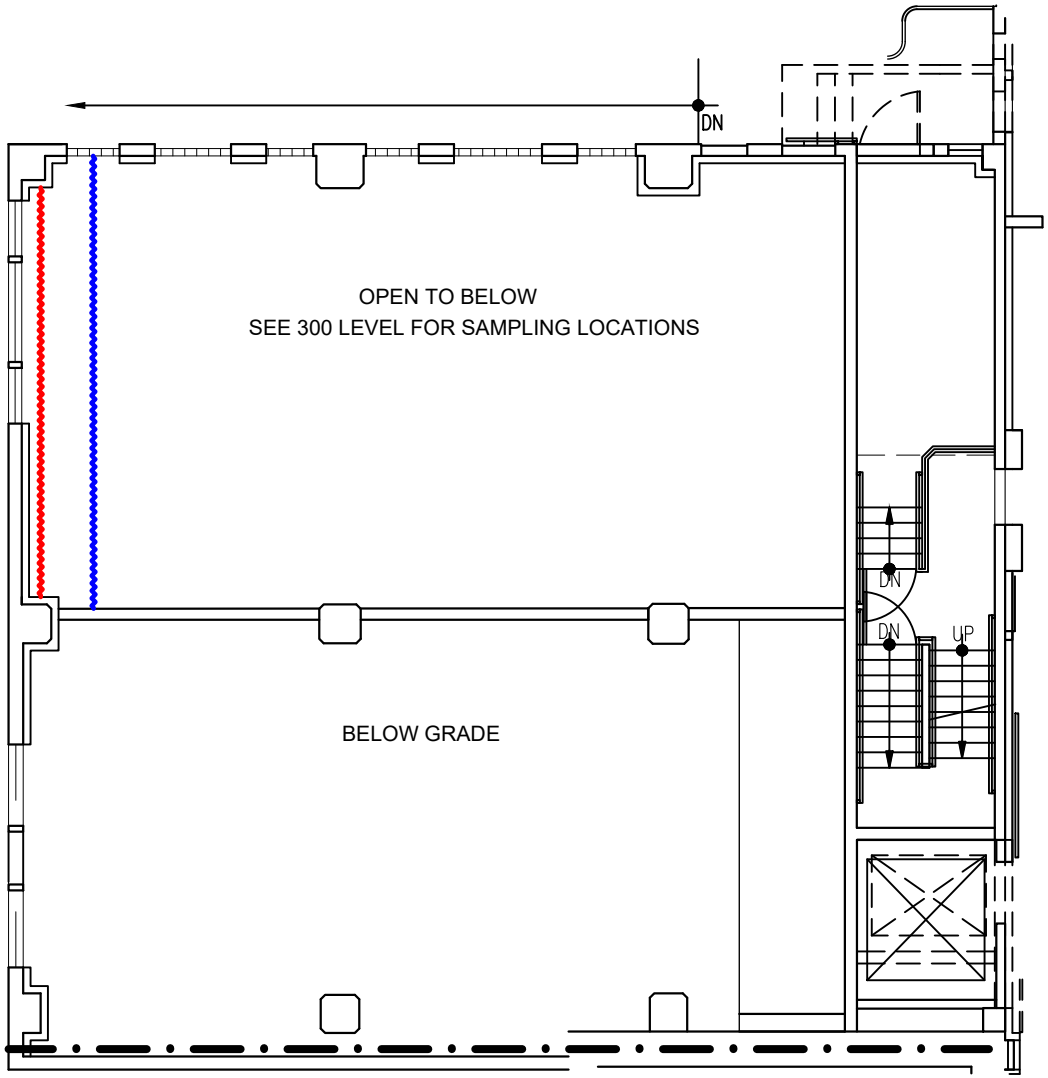
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 15

BUILDING 21, 500 LEVEL

NORTH ELEVATION

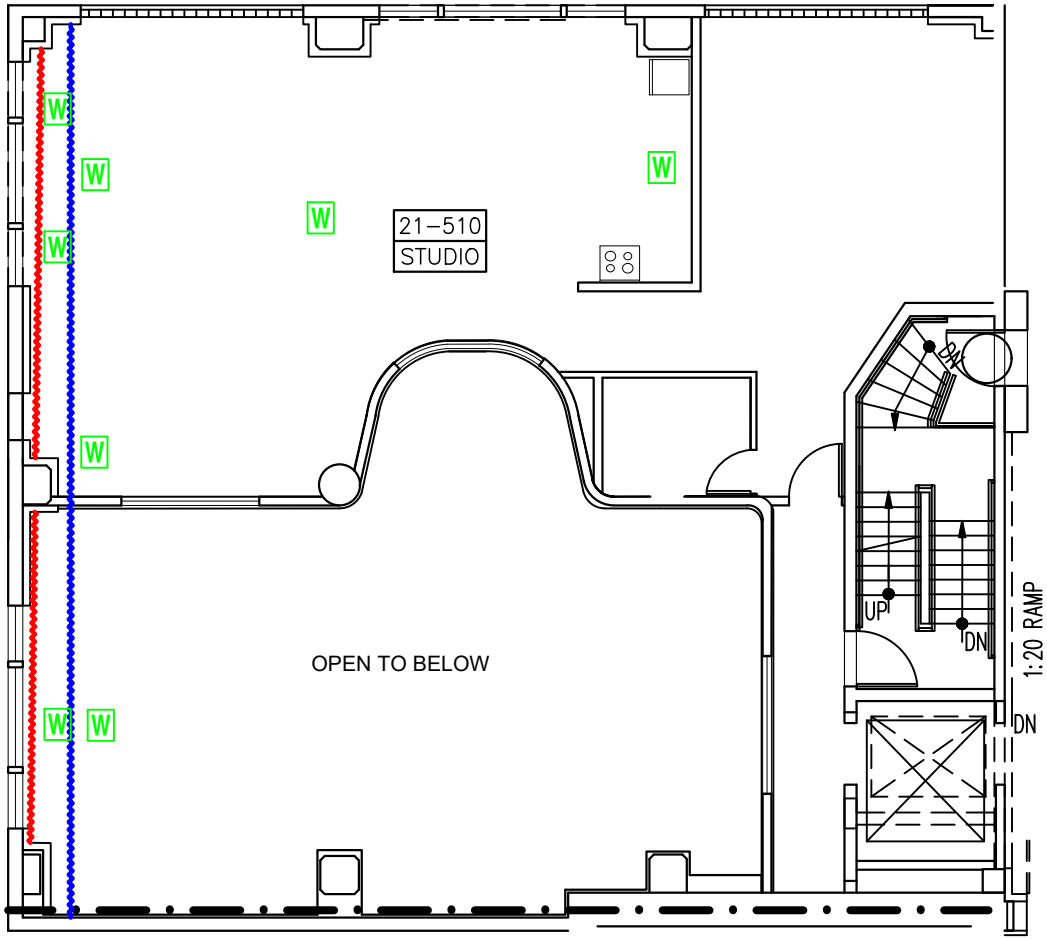
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10′–0″
(REF)



PHASE THREE, SETUP 15

BUILDING 21, 600 LEVEL

NORTH ELEVATION

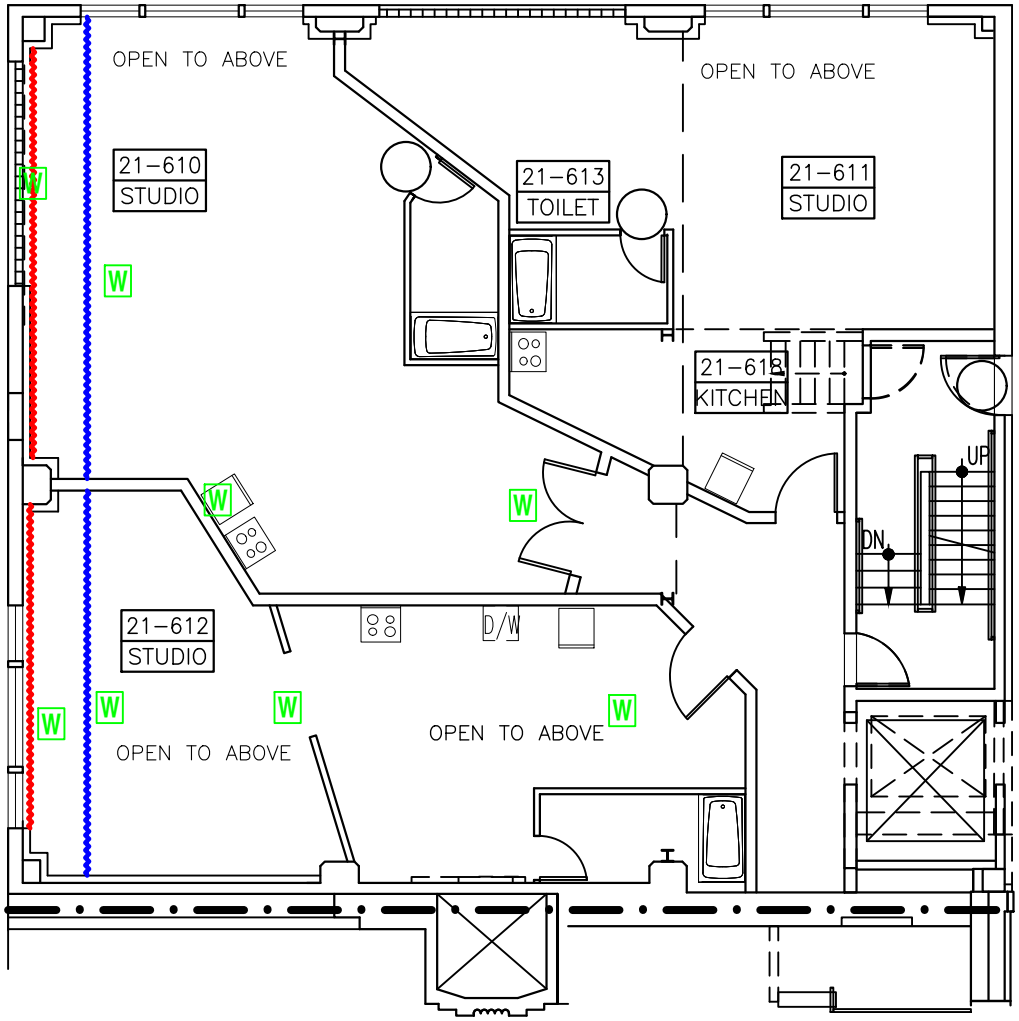
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10′-0″ (REF)



PHASE THREE, SETUP 15

BUILDING 21, 700 LEVEL

NORTH ELEVATION

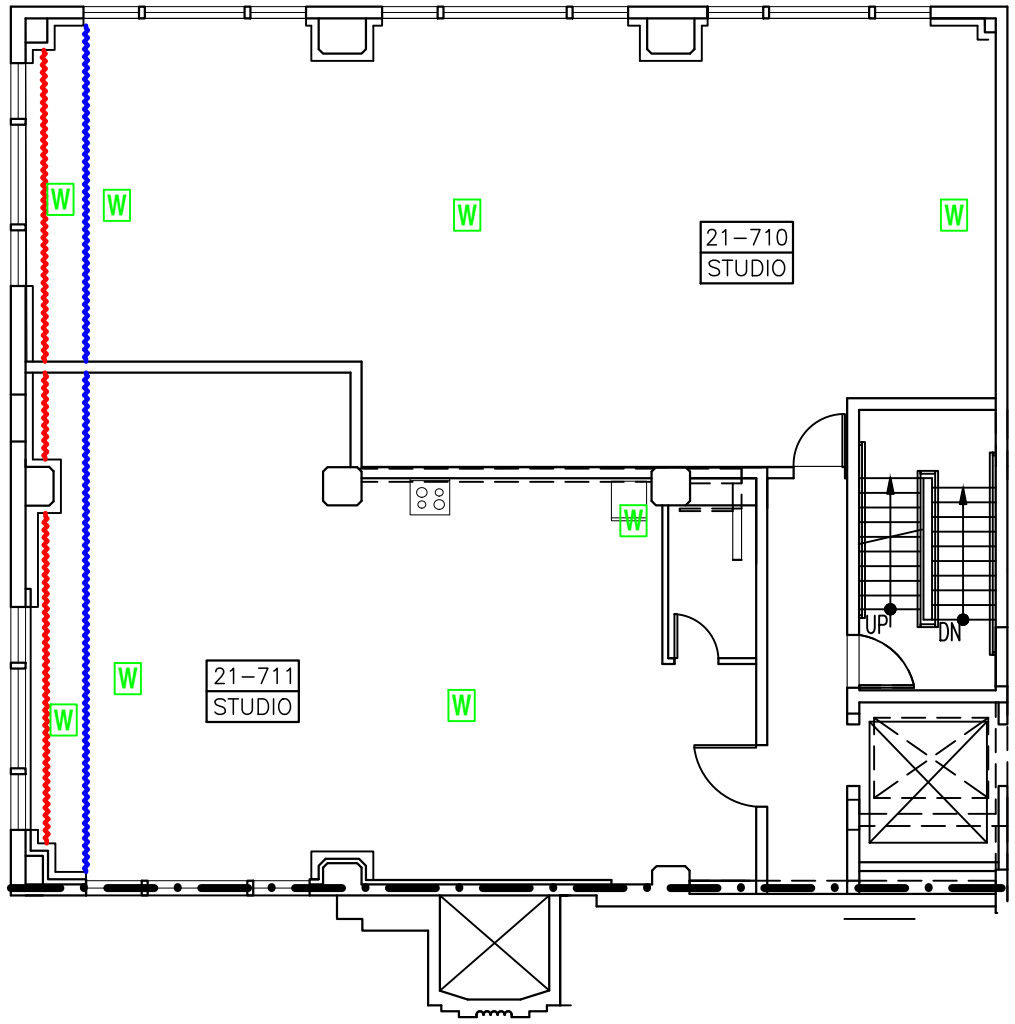
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10′–0″ (REF)



PHASE THREE, SETUP 15

BUILDING 21, 800 LEVEL

NORTH AND UPPER EAST ELEVATIONS

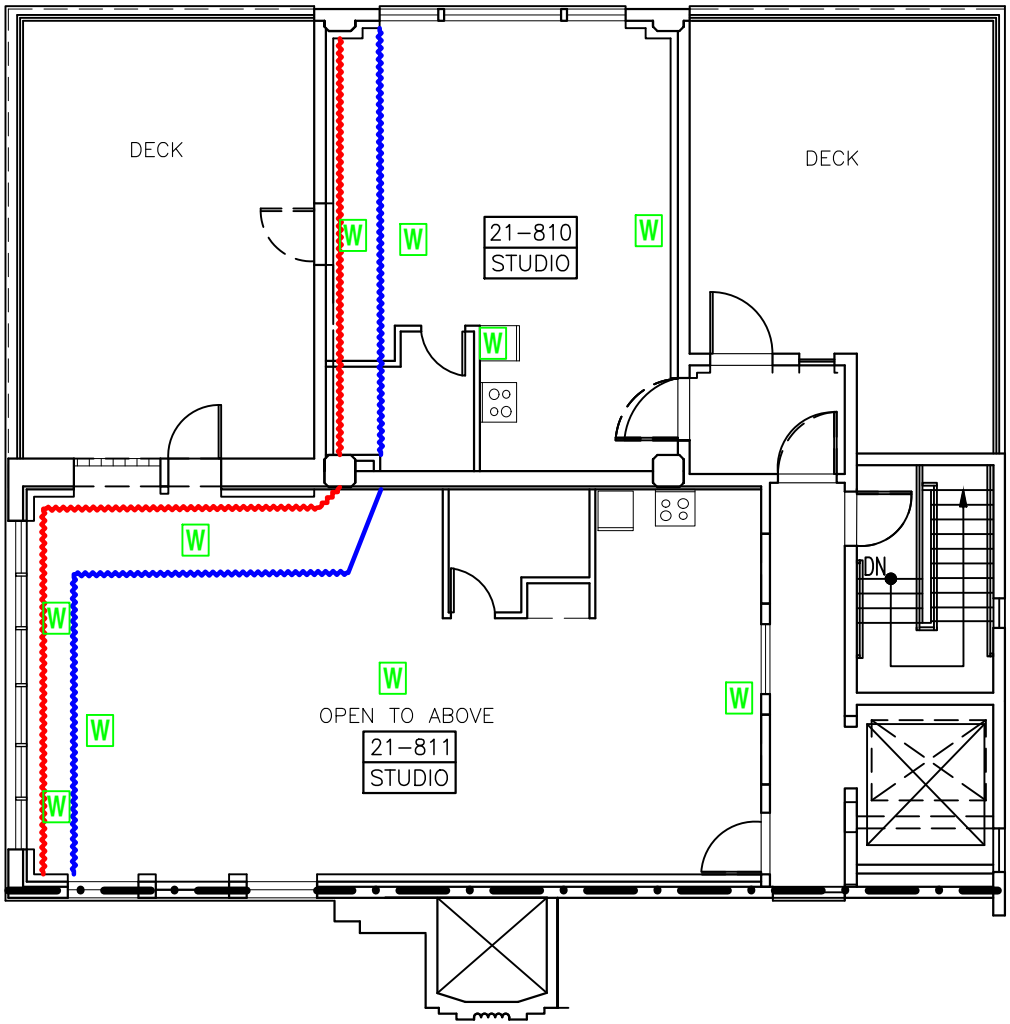
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

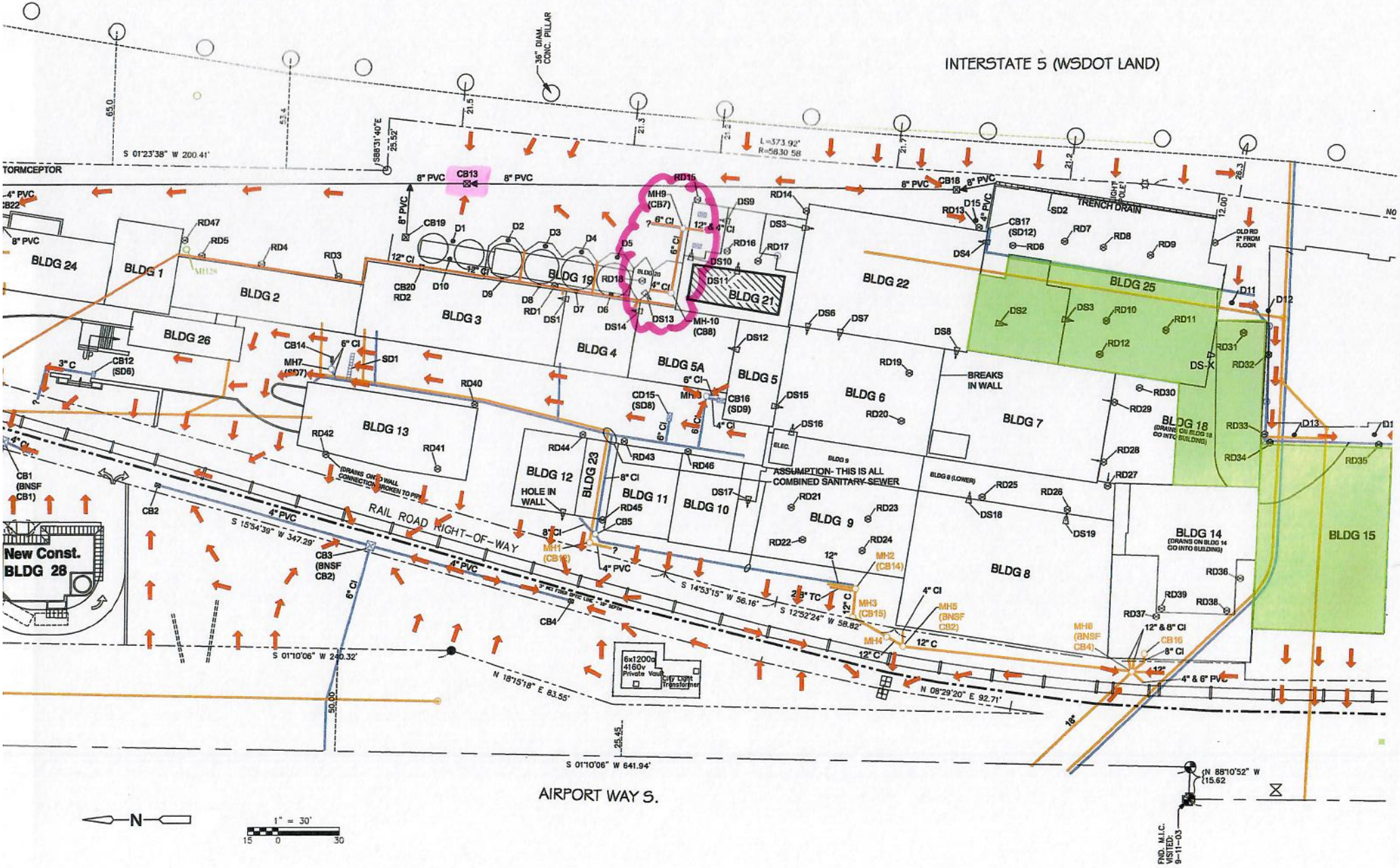
LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10′–0″ (REF)

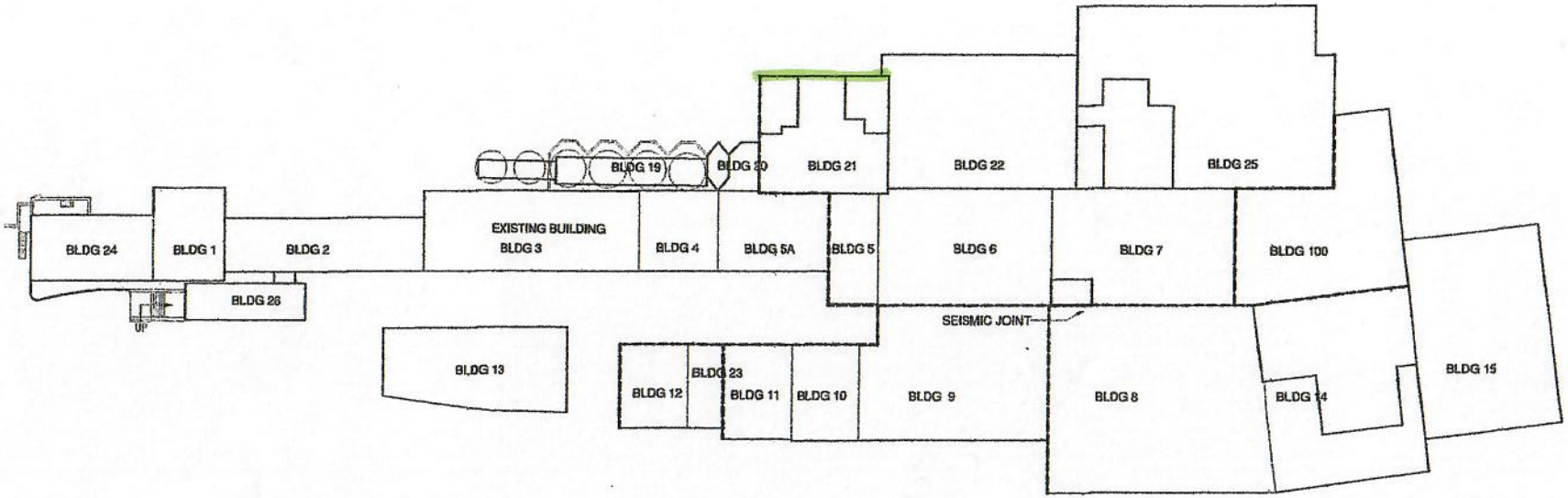


RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP

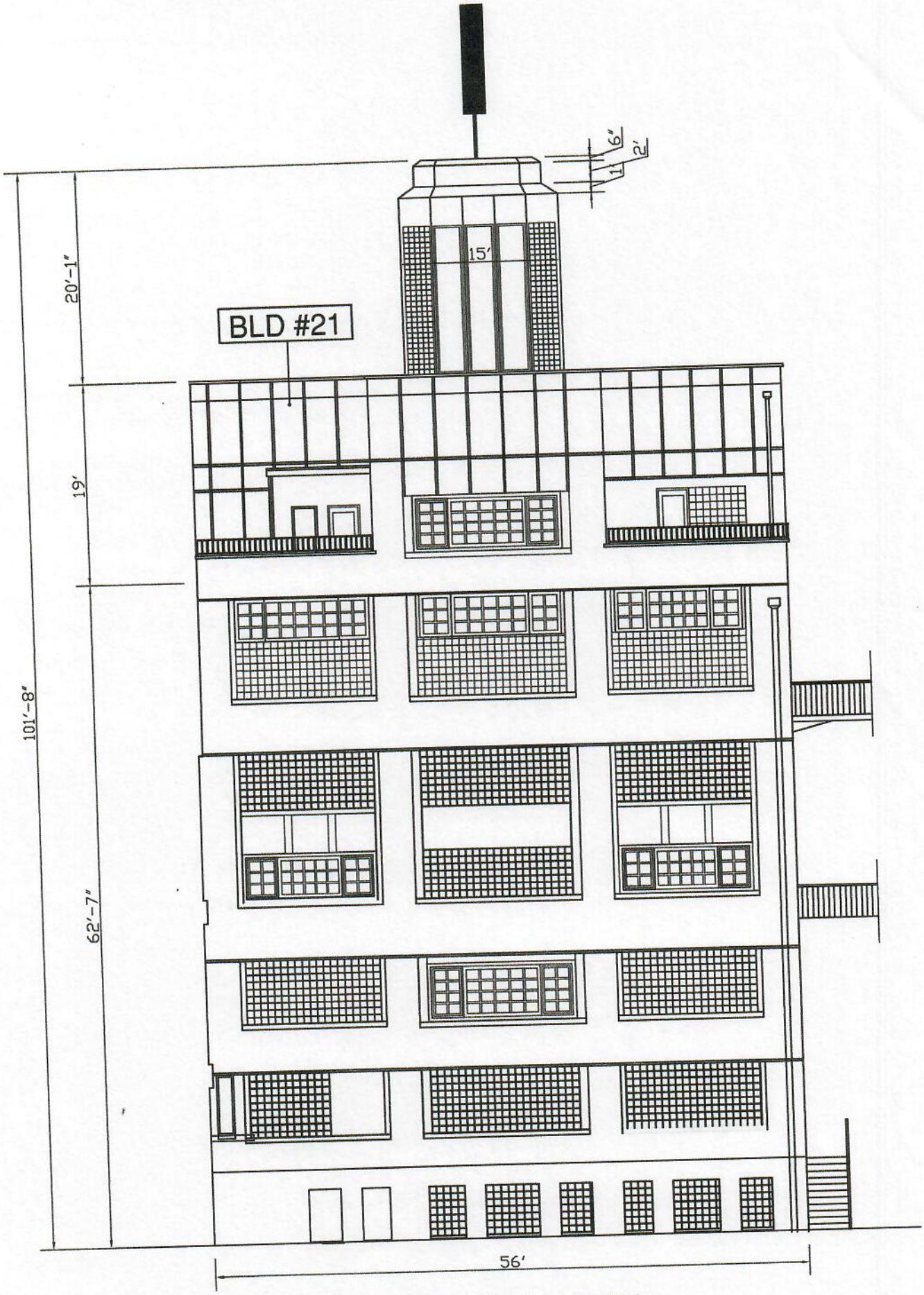


Phase 3 Set-up 16

Location:	Building 21 East Elevation
Stories:	Building 21 = 5
Material:	Concrete
Square Feet:	4,869
Tenants:	Residential
C/B Zone:	Purple
Roof Drain:	Scupper to downspout, tied to storm
Roof Protection:	Re-route w/Flex Pipe and filters to CB-13



BUILDING 21, EAST ELEVATION



EAST ELEVATION
BLDG 21

PHASE THREE, SETUP 16

BUILDING 21, 400 LEVEL

EAST ELEVATION

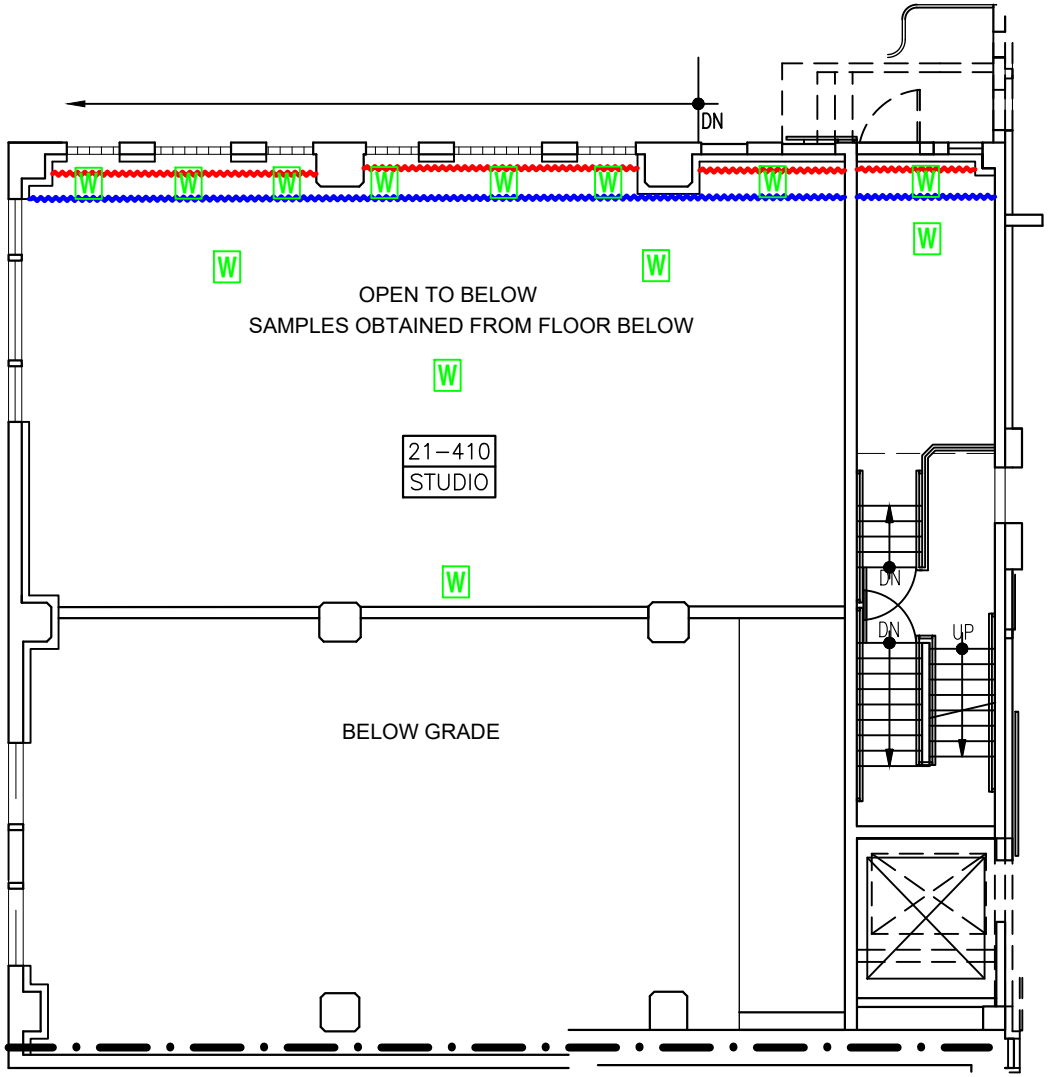
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″ (REF)



PHASE THREE, SETUP 16

BUILDING 21, 500 LEVEL

EAST ELEVATION

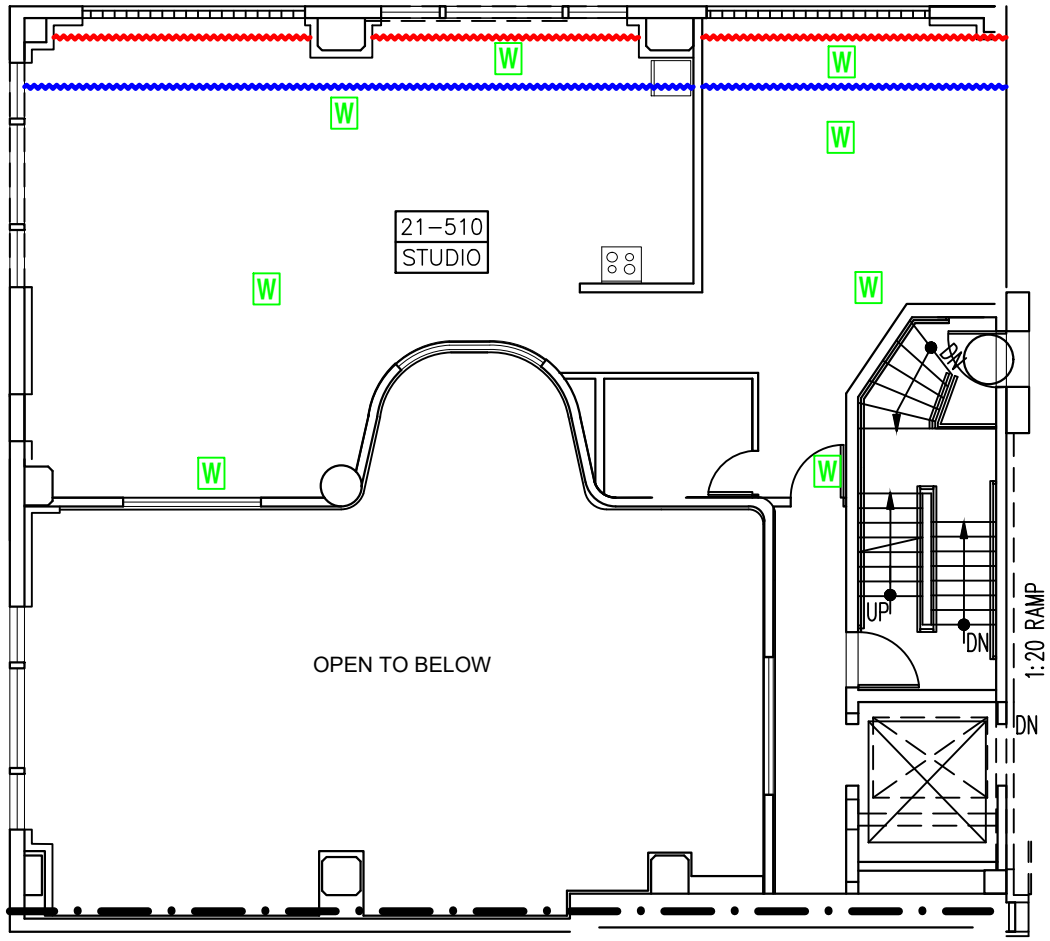
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 16

BUILDING 21, 600 LEVEL

EAST ELEVATION

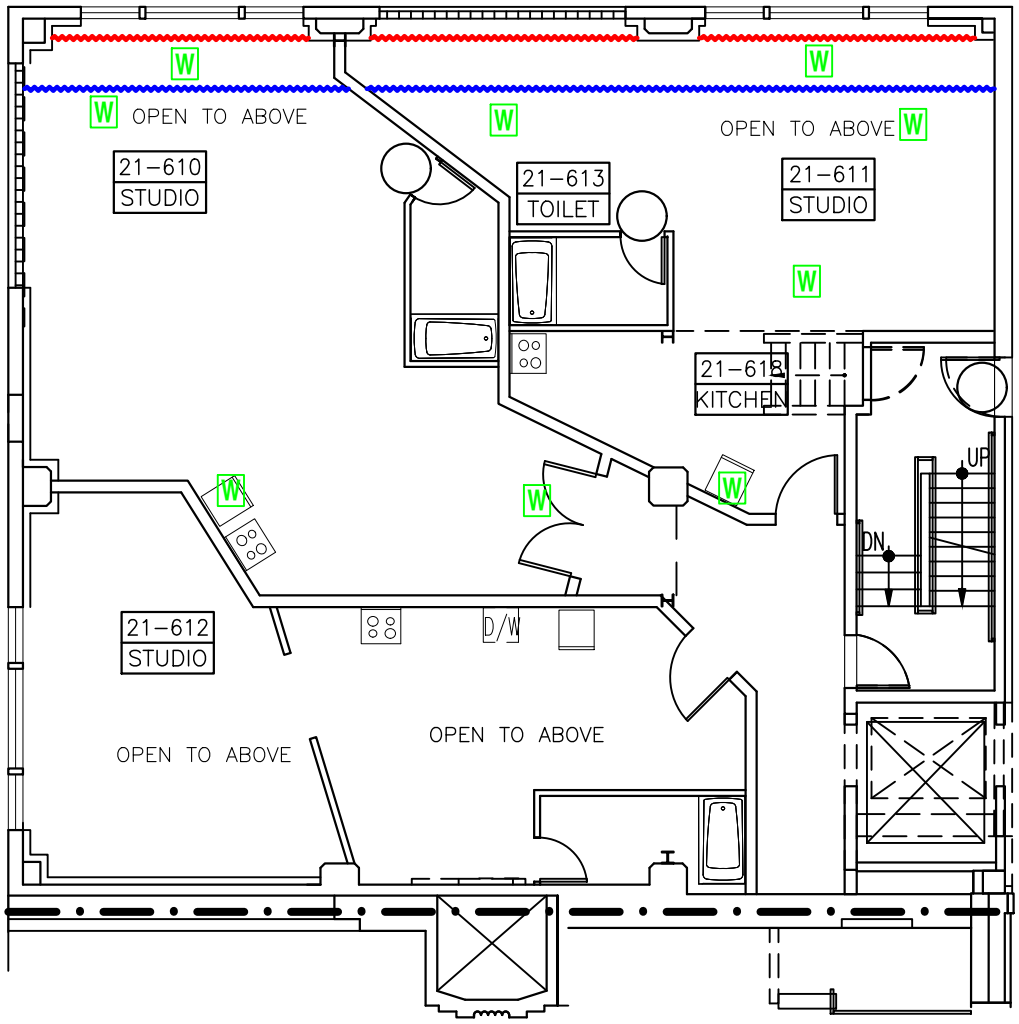
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 16

BUILDING 21, 700 LEVEL

EAST ELEVATION

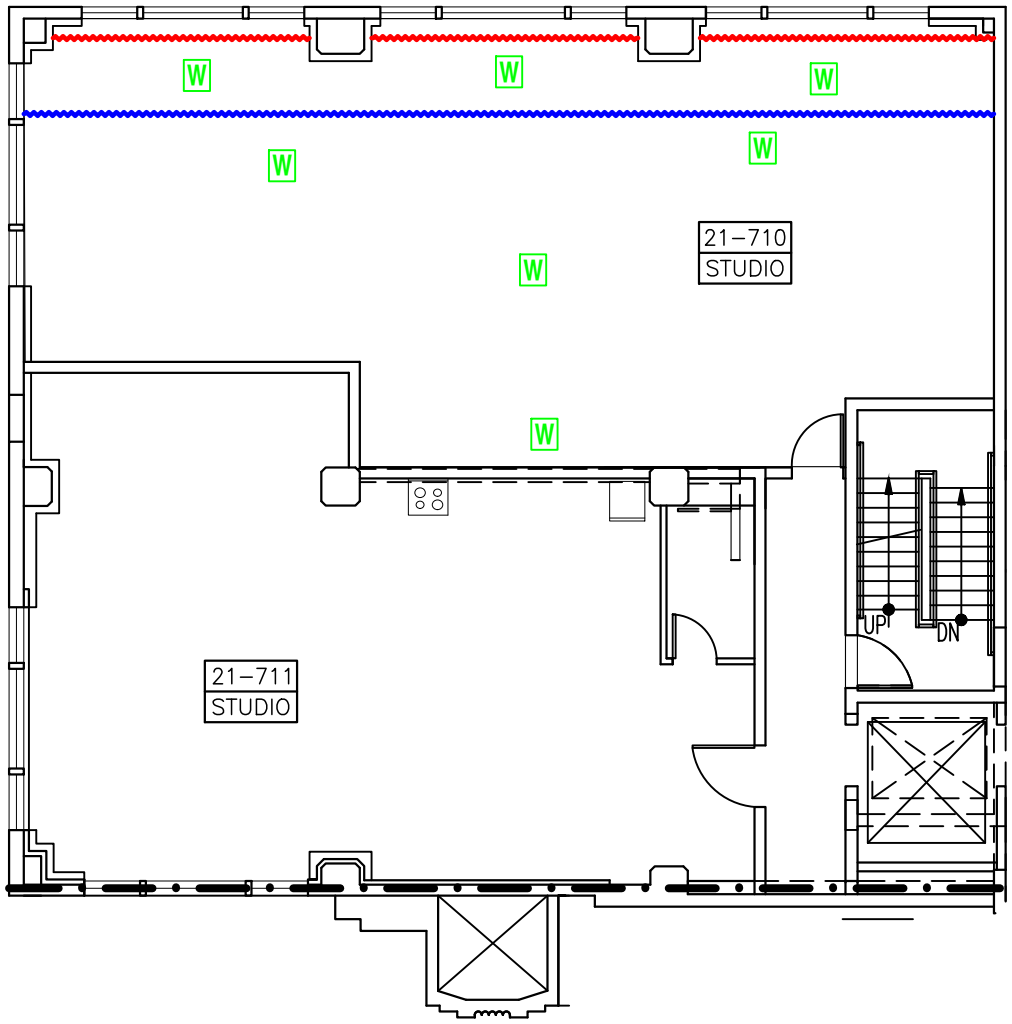
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 16

BUILDING 21, 800 LEVEL

EAST ELEVATION

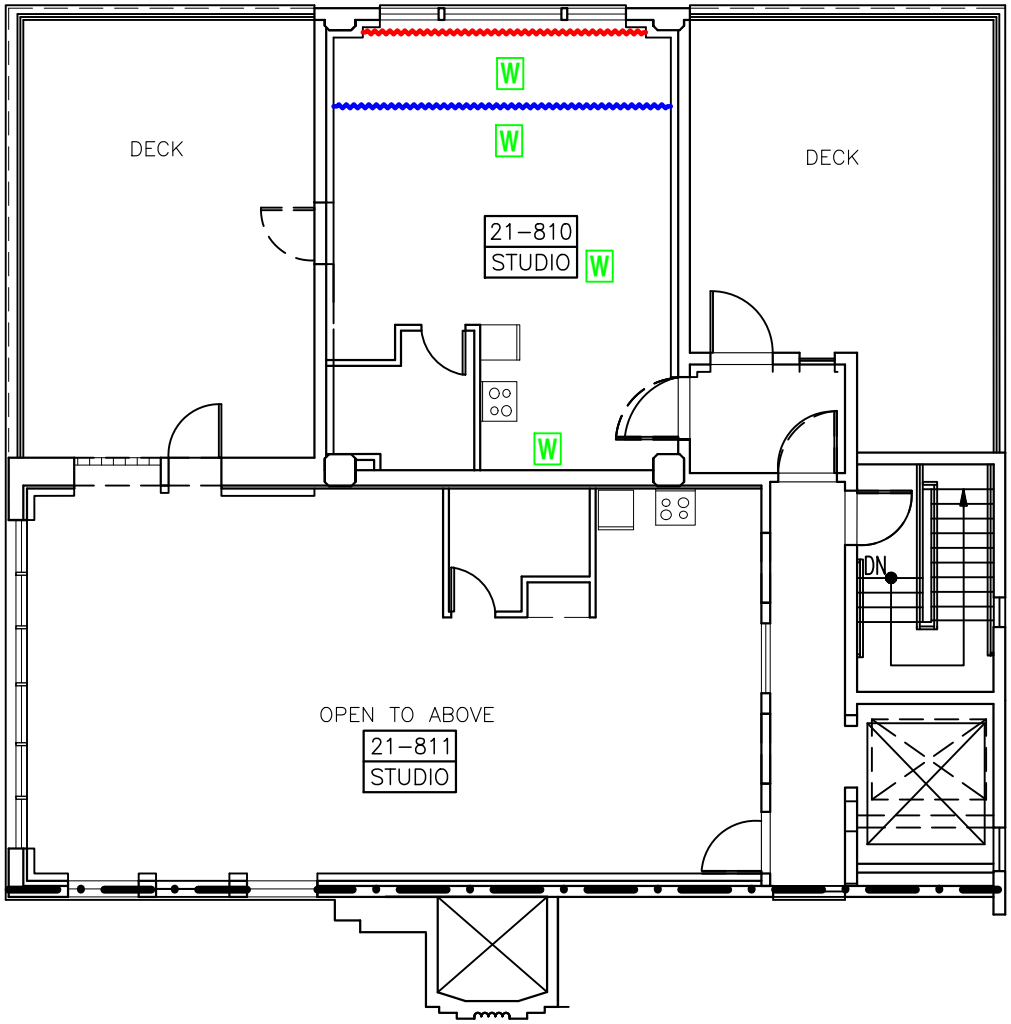
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

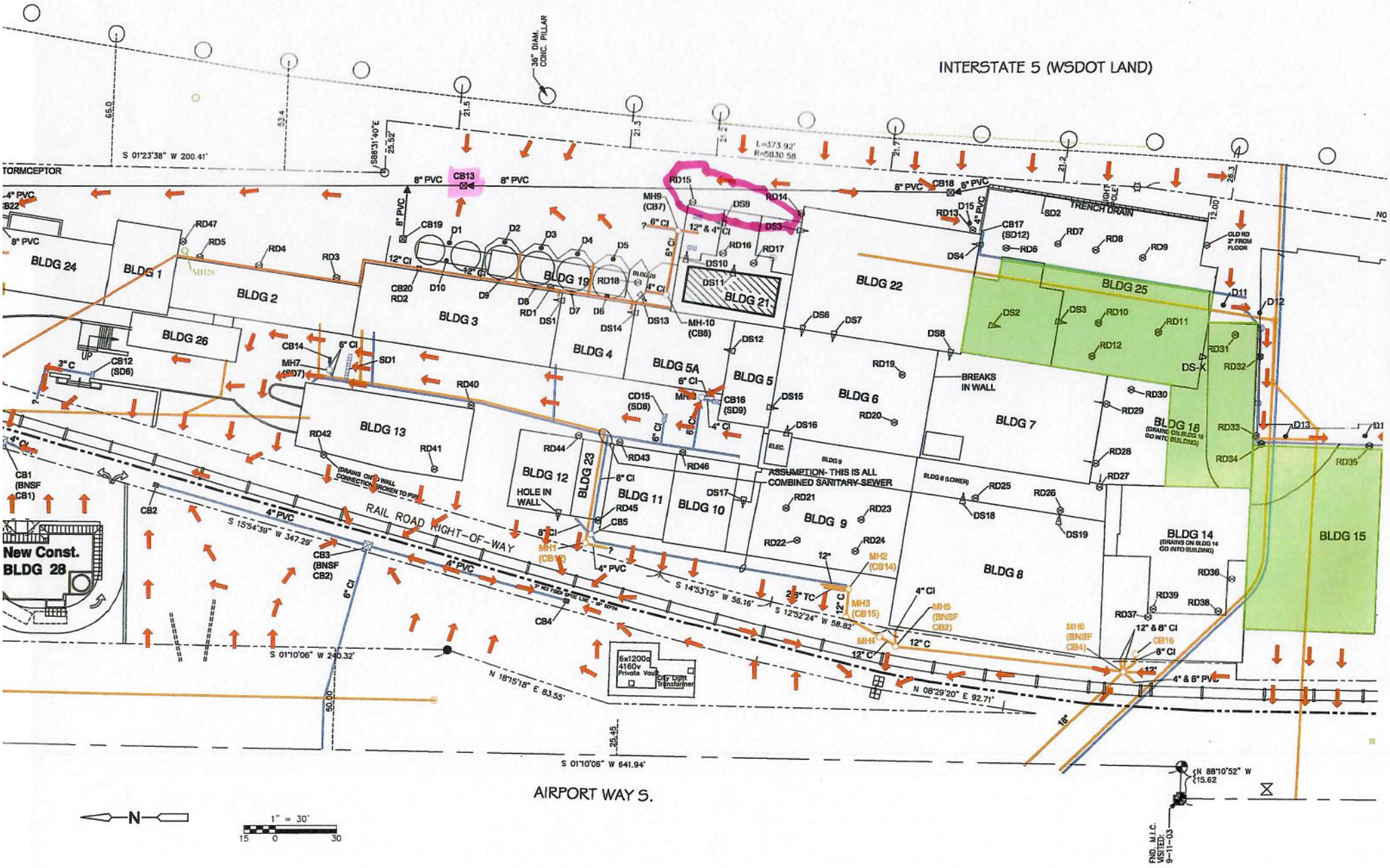
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



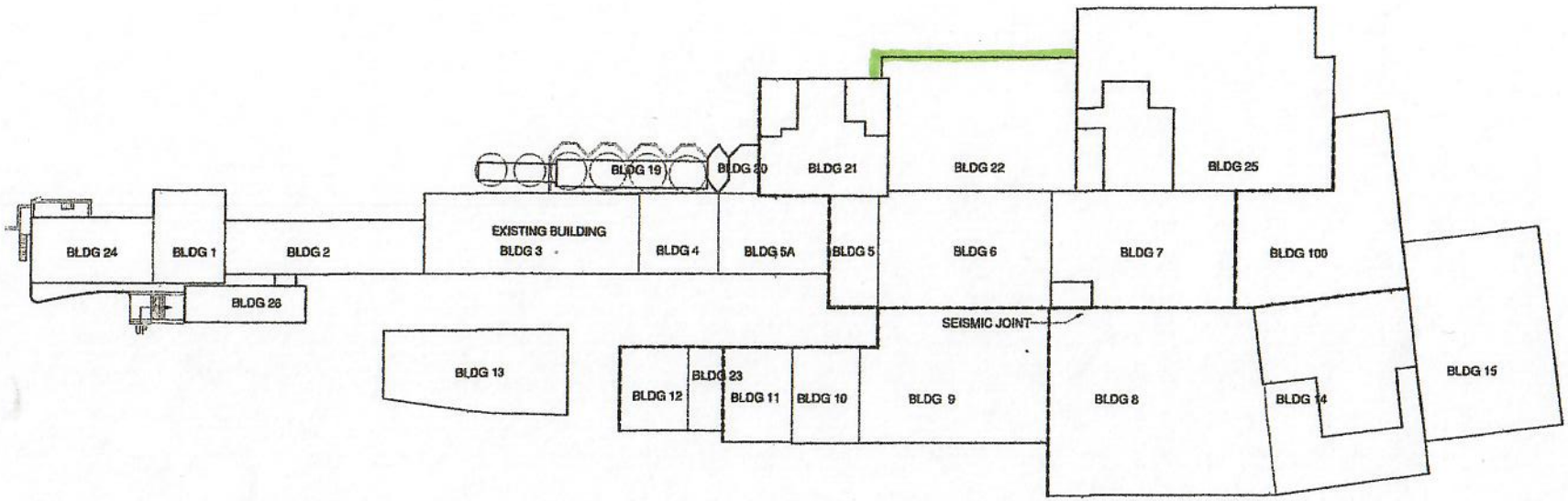
RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 17

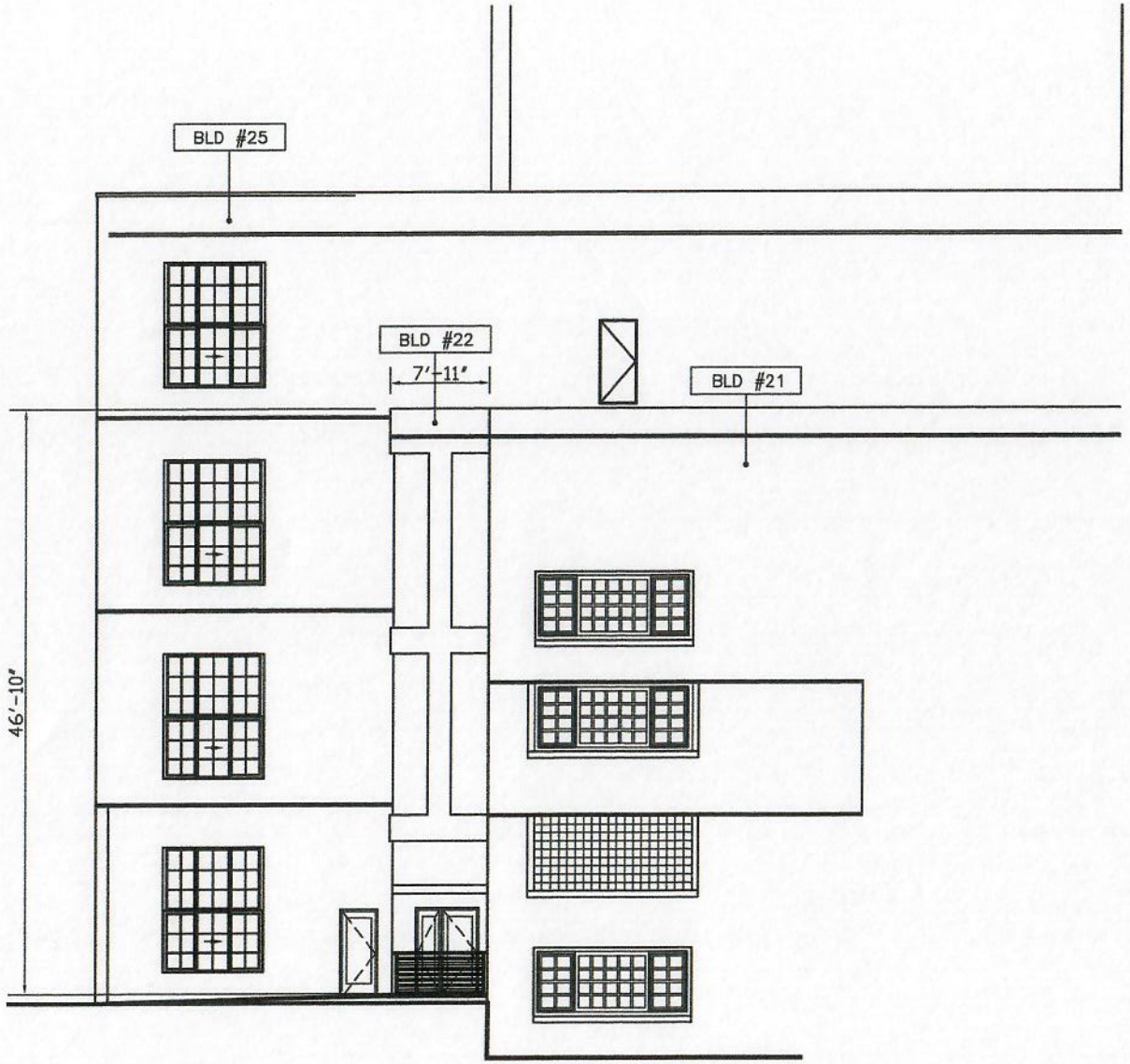
Location:	Building 22 North Elevation Building 22 East Elevation
Stories:	Building 22 = 3
Material:	Concrete
Square Feet:	Building 22-N = 816 Building 22-E = 4,150
Tenants:	Residential
C/B Zone:	Purple
Roof Drain:	Scupper to downspout, tied to storm

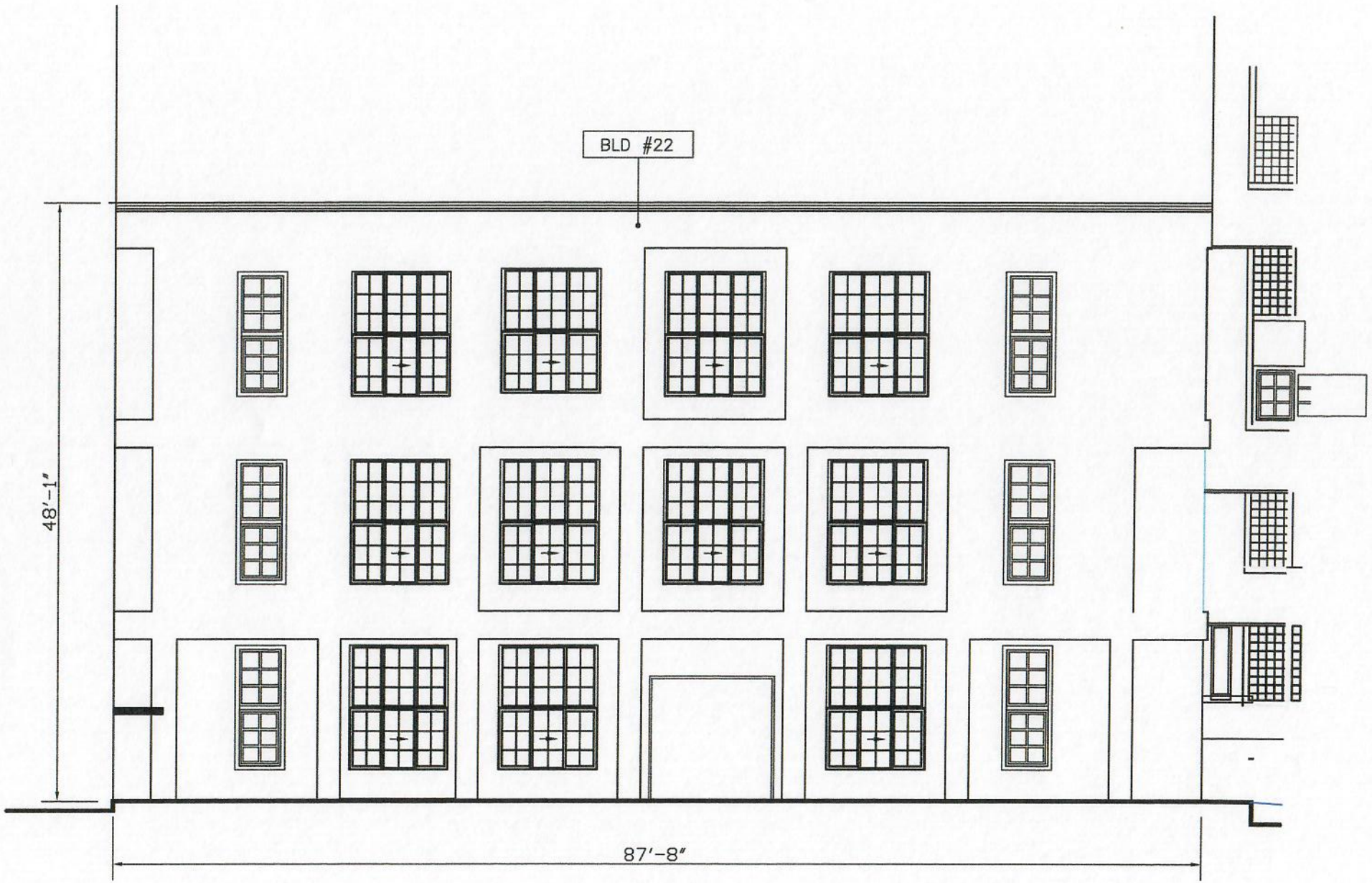
Roof Protection: Re-route w/Flex Pipe and filters to CB-18



BUILDING 22, NORTH ELEVATION

BUILDING 22, EAST ELEVATION


BLD #25
BLD #22
7'-11"
BLD #21
46'-10"


BLD #22
48'-1"
87'-8"

PHASE THREE, SETUP 17

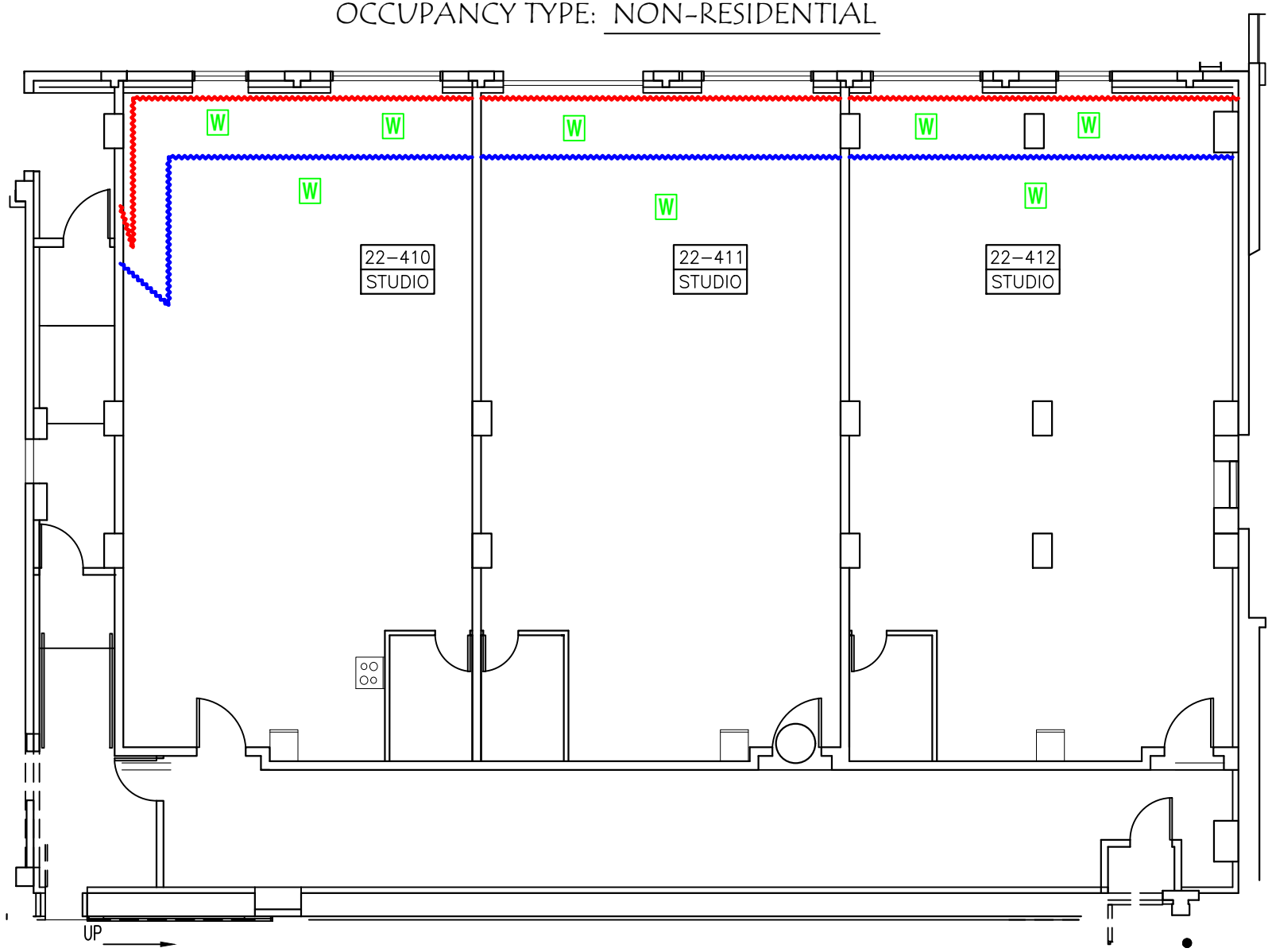
BUILDING 22, 400 LEVEL

NORTH & EAST ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 17

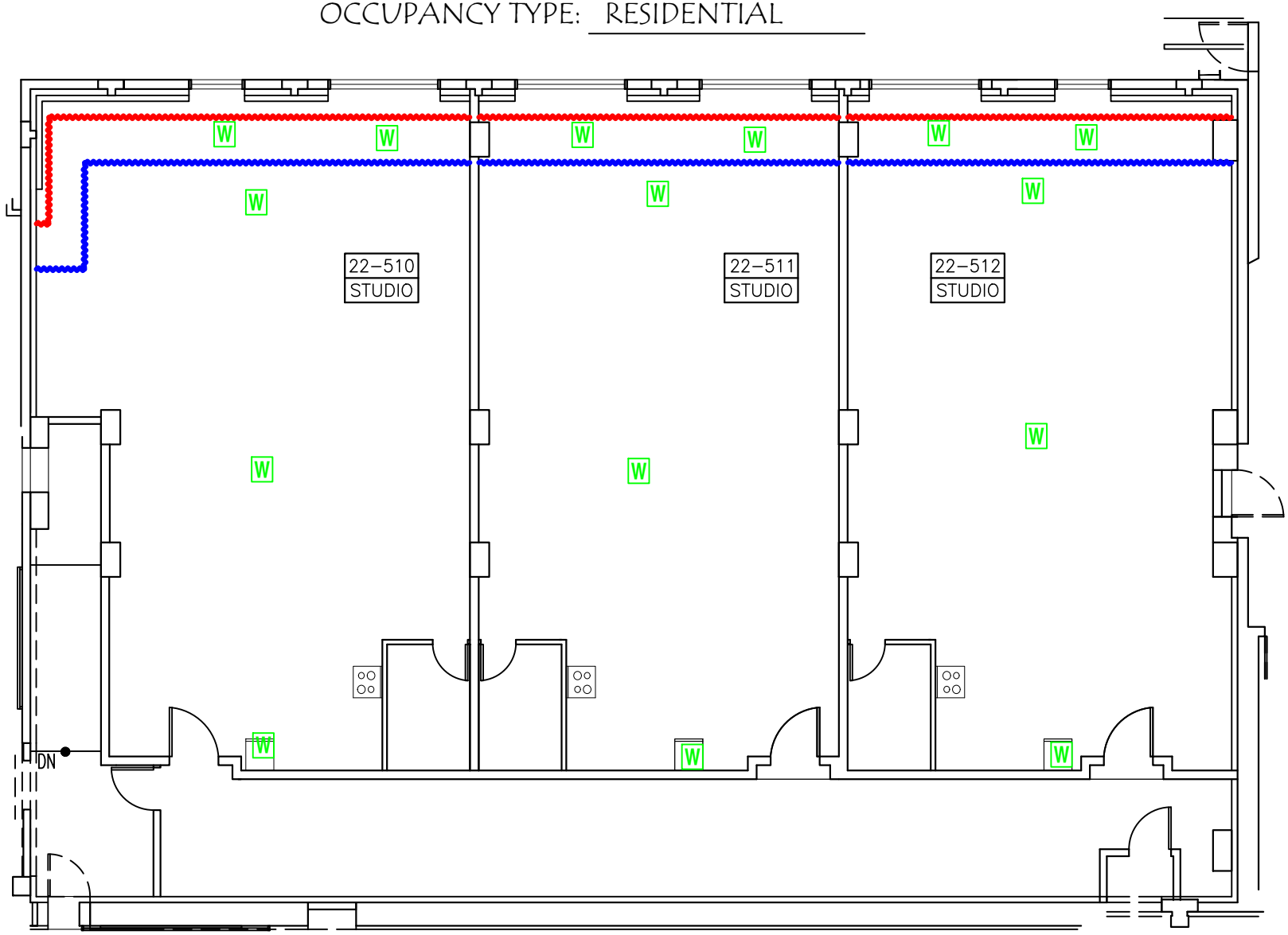
BUILDING 22, 500 LEVEL

NORTH & EAST ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 17

BUILDING 22, 600 LEVEL

NORTH & EAST ELEVATIONS

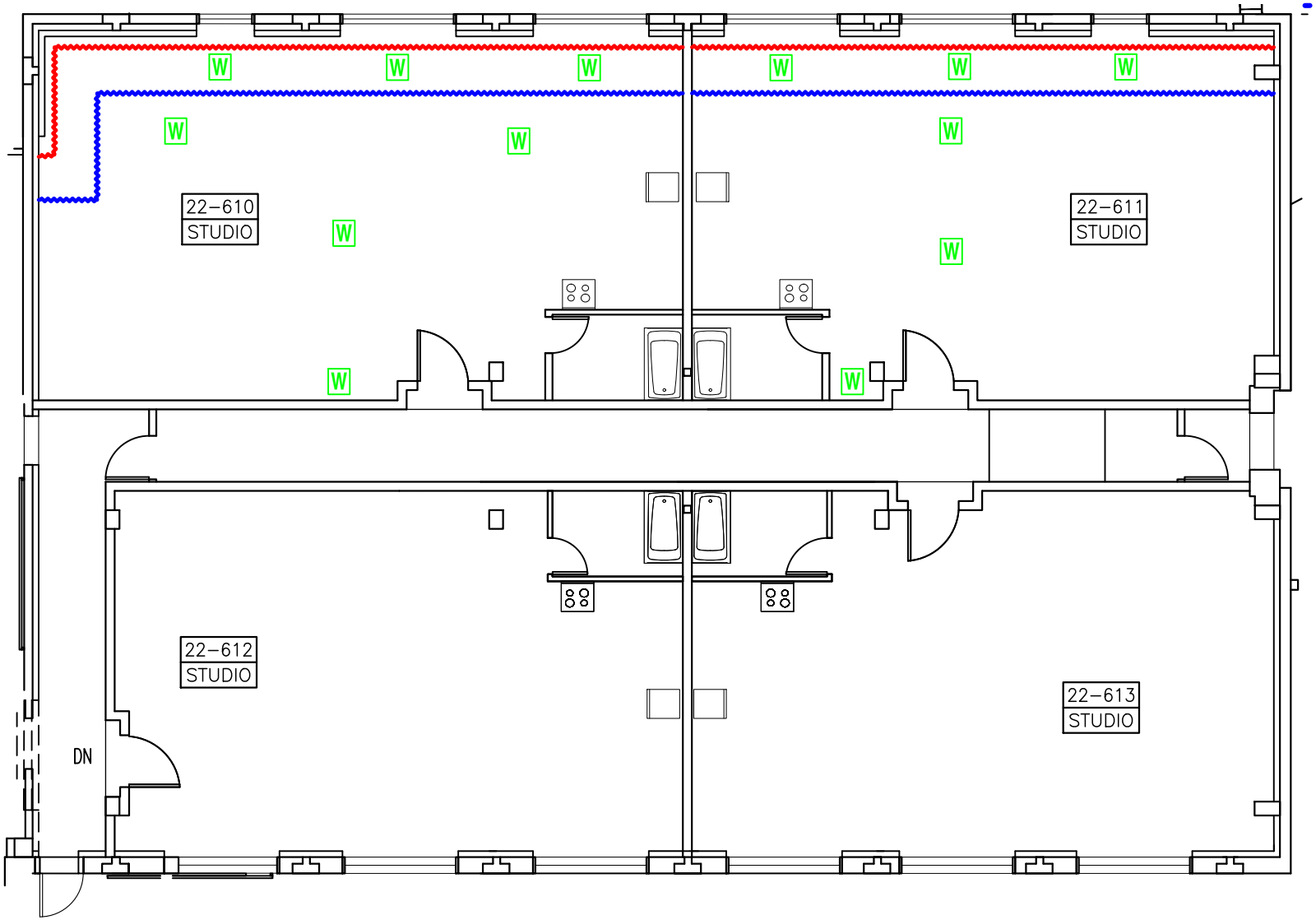
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

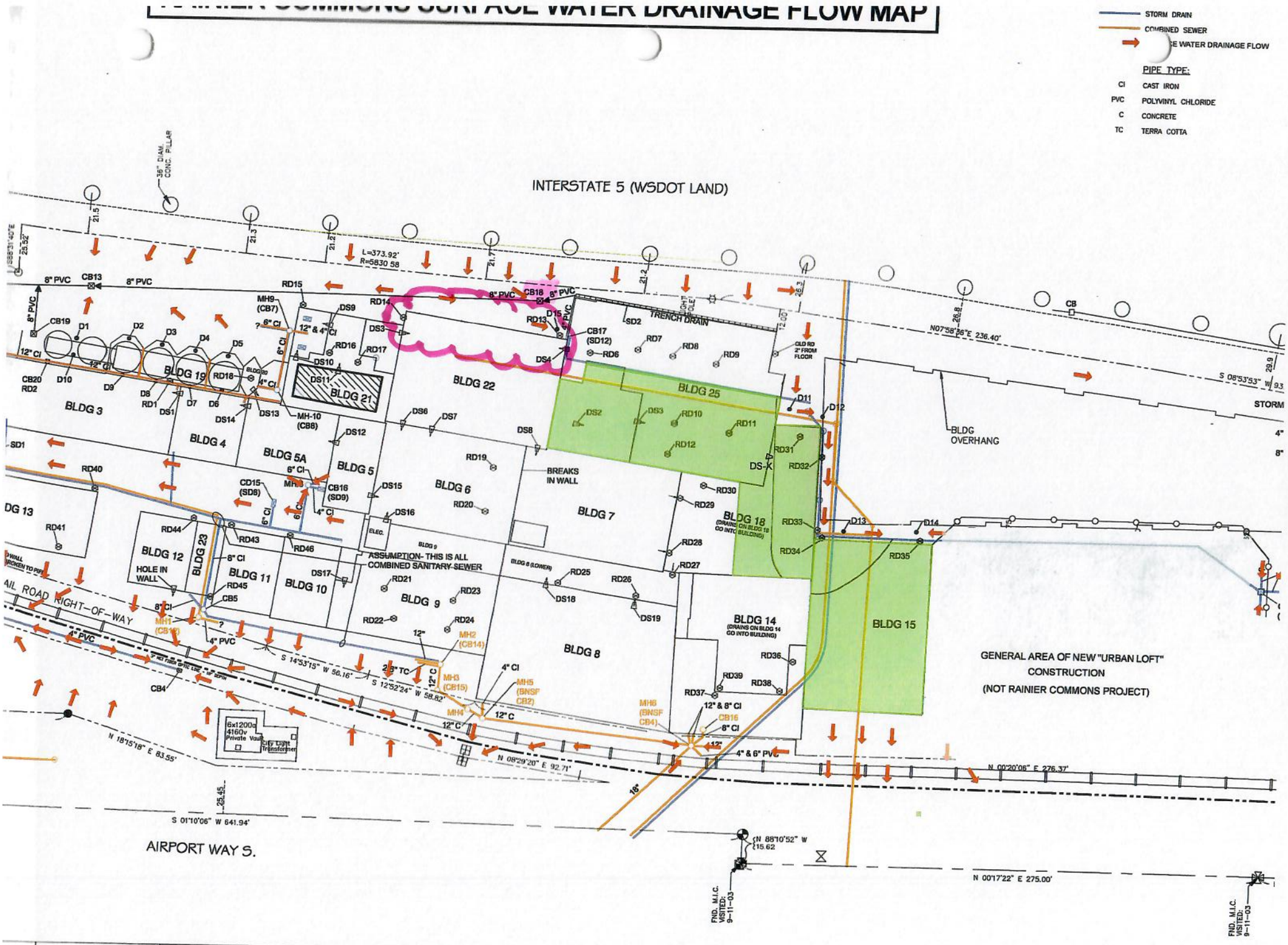
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″ (REF)



RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



DESIGNED BY: AEM
DRAWN BY: PJR
CHK'D BY: PJM

CDM Camp Dresser & McKee Inc.

VERIFY SCALE

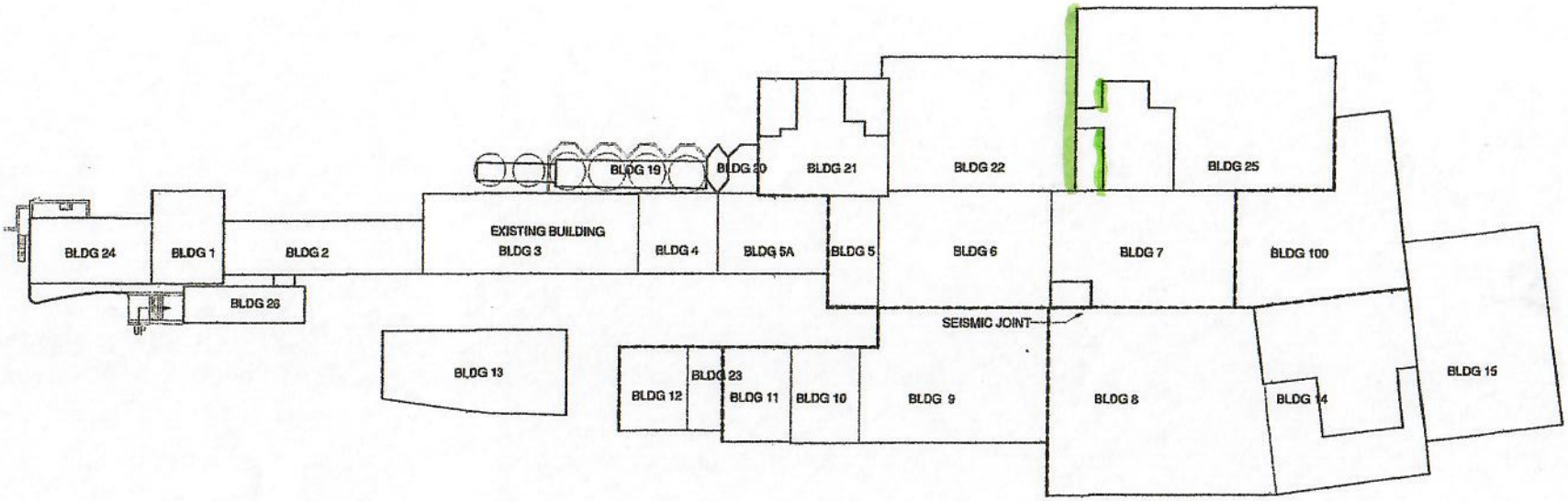
RAINIER COMMONS LLC
3100 AIRPORT WAY S

PROJ

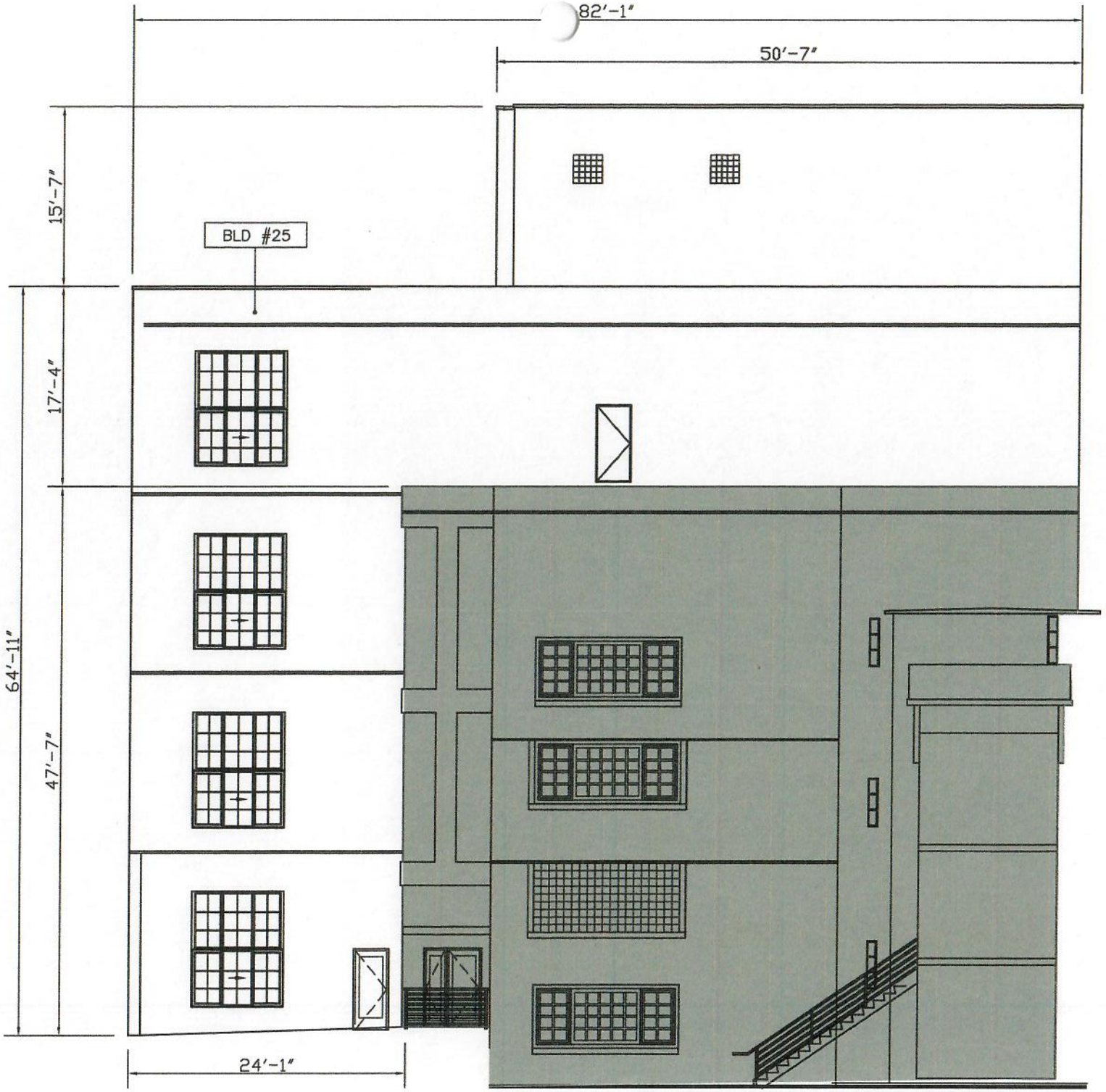
Phase 3 Set-up 18

Location:	Building 25 North Elevation
Stories:	Building 5 = 5
Material:	Concrete
Square Feet:	3,825
Tenants:	Commercial & Residential.
C/B Zone:	Purple
Roof Drain:	Scupper to downspout, to Bldg 22 roof
Roof Protection:	Re-route w/Flex Pipe and filters to

CB-18



BUILDING 25, NORTH ELEVATION


82'-1"
50'-7"
15'-7"
BLD #25
17'-4"
64'-11"
47'-7"
24'-1"

PHASE THREE, SETUP 18

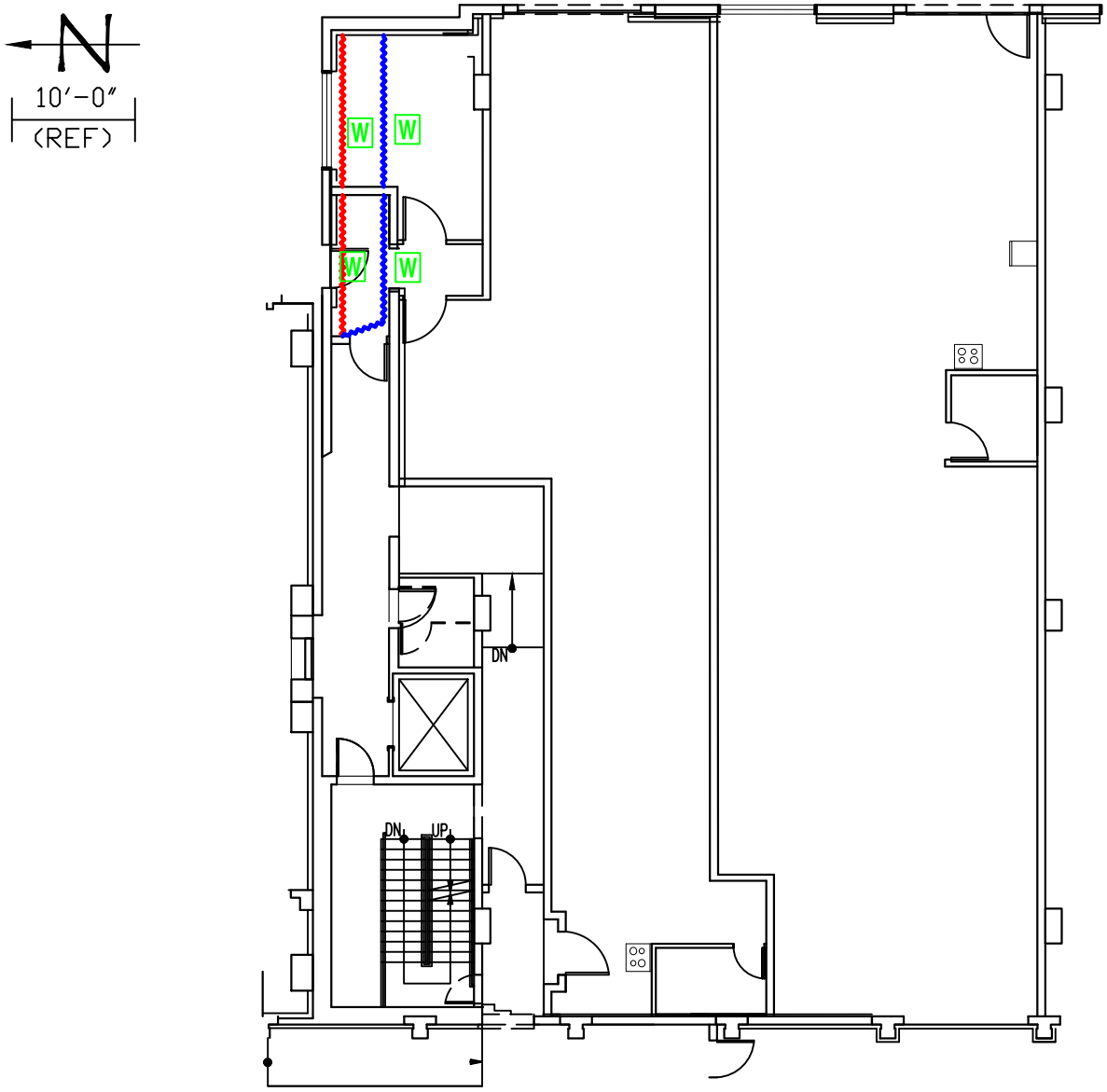
BUILDING 25, 400 LEVEL

NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 18

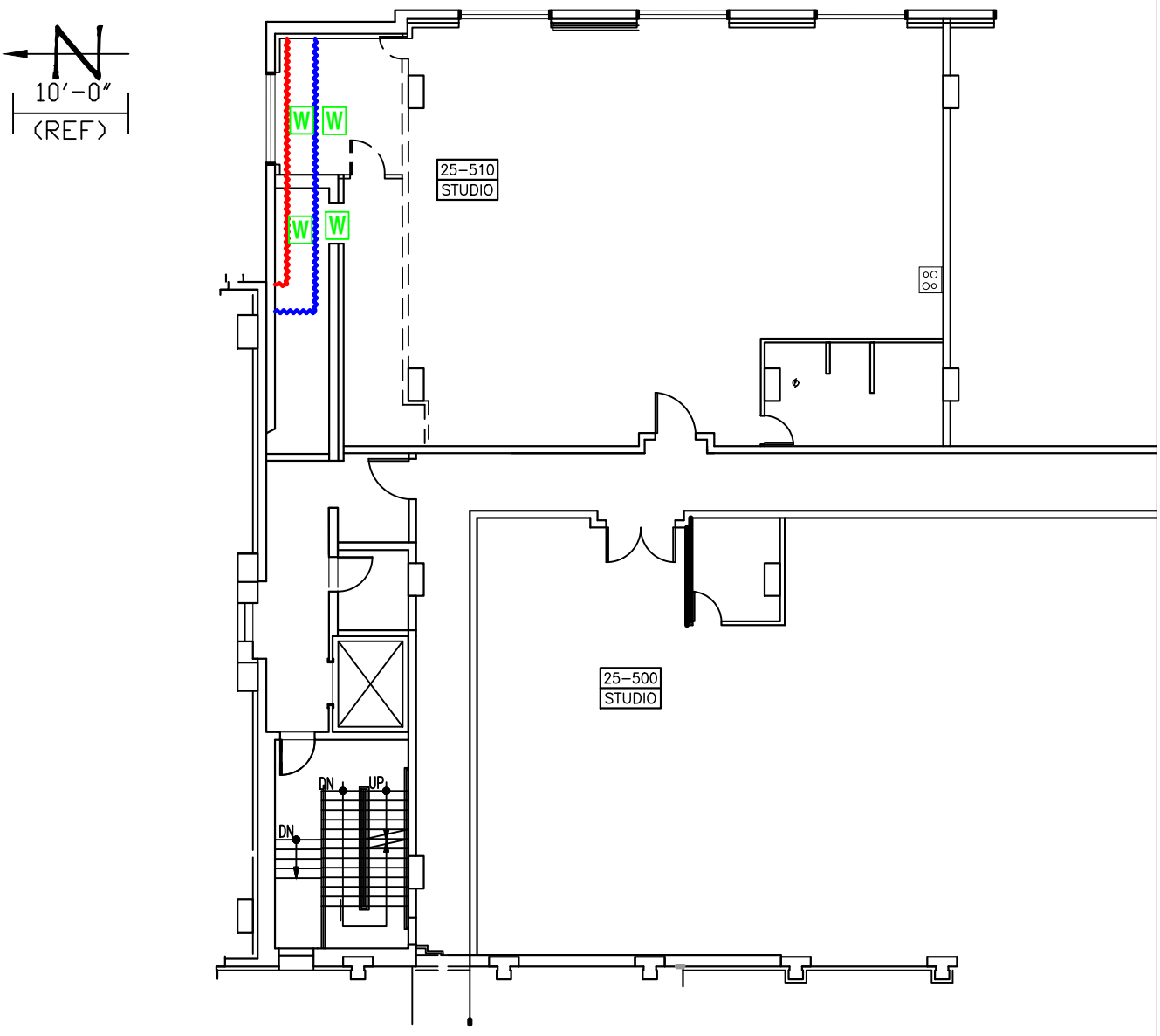
BUILDING 25, 500 LEVEL

NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 18

BUILDING 25, 600 LEVEL

NORTH ELEVATION

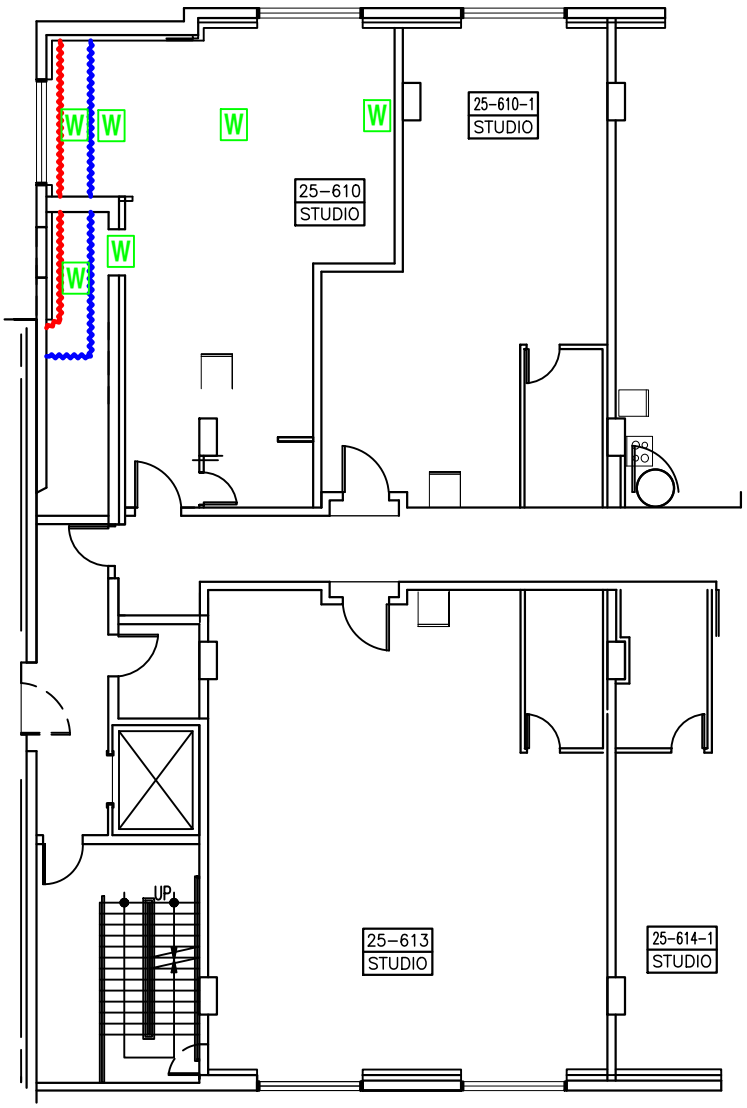
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 18

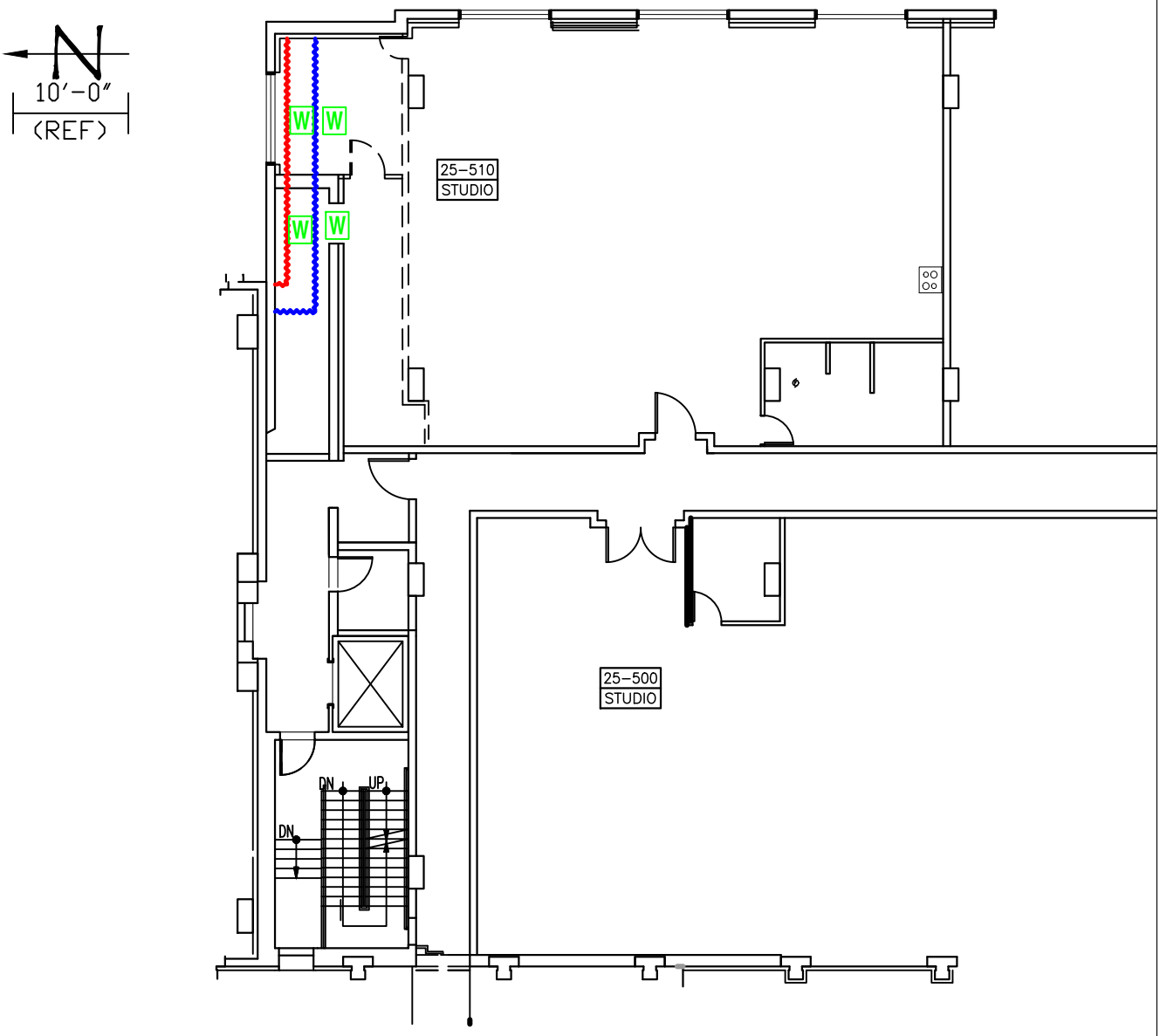
BUILDING 25, 500 LEVEL

NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



PHASE THREE, SETUP 18

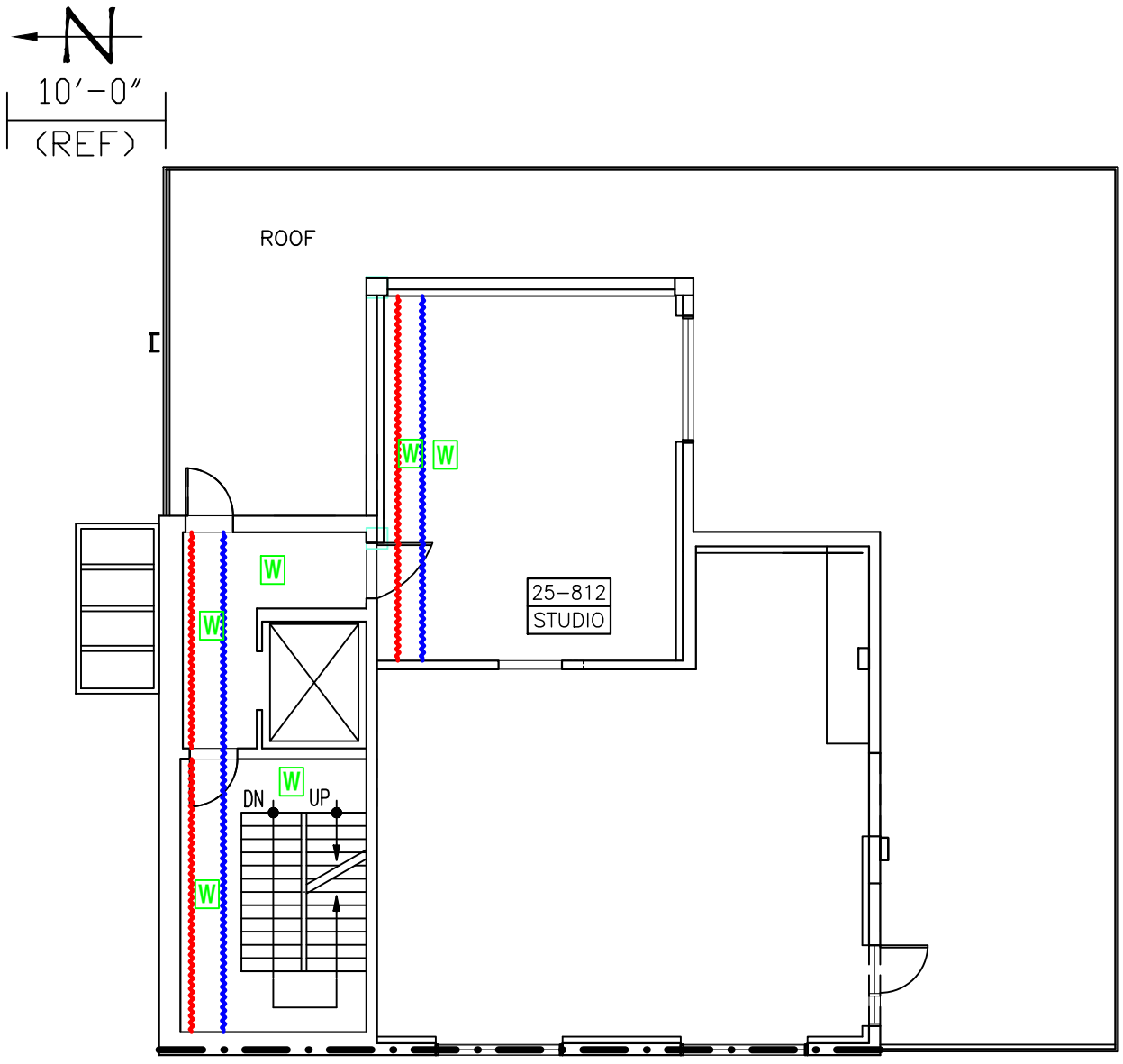
BUILDING 25, 800 LEVEL

NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



DESIGNED BY:	AEM
DRAWN BY:	PJR
SHEET CHK'D BY:	PJM
CROSS CHK'D BY:	
APPROVED BY:	

CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st. Street, Suite 201, P.O. Box 3885
Bellevue, Washington 98005
Tel: (425) 453-8383

VERIFY SCALE

THIS BAR IS ONE INCH LONG

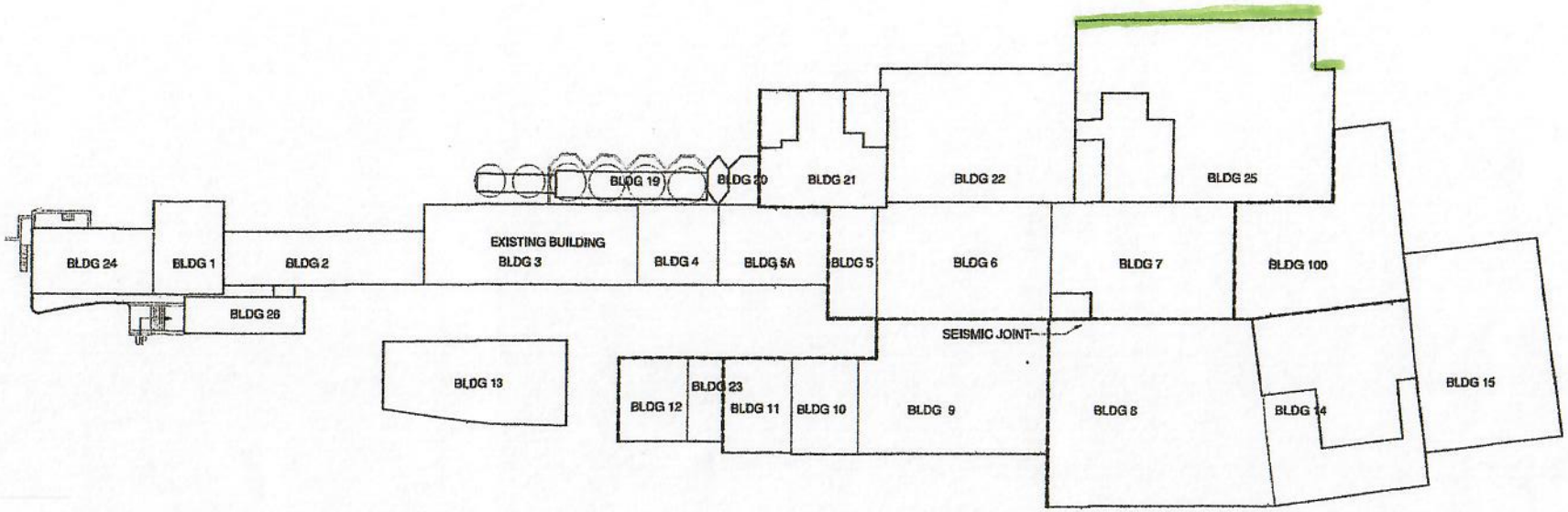
RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN LOCATIONS PLAN

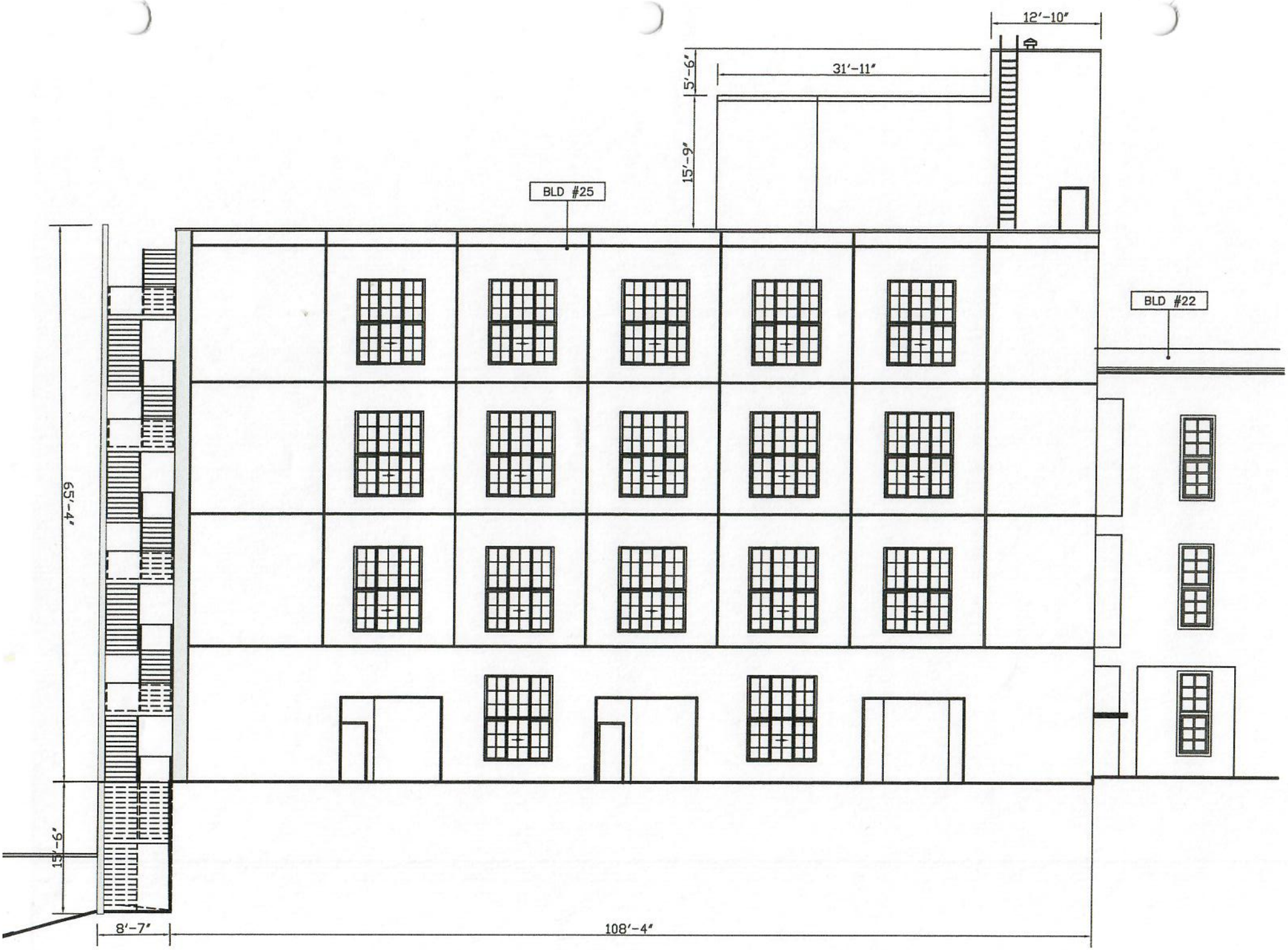
Phase 3 Set-up 19

Location:	Building 25 East Elevation
Stories:	Building 25 = 5
Material:	Concrete
Square Feet:	8,144
Tenants:	Commercial & Residential
C/B Zone:	Purple
Roof Drain:	Scupper to downspout, tied to storm

Roof Protection: Re-route w/Flex Pipe and filters to CB-18. Cover trench drain beneath NPE



BUILDING 25, EAST ELEVATION


12'-10"
5'-6"
31'-11"
15'-9"
BLD #25
BLD #22
65'-4"
15'-6"
8'-7"
108'-4"

PHASE THREE, SETUP 19

BUILDING 25, 400 LEVEL

EAST ELEVATION

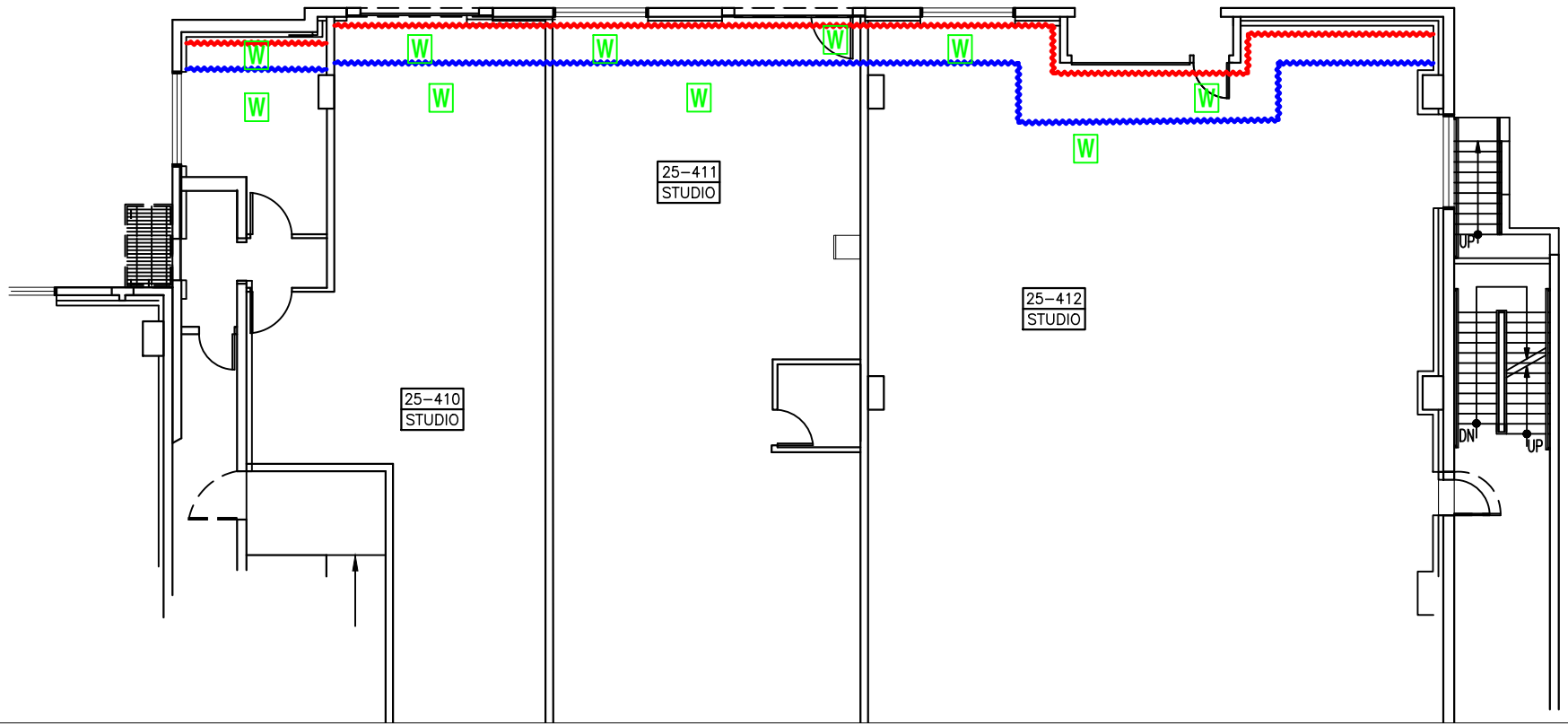
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 19

BUILDING 25, 500 LEVEL

EAST ELEVATION

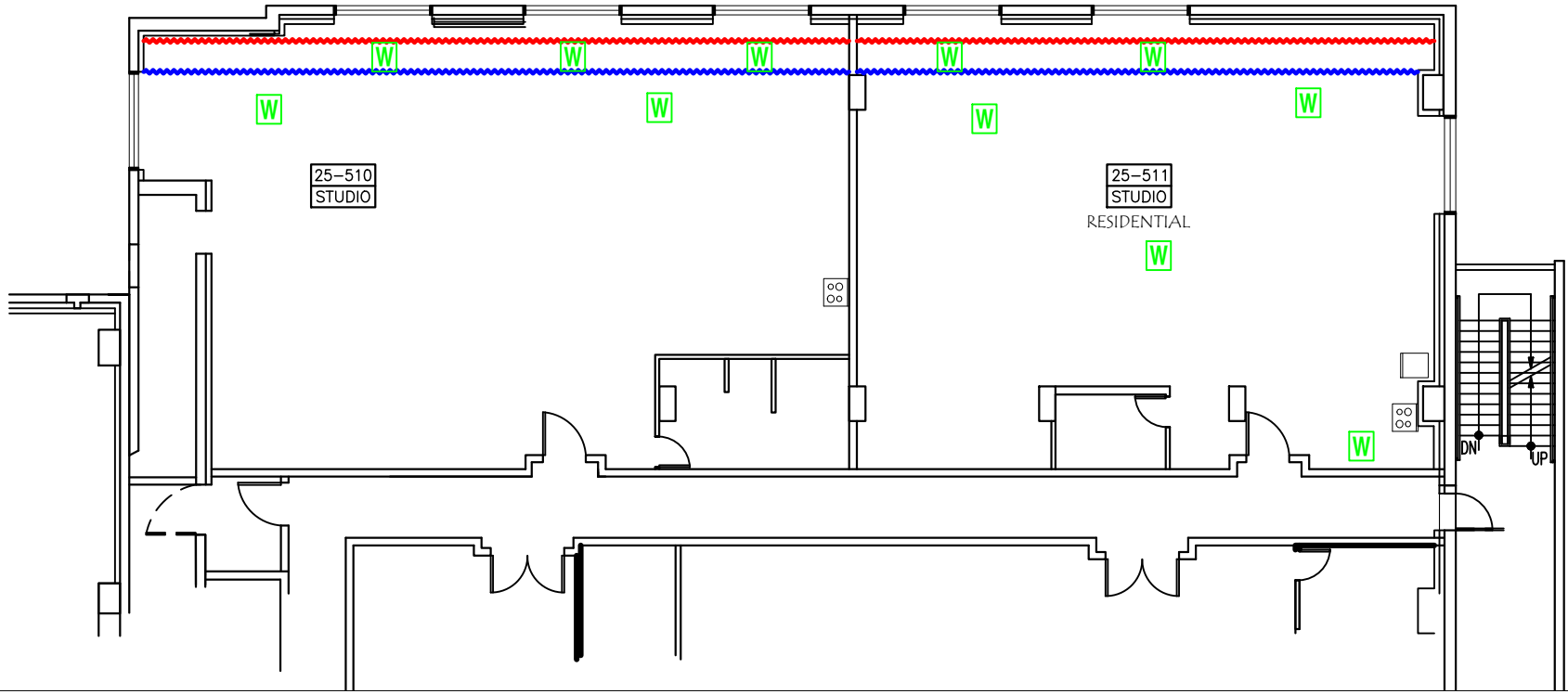
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: MIXED, SEE UNITS

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 19

BUILDING 25, 600 LEVEL

EAST ELEVATION

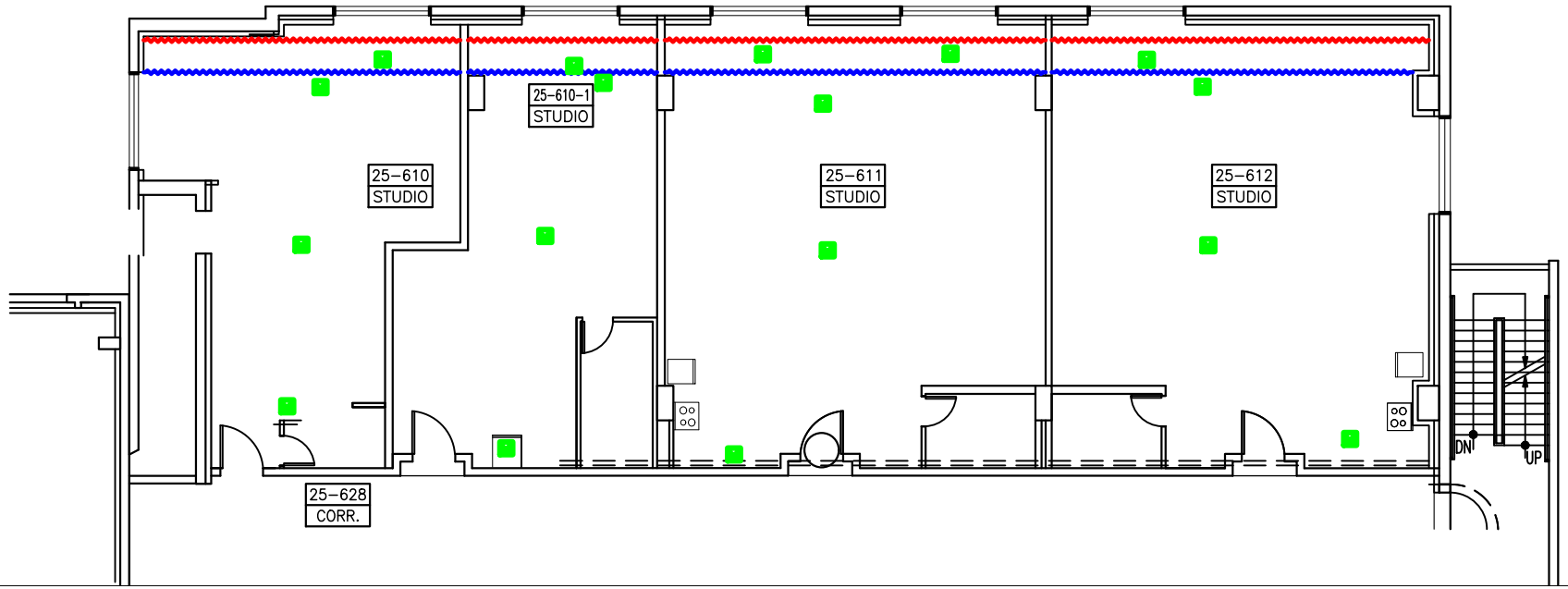
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 19

BUILDING 25, 700 LEVEL

EAST ELEVATION

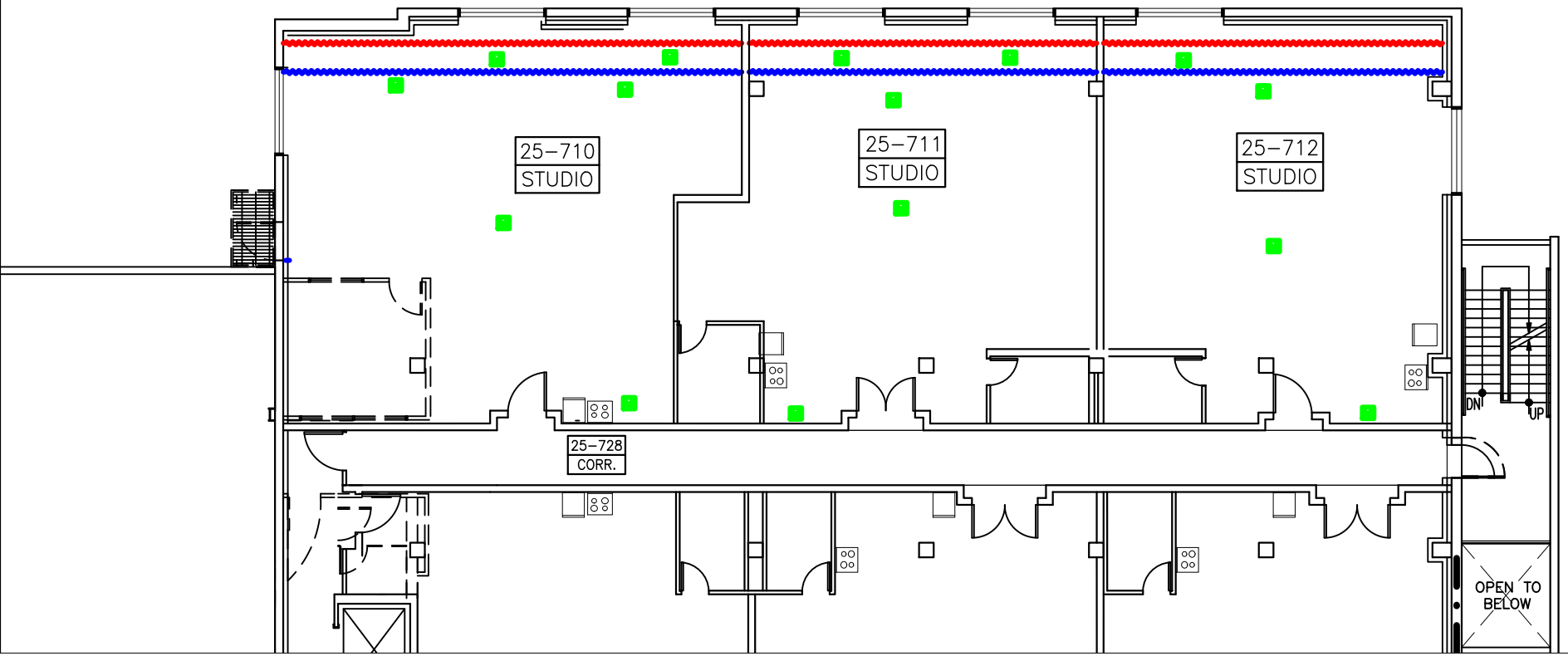
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 19

BUILDING 25, 800 LEVEL

EAST ELEVATION

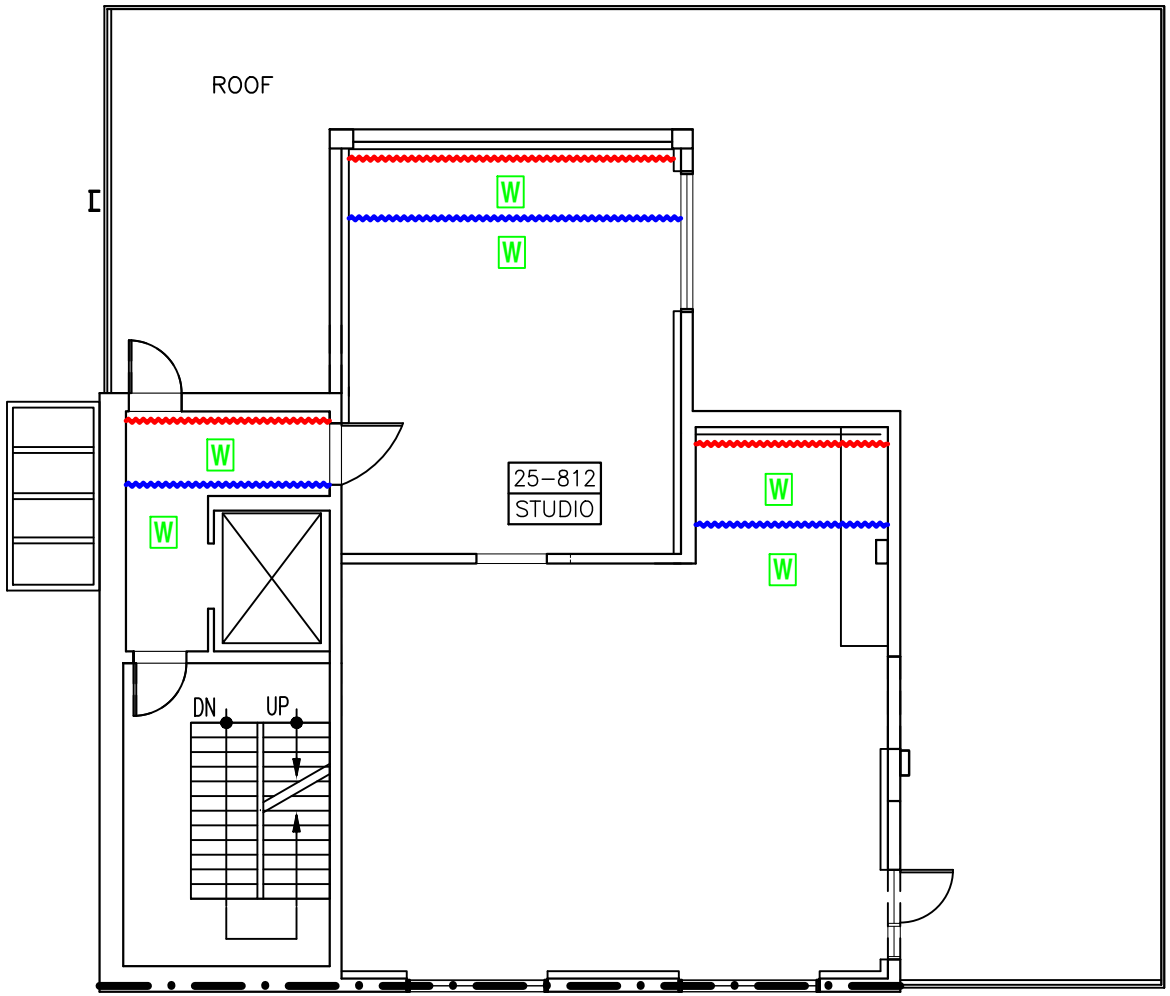
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

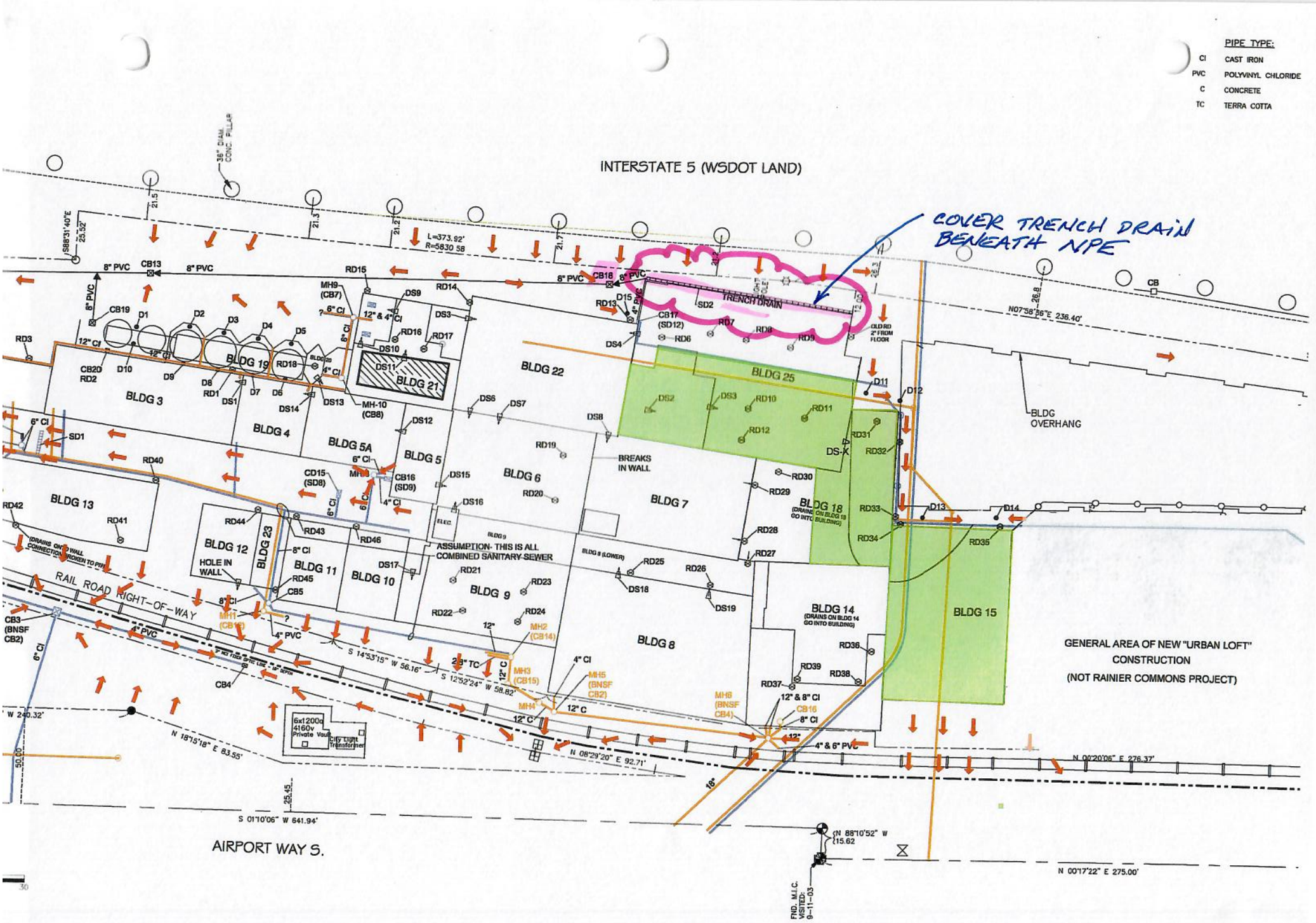
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)





DESIGNED BY:	AEM
DRAWN BY:	PJR
SHEET CHK'D BY:	PJM
CROSS CHK'D BY:	
APPROVED BY:	

CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st Street, Suite 201, P.O. Box 3885
Bellevue, Washington 98005
Tel: (425) 453-8383

VERIFY SCALE
THIS BAR IS ONE INCH LONG

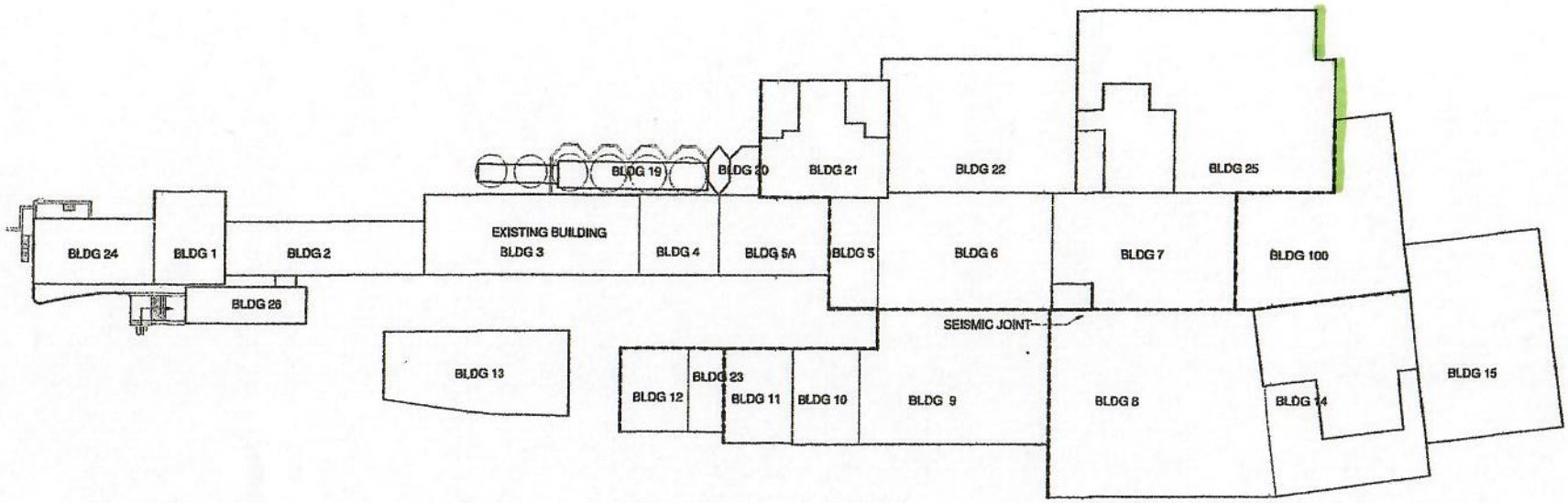
RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN LOCATIONS PLAN

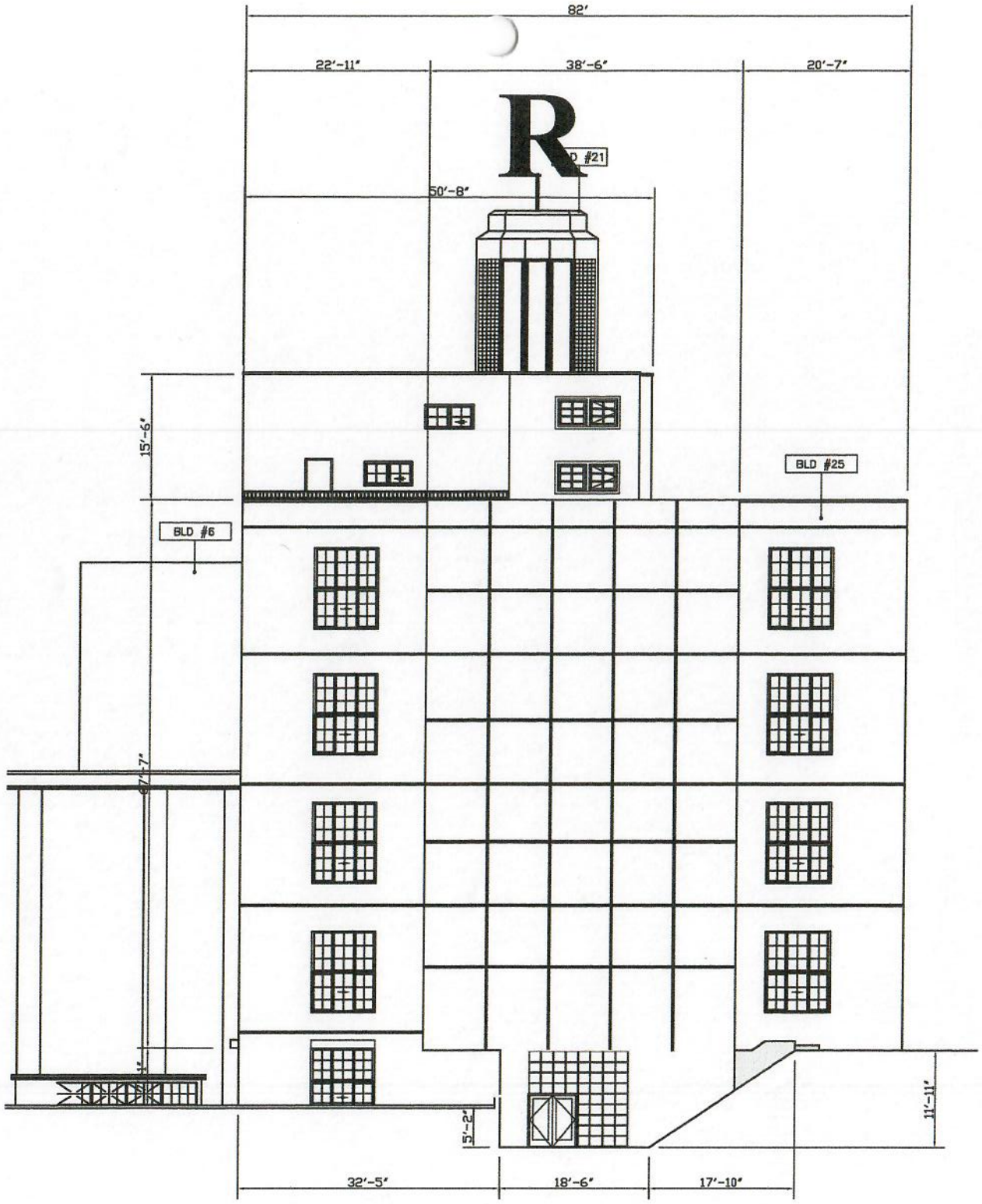
Phase 3 Set-up 20

Location:	Building 25 South Elevation
Stories:	Building 25 = 6
Material:	Concrete with steel steps
Square Feet:	11,726
Tenants:	Commercial & Residential
C/B Zone:	Purple and Green
Roof Drain:	Scupper to downspout, to Bldg 18 roof

Roof Protection:	Reroute with flex pipe and filters to Bldg 18 roof



BUILDING 25, SOUTH ELEVATION


82'
22'-11"
38'-6"
20'-7"
50'-8"
BLD #21
BLD #25
BLD #6
15'-6"
67'-7"
5'-2"
11'-11"
32'-5"
18'-6"
17'-10"

PHASE THREE, SETUP 20

BUILDING 25, 300 LEVEL

SOUTH ELEVATION

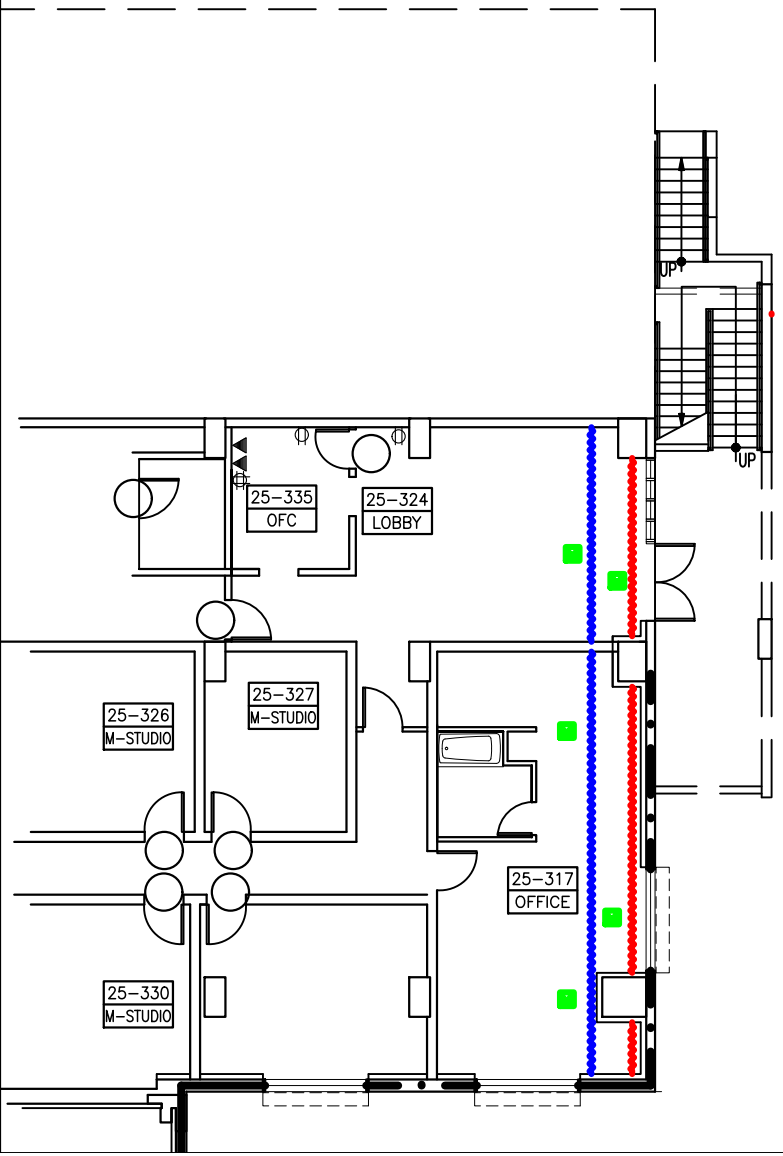
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 20

BUILDING 25, 400 LEVEL

SOUTH ELEVATION

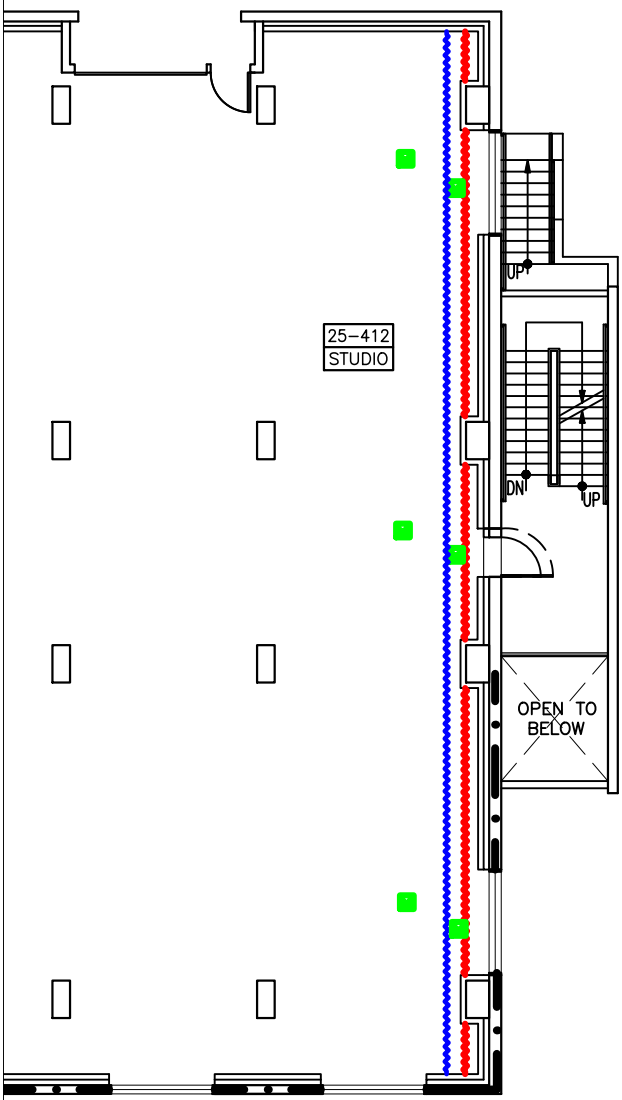
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 20

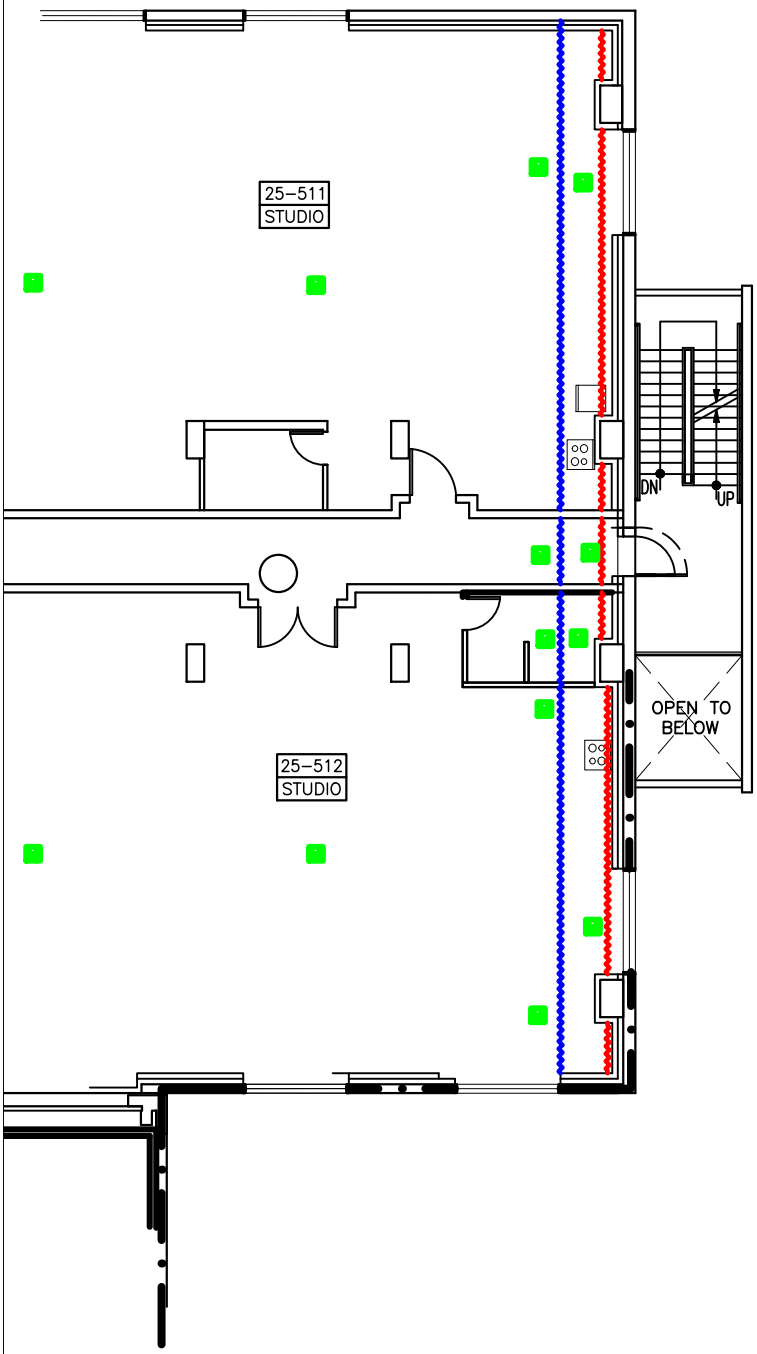
BUILDING 25, 500 LEVEL

SOUTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



N

10'-0"
(REF)

PHASE THREE, SETUP 20

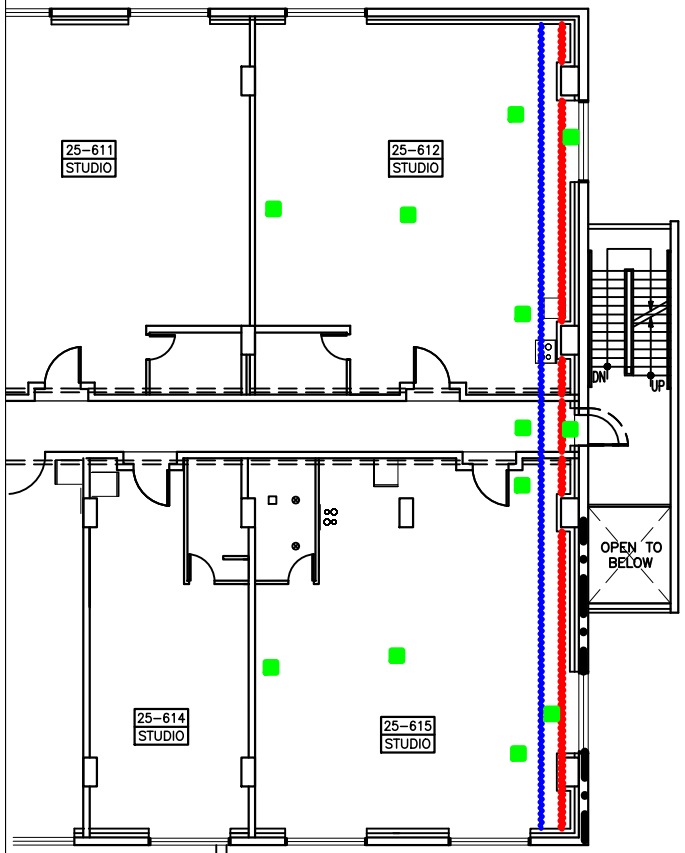
BUILDING 25, 600 LEVEL

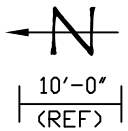
SOUTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION





PHASE THREE, SETUP 20

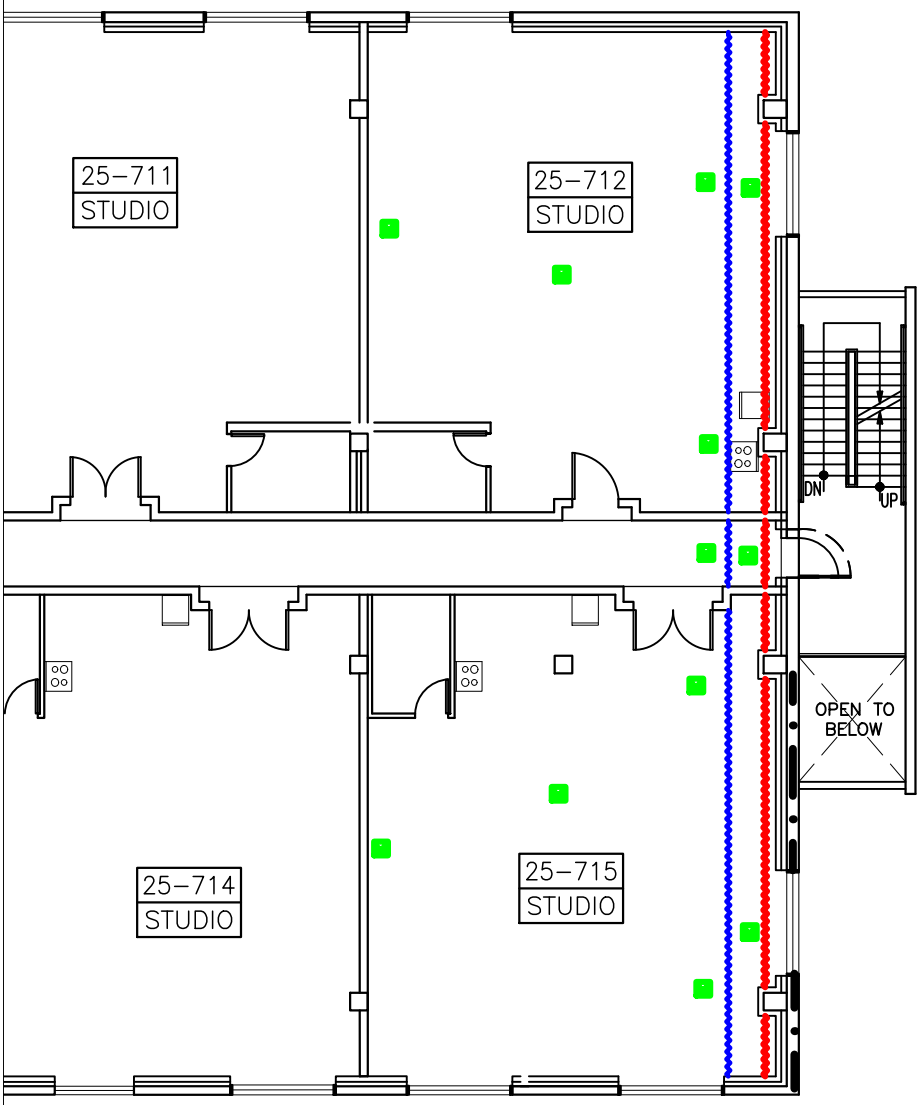
BUILDING 25, 700 LEVEL

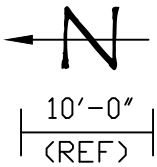
SOUTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION





PHASE THREE, SETUP 20

BUILDING 25, 800 LEVEL

SOUTH ELEVATION

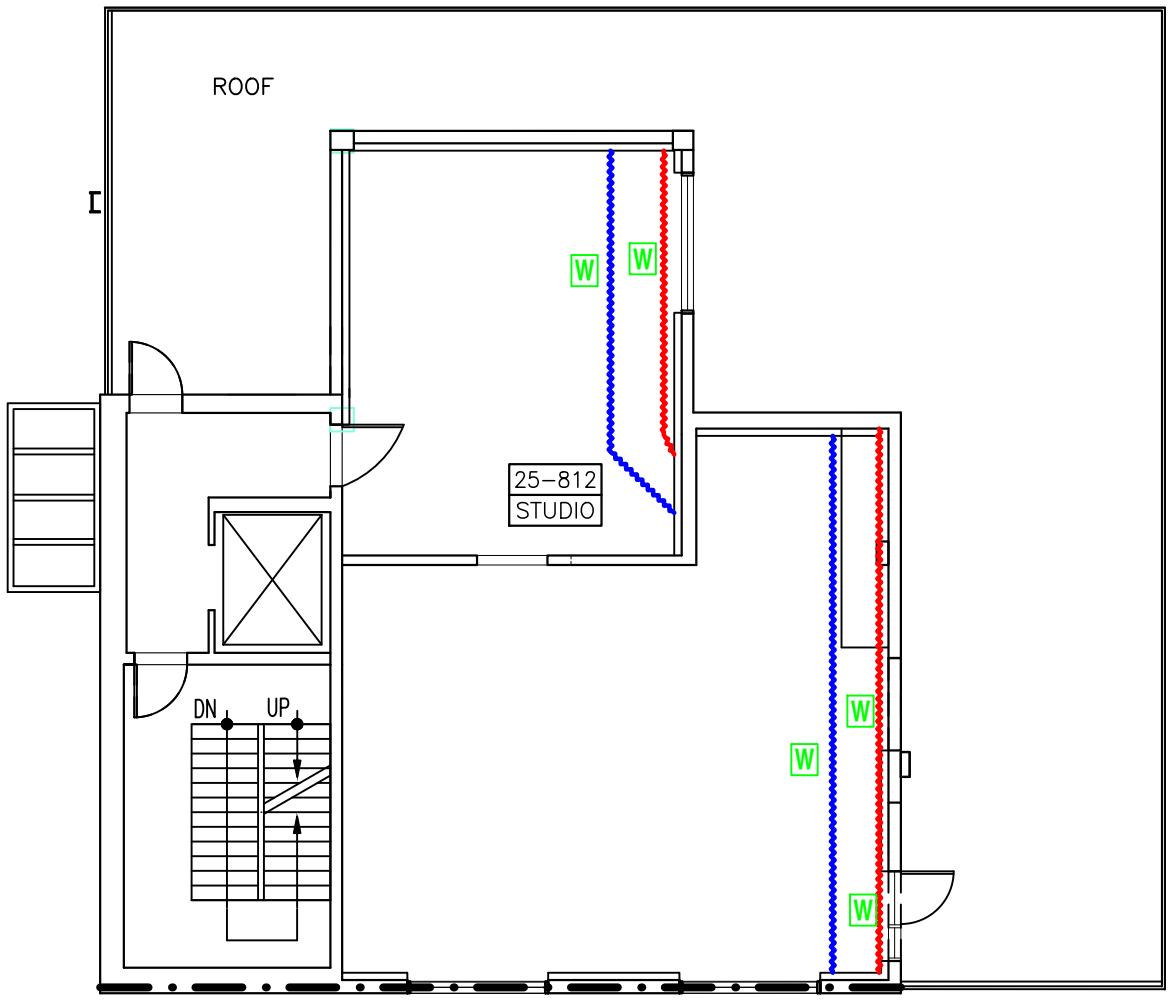
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

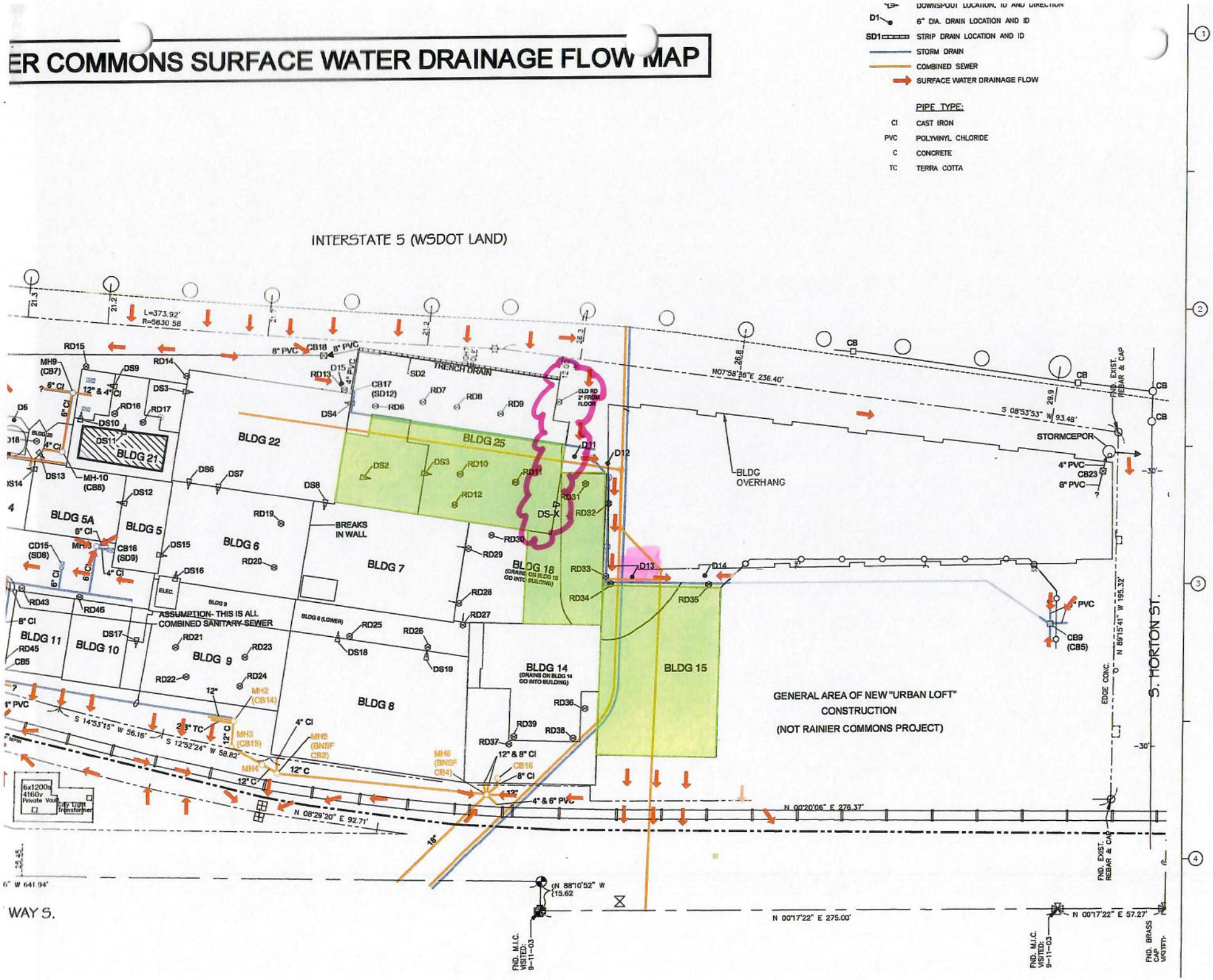
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)

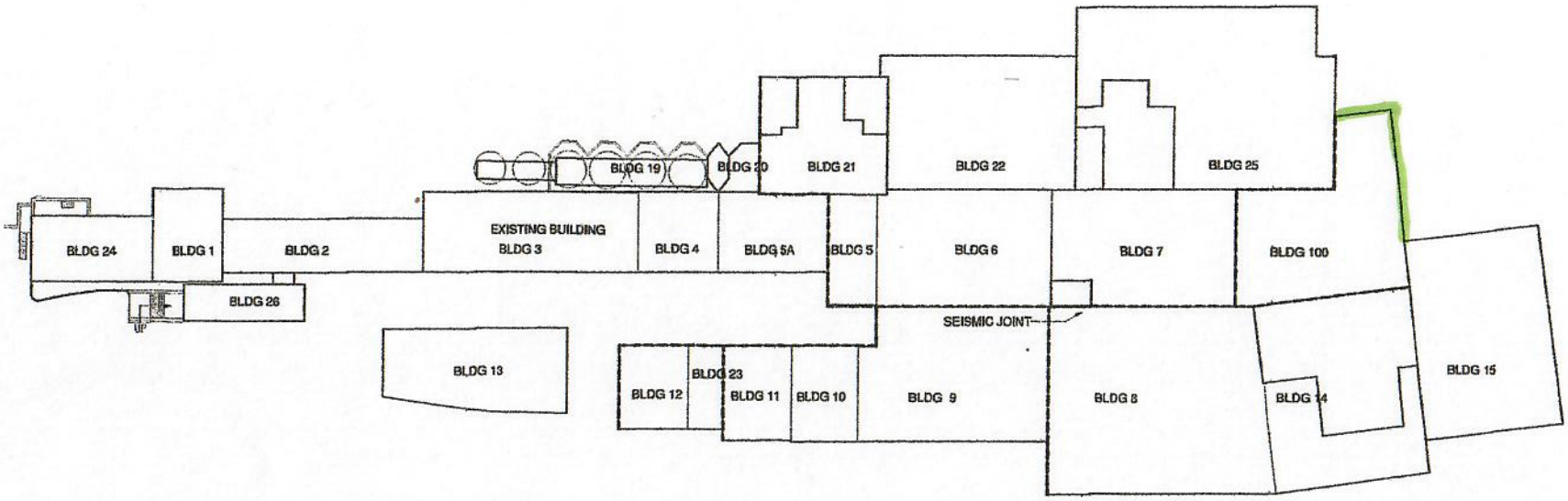


ER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 21

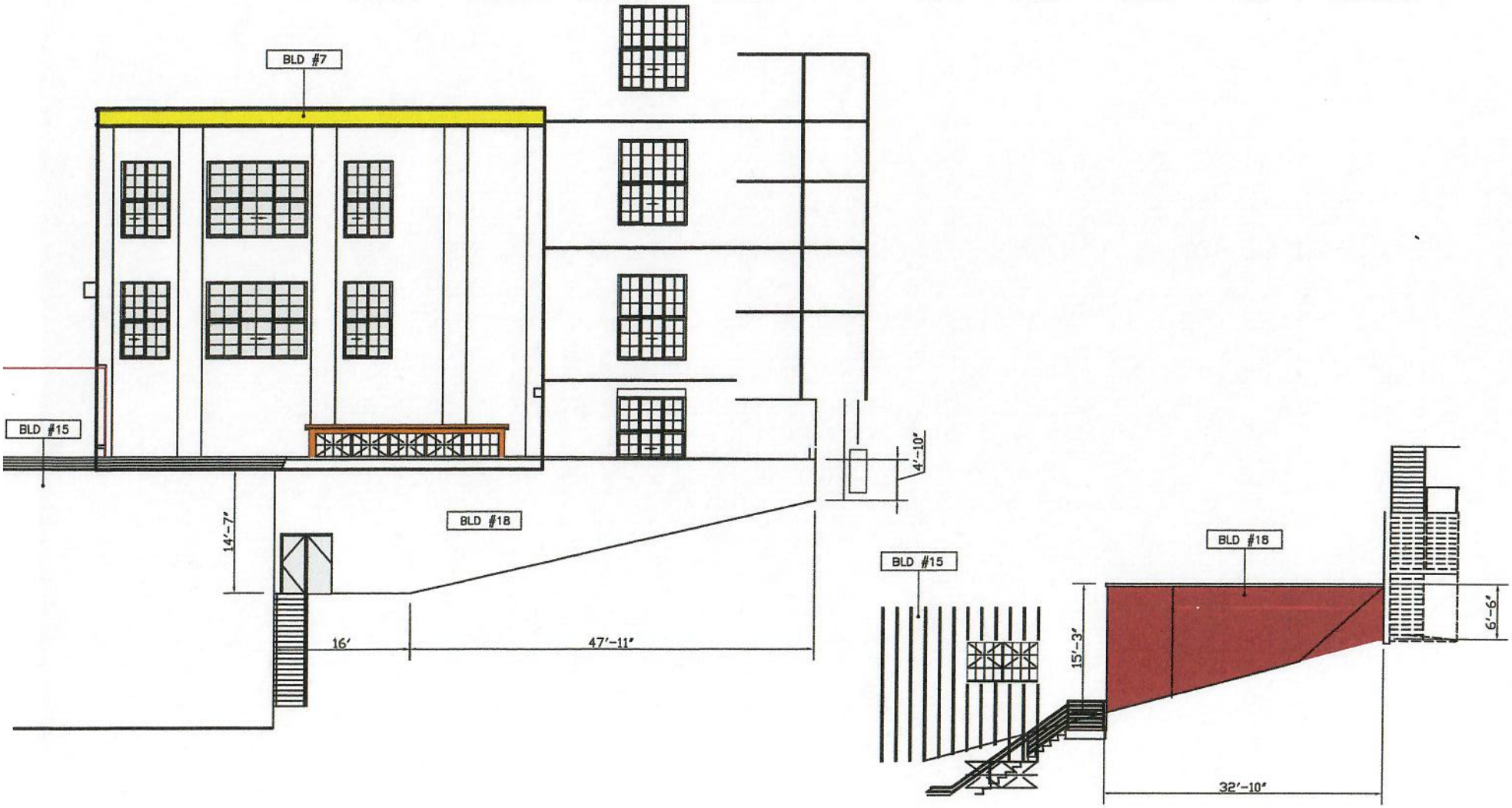
Location:	Building 18 East Elevation Building 18 South Elevation
Stories:	Building 18 = 1
Material:	Concrete
Square Feet:	East Elevation = 213 South Elevation = 709
Tenants:	Commercial
C/B Zone:	Green
Roof Drain:	Scupper to downspout, to D-13
Roof Protection:	Reroute with flex pipe and filters to D-13



BUILDING 18, EAST ELEVATION

BUILDING 18, SOUTH ELEVATION

BLDG 18S&E



PHASE THREE, SETUP 21

BUILDING 18, 200 LEVEL

EAST & SOUTH ELEVATIONS

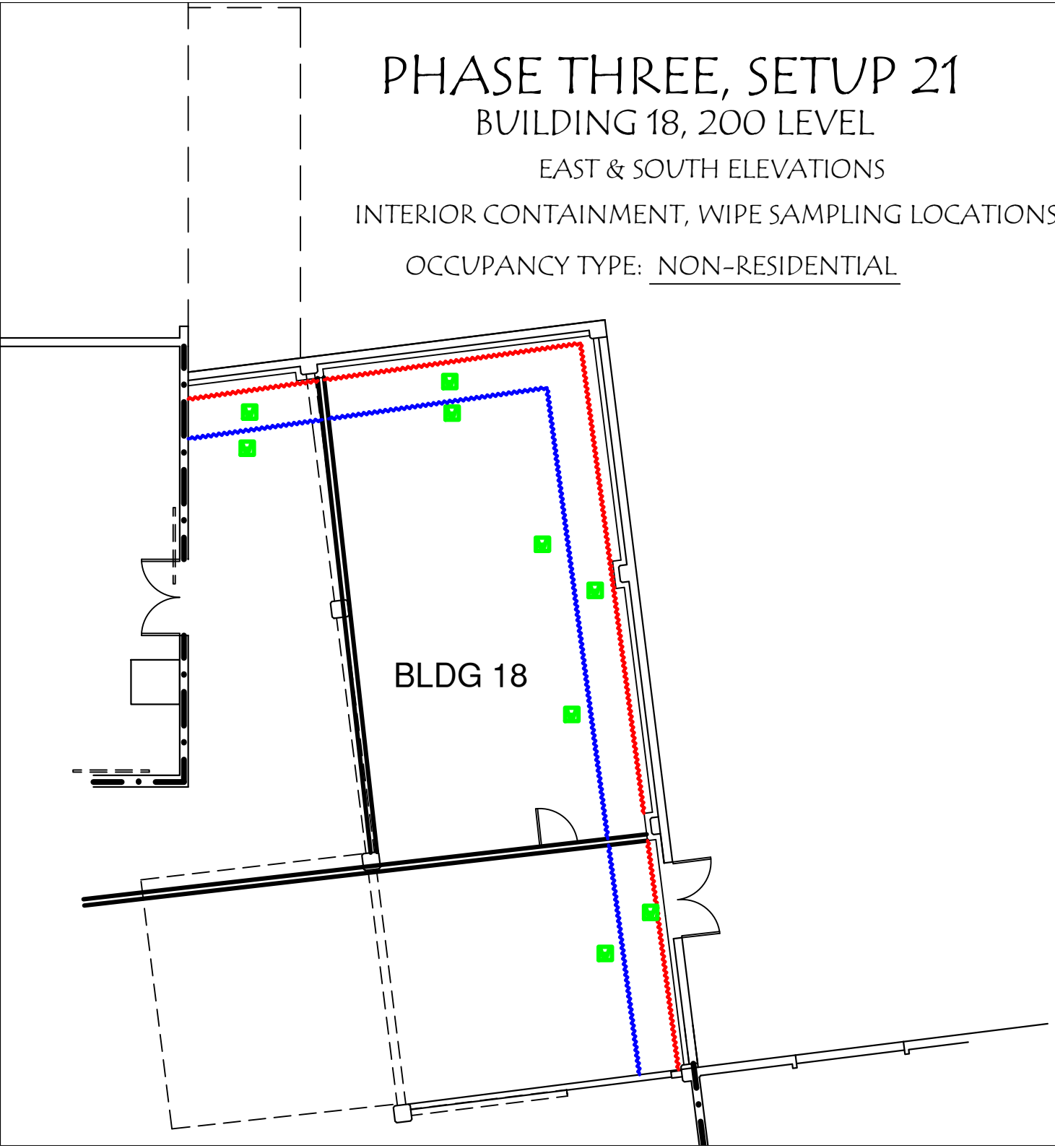
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

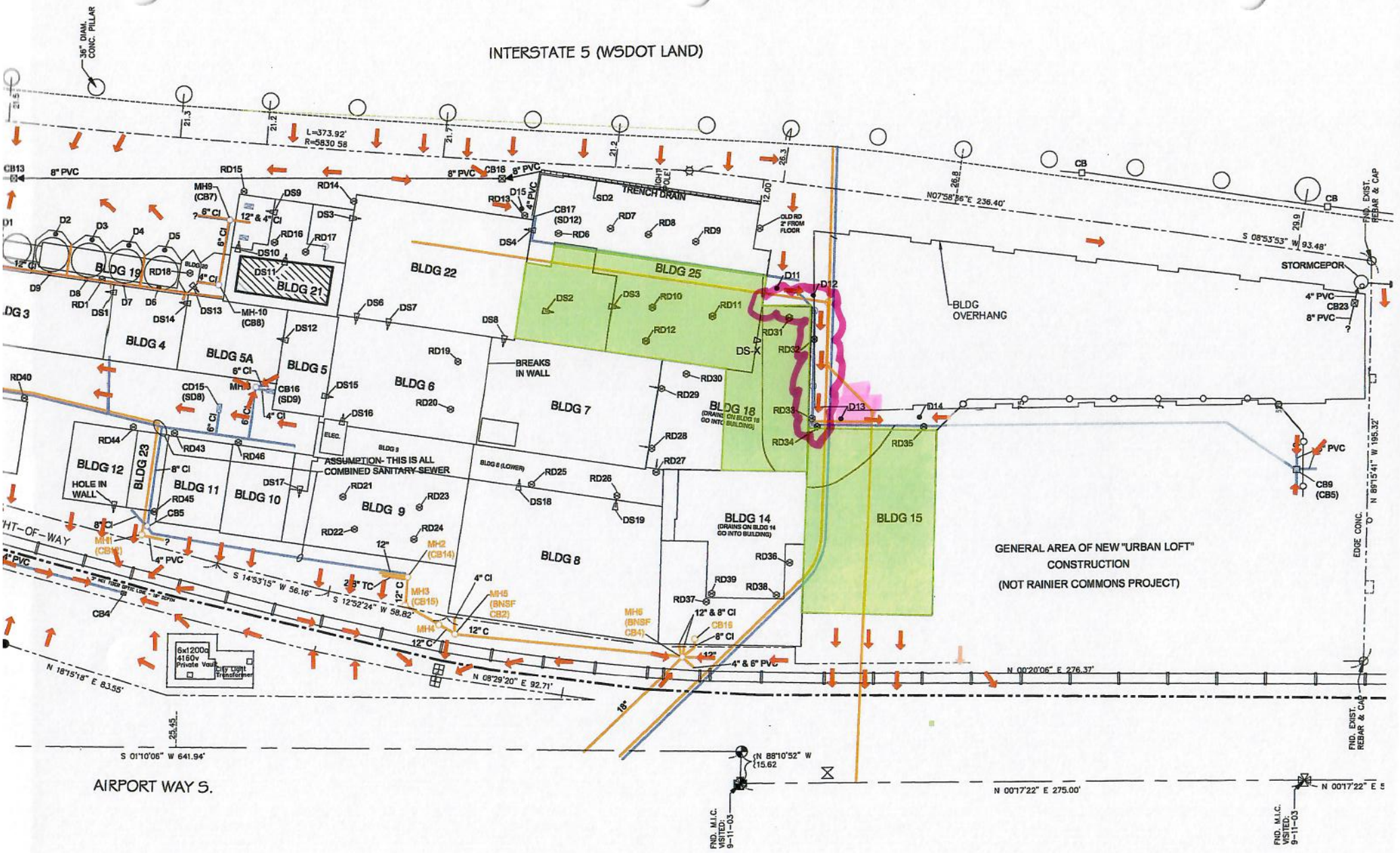
LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



C CONCRETE
TC TERRA COTTA

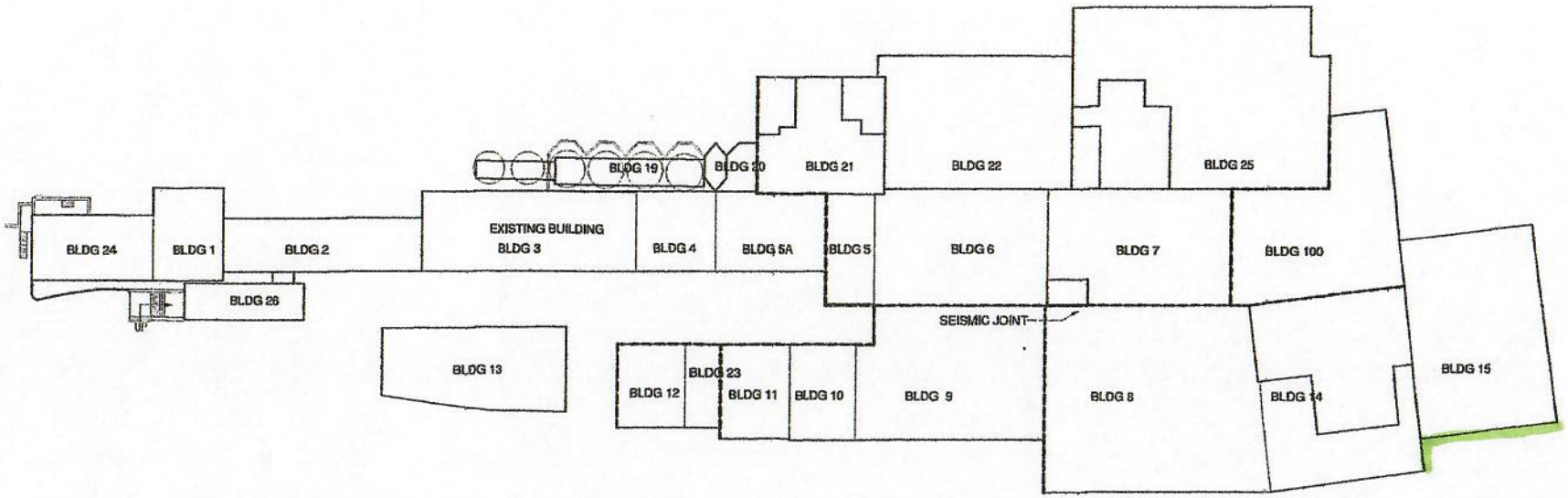


DESIGNED BY: AEM DRAWN BY: PJR CHK'D BY: PJM CHK'D BY: APVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	PROJECT NO. FILE NAME: SHEET NO. 1

Phase 3 Set-up 22

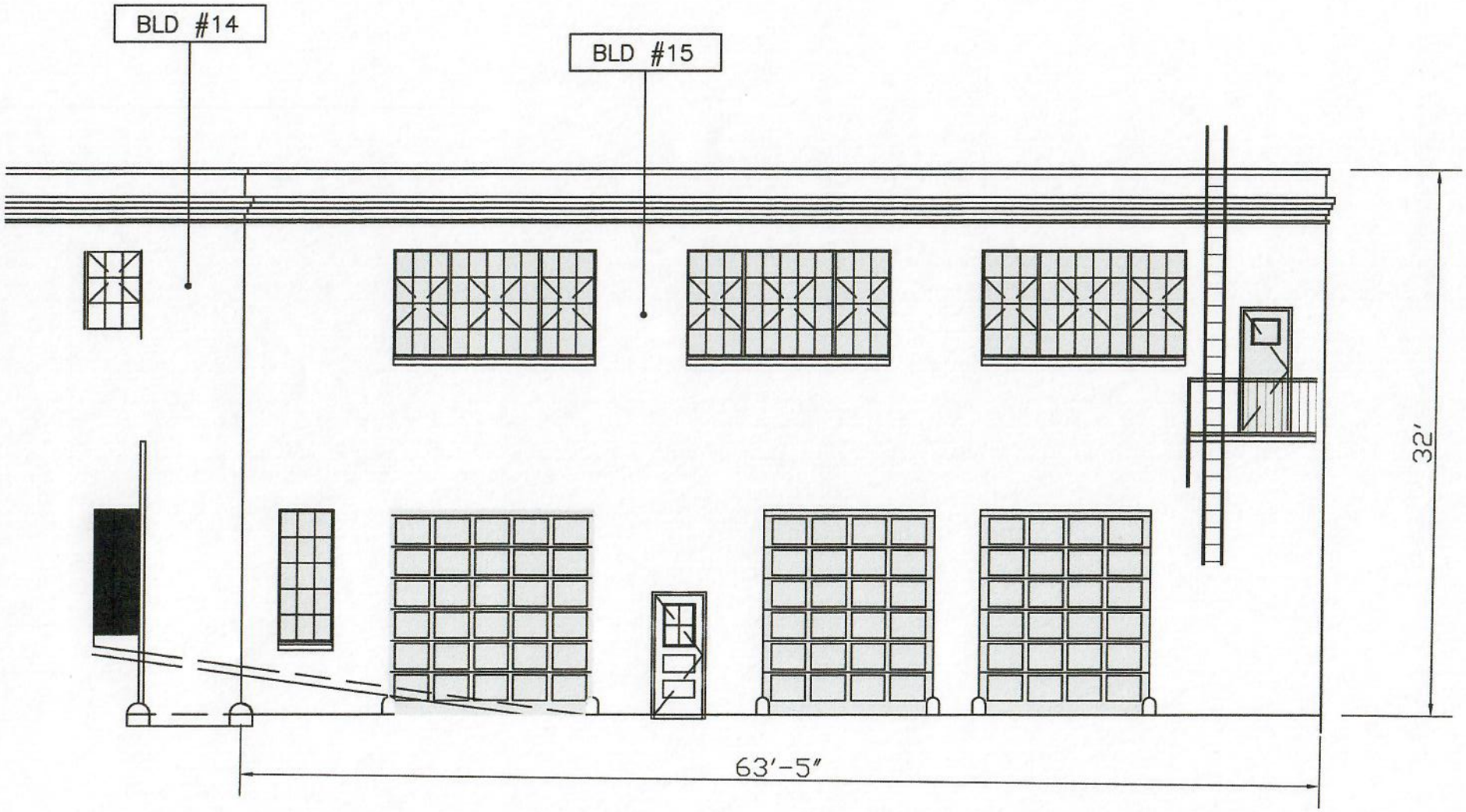
Location:	Building 15 West Elevation Building 14 South Elevation
Stories:	Building 15 = 2 Building 14 = 2
Material:	Concrete
Square Feet:	Building 15 = 2,091 Building 14 = 288
Tenants:	Commercial
C/B Zone:	Blue
Roof Drain:	No roof drain penetrations through wall

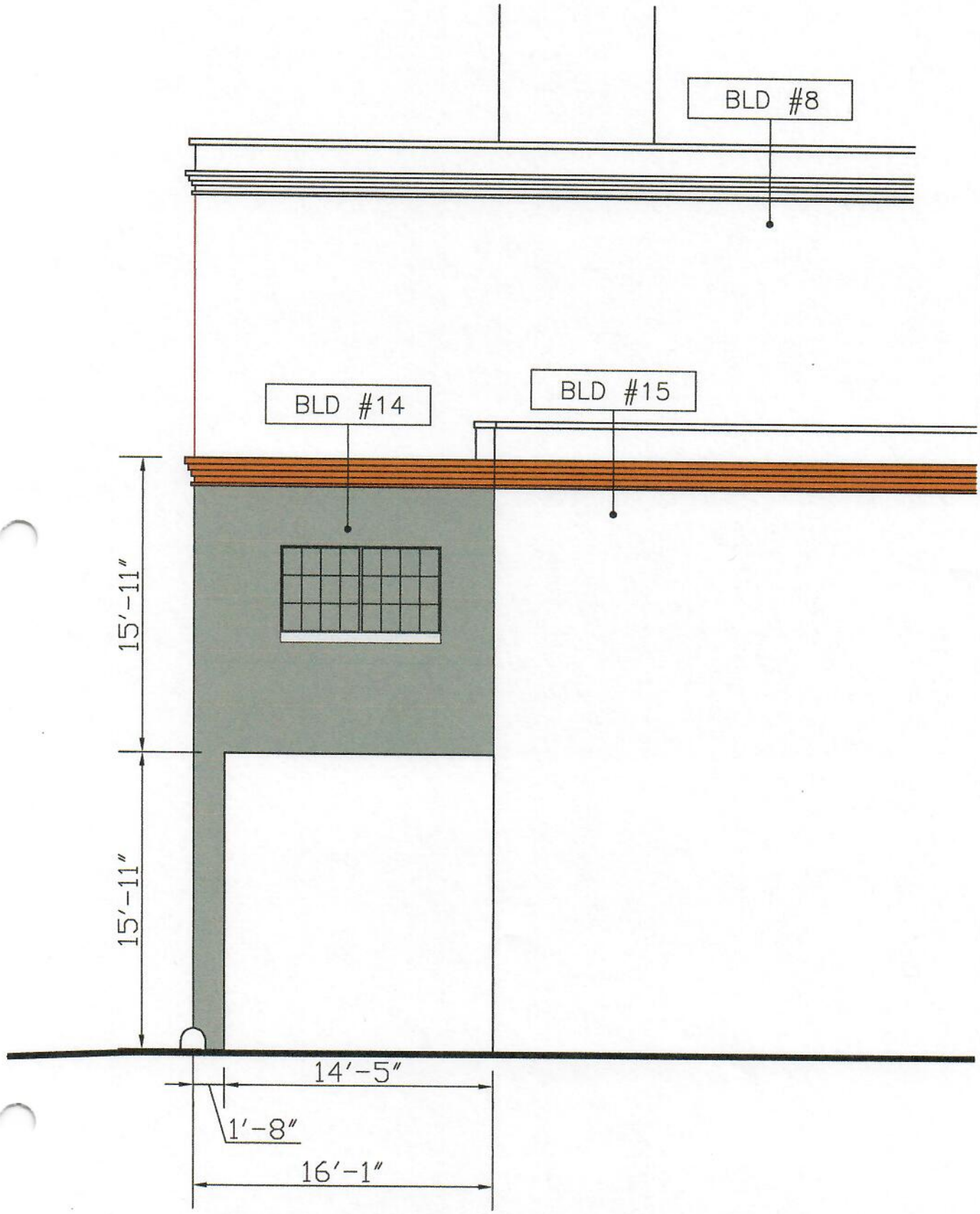
Roof Protection: N/A

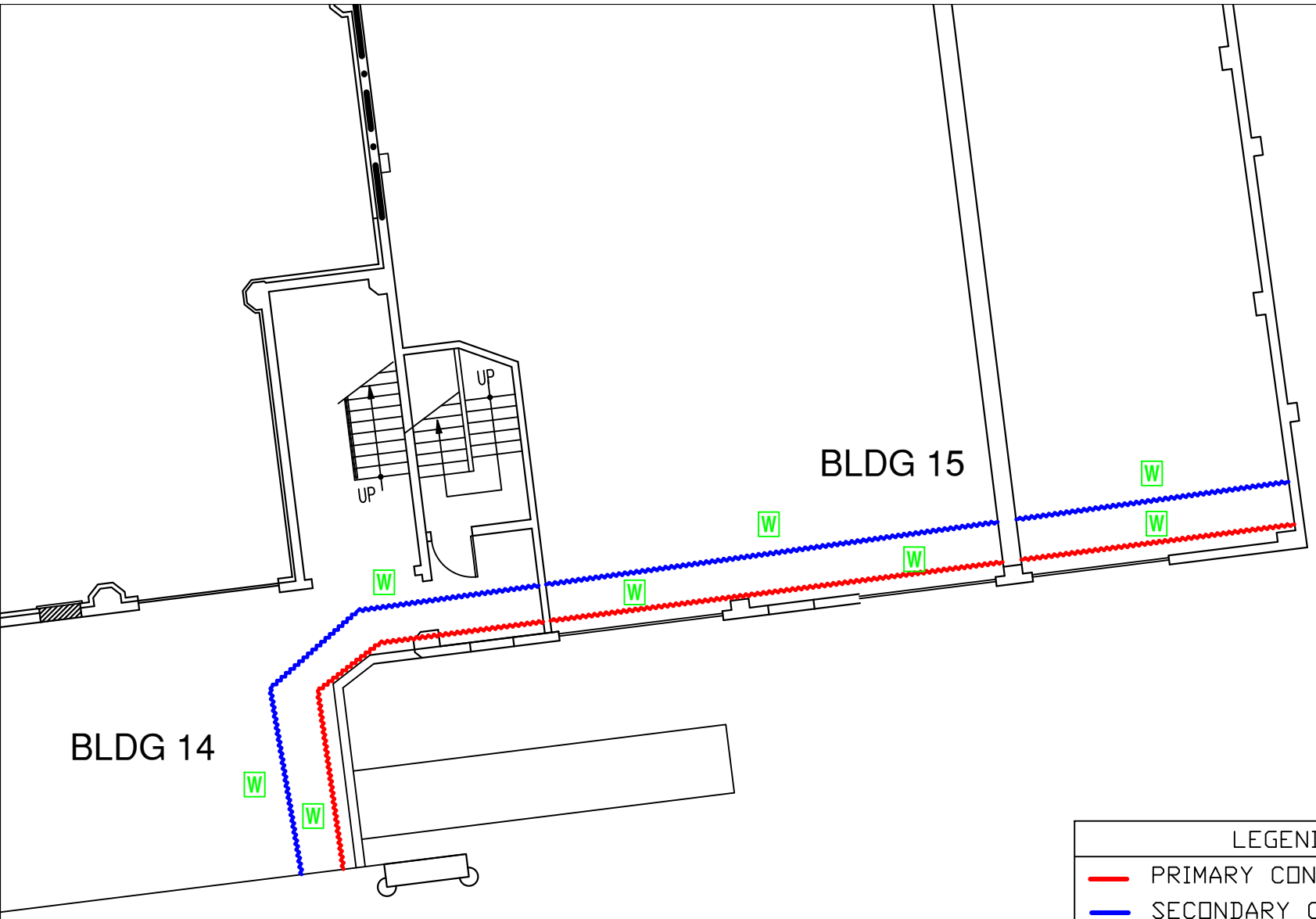


Building 15, West Elevation

Building 14, South Elevation


BLD #14
BLD #15
32'
63'-5"


BLD #8
BLD #14
BLD #15
15'-11"
15'-11"
14'-5"
1'-8"
16'-1"



PHASE THREE, SETUP 22

BUILDING 14 & 15, 100 LEVEL

SOUTH (14) & WEST (15) ELEVATION

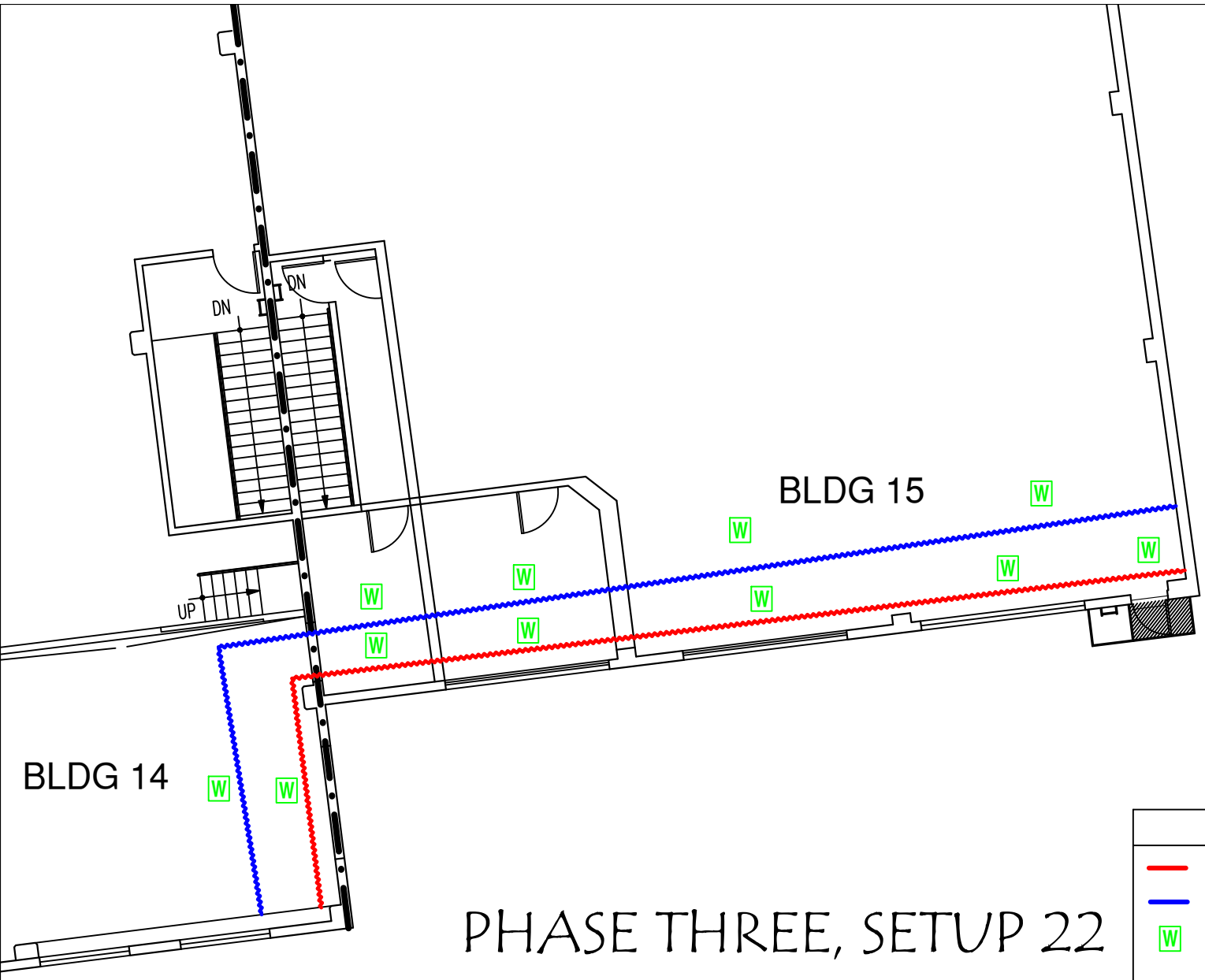
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

PHASE THREE, SETUP 22

BUILDING 14 & 15, 200 LEVEL

SOUTH (14) & WEST (15) ELEVATION

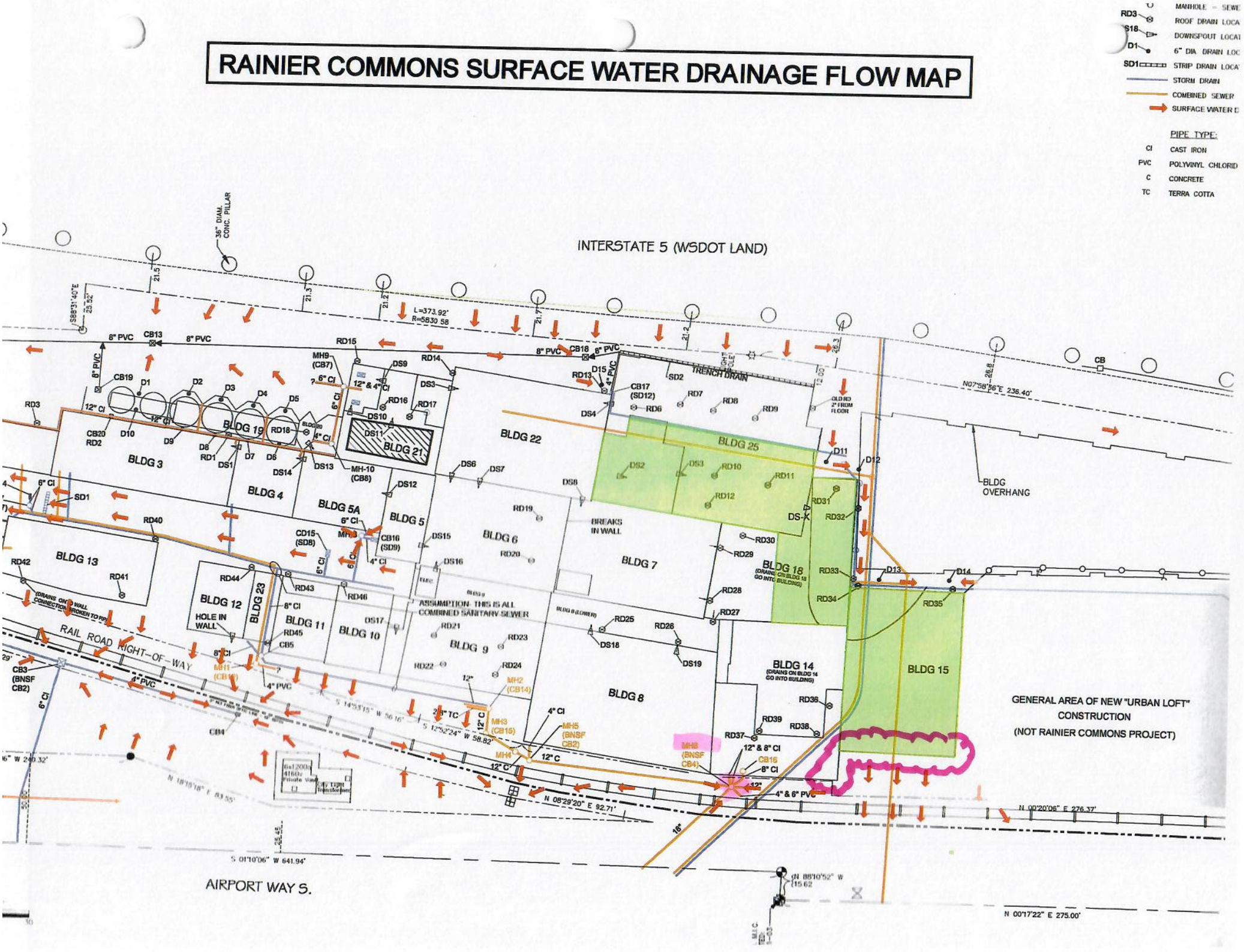
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0" (REF)

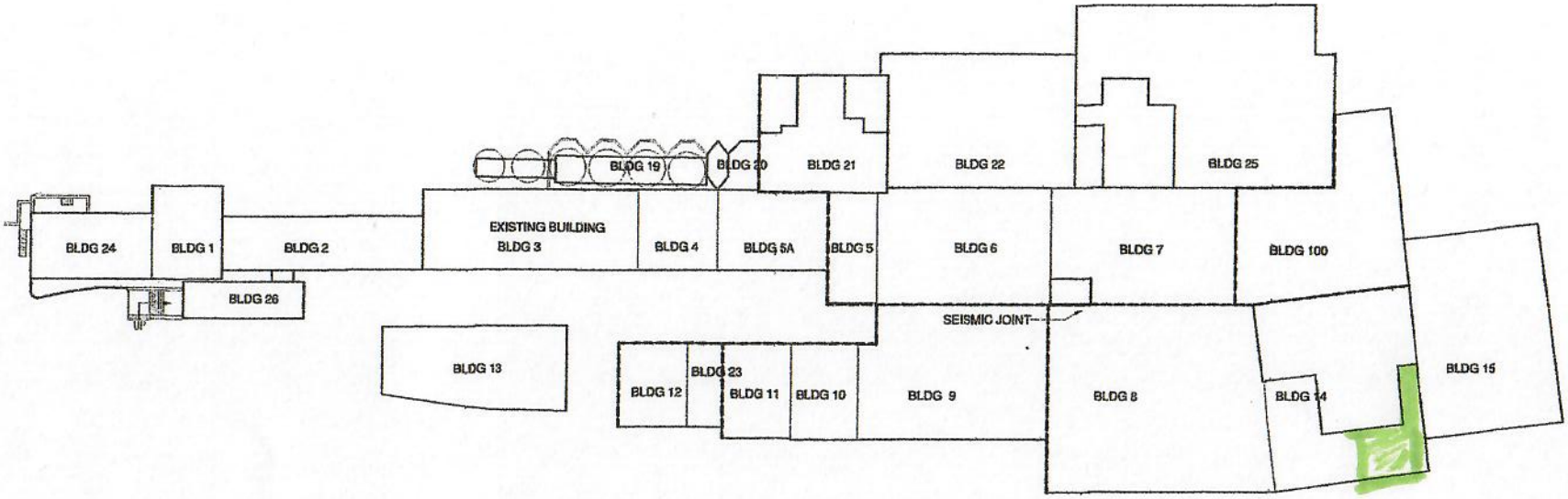
RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 23

Location:	Building 14 West Elevation, Southern Quadrant, including stairs and dock. Phases 23 and 24 divide the building for accessibility. These Phases include both the west façade, the loading dock ceiling, and the outer loading dock walls
Stories:	Building 14 = 2
Material:	Concrete
Square Feet:	West Elevation = 530 Stairs = 2,033 Loading Dock = 1,434
Tenants:	Commercial
C/B Zone:	Blue
Roof Drain:	No roof drain penetrations through wall

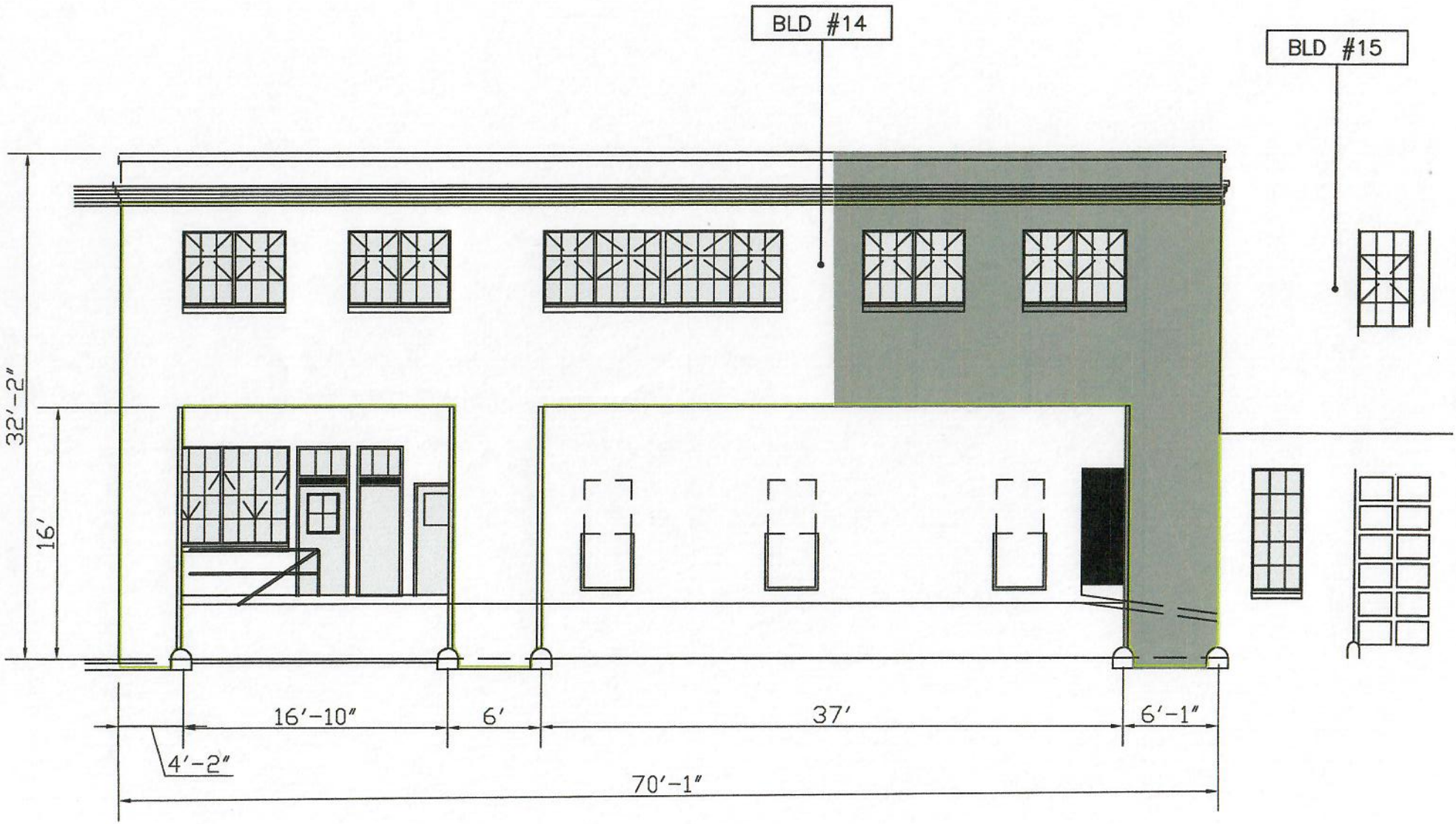
Roof Protection: N/A



BUILDING 14, WEST ELEVATION, SOUTH QUAD

BUILDING 14, STAIRS

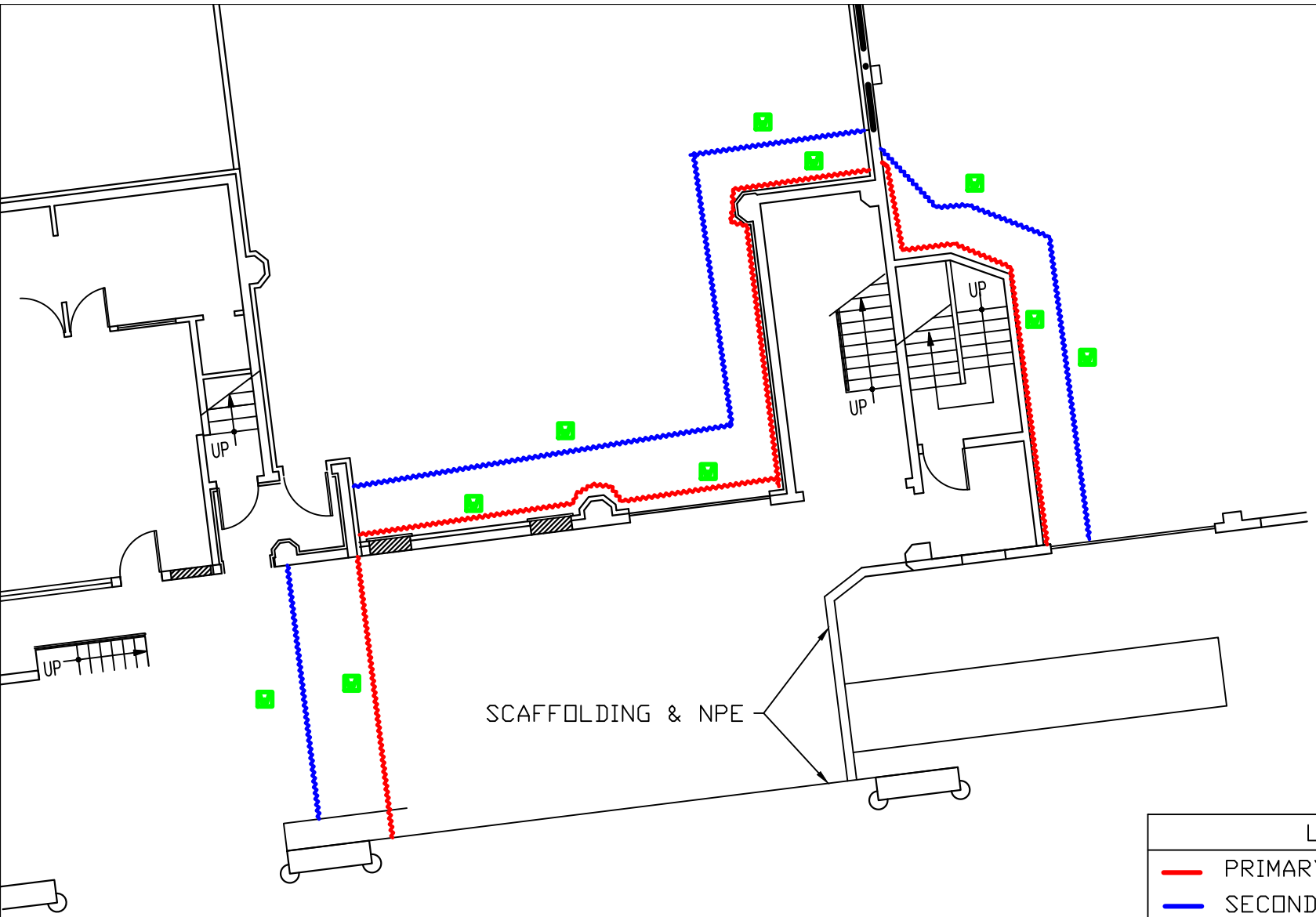
BUILDING 14, SOUTH DOCK


BLD #14
BLD #15
32'-2"
16'
16'-10"
6'
37'
6'-1"
4'-2"
70'-1"

14-S-DOCK

14- STRIDE S


DETOUR



LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

PHASE THREE, SETUP 23

BUILDING 14,, 100 LEVEL

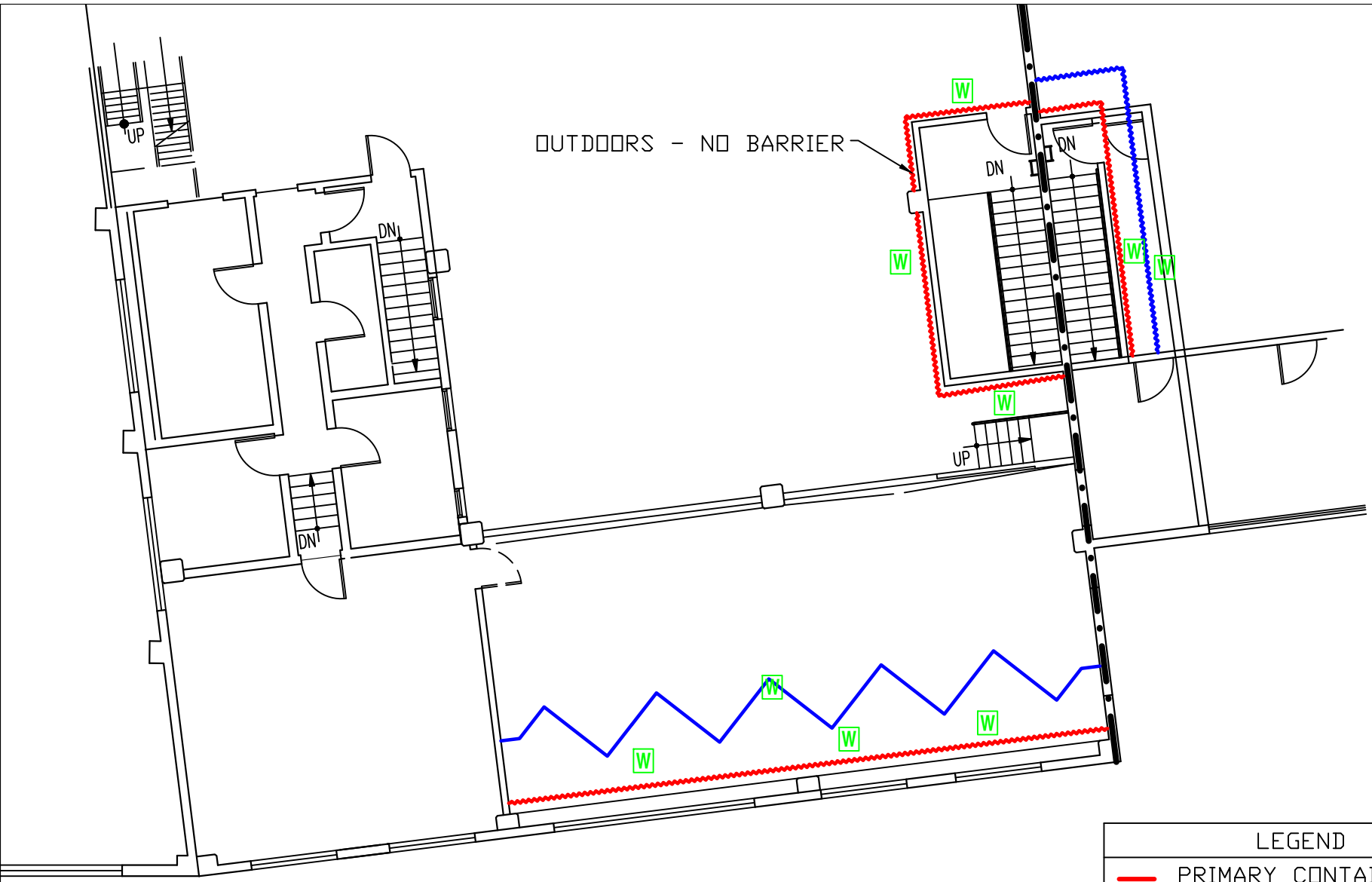
WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0"
(REF)



LEGEND

- PRIMARY CONTAINMENT
- SECONDARY CONTAINMENT
- W WIPE SAMPLE LOCATION

PHASE THREE, SETUP 23

BUILDING 14, 200 LEVEL

WEST ELEVATION (SOUTH QUADRANT)

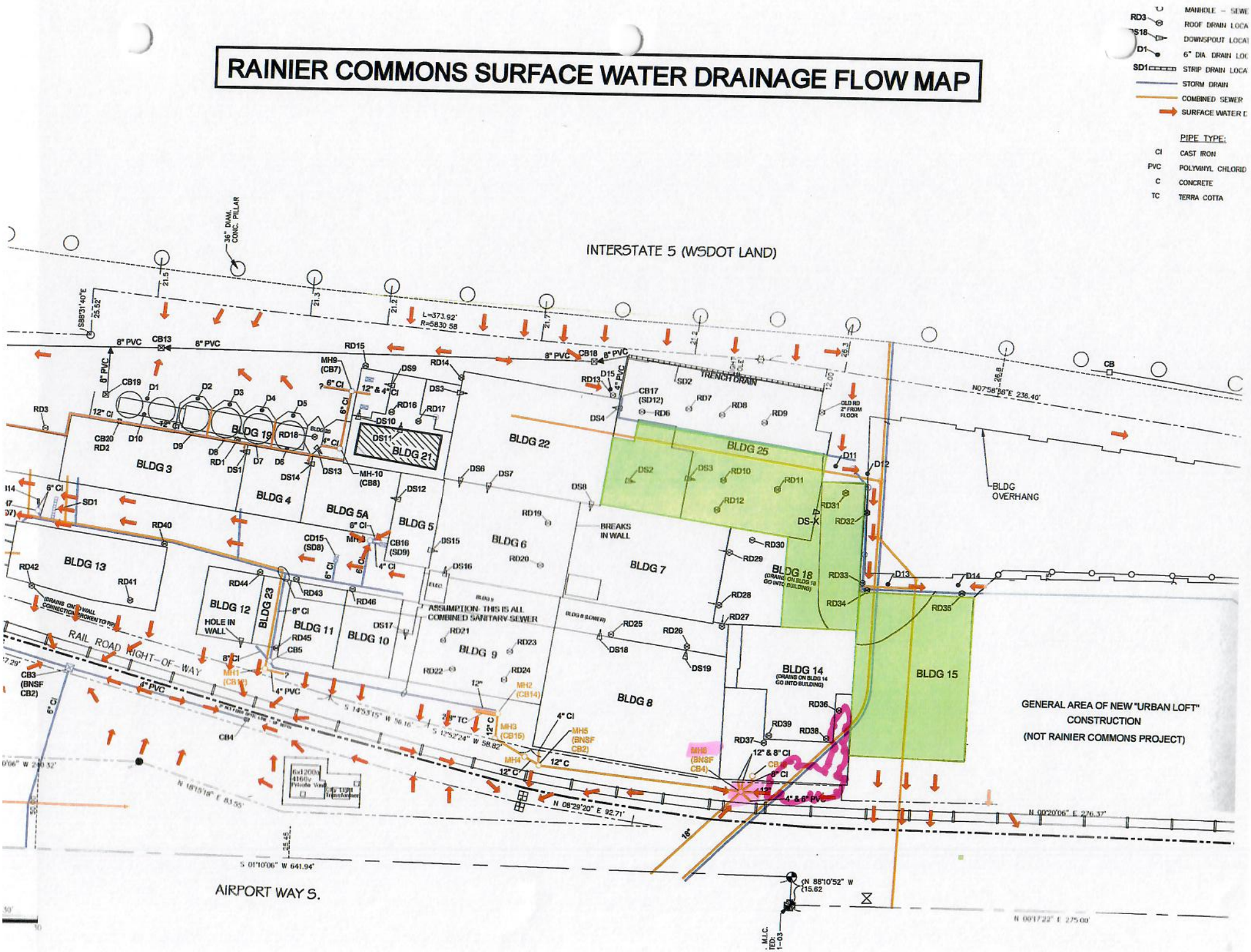
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0" (REF)

RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 24

Location: Building 14 West Elevation, Northern Quadrant, including stairs and dock. Phases 23 and 24 divide the building for accessibility. These Phases include both the west façade, the loading dock ceiling, and the outer loading dock walls

Stories: Building 14 = 2

Material: Concrete

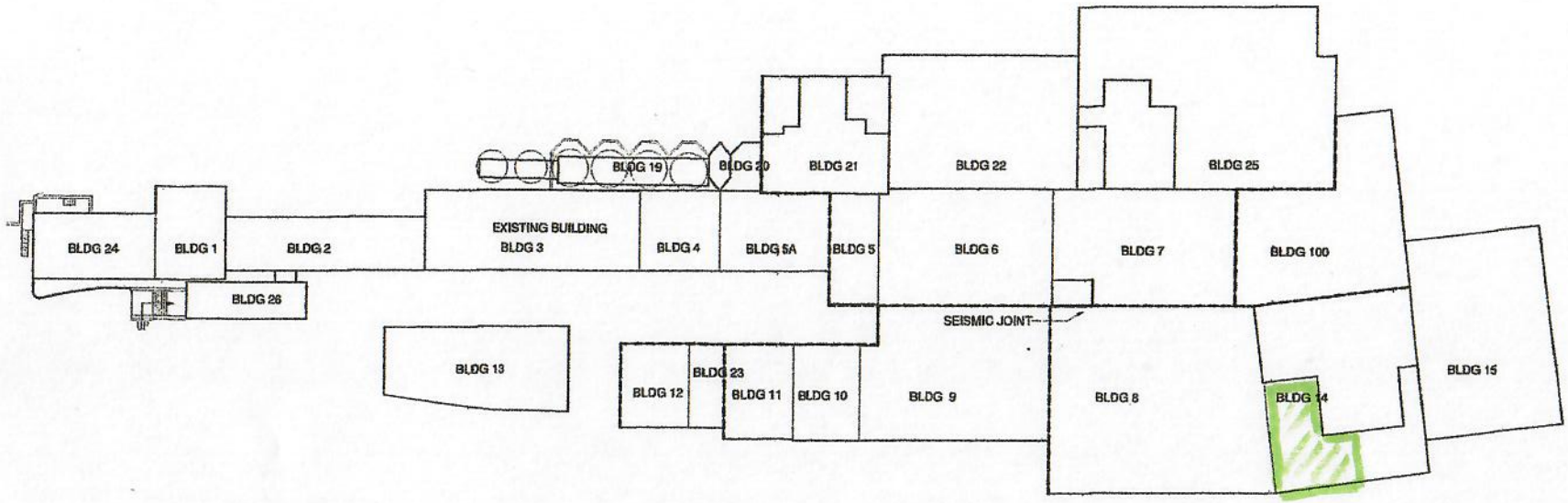
Square Feet: West Elevation = 839
Stairs = 1,581

Tenants: Commercial

C/B Zone: Blue

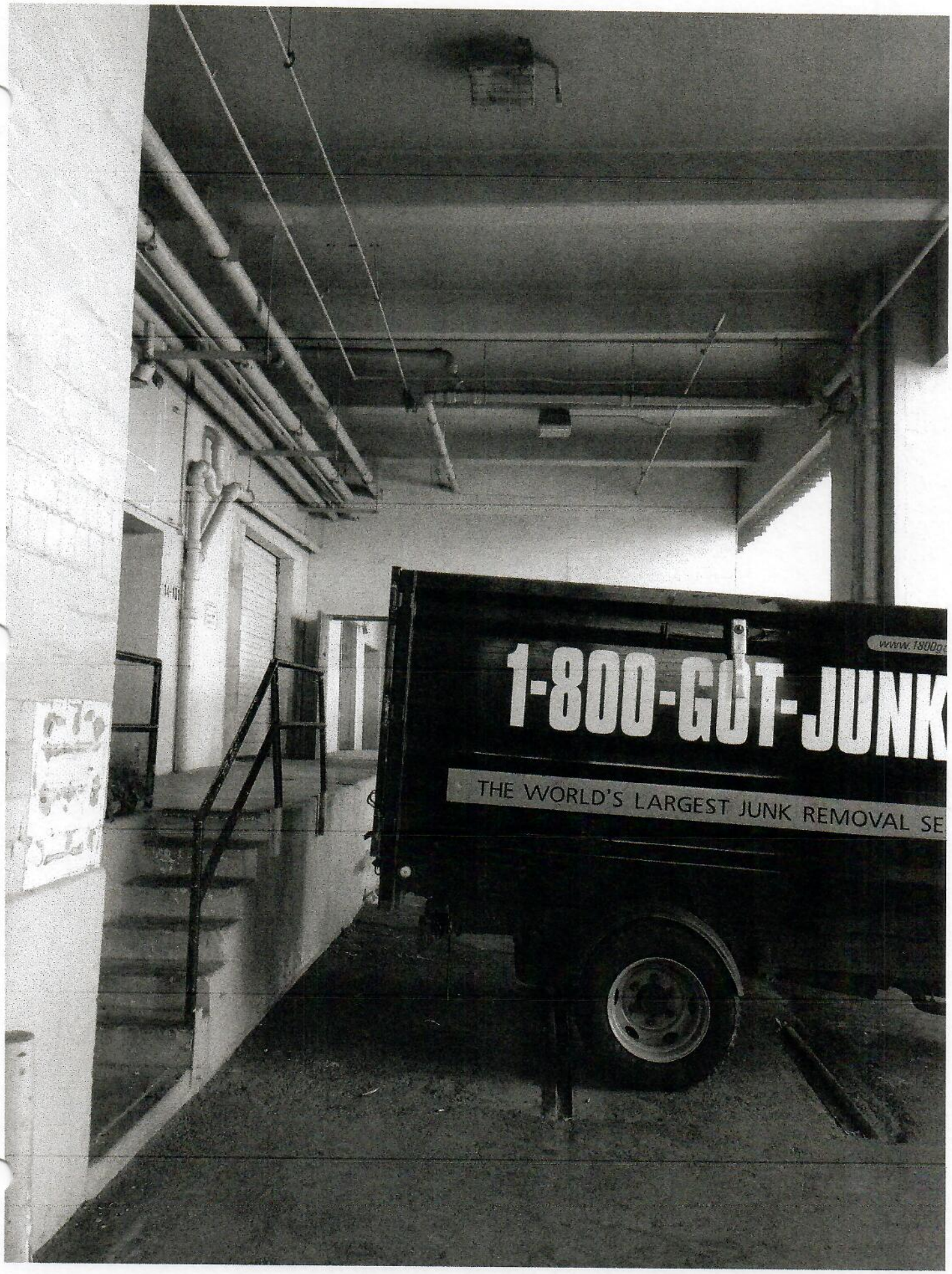
Roof Drain: No roof drain penetrations through wall

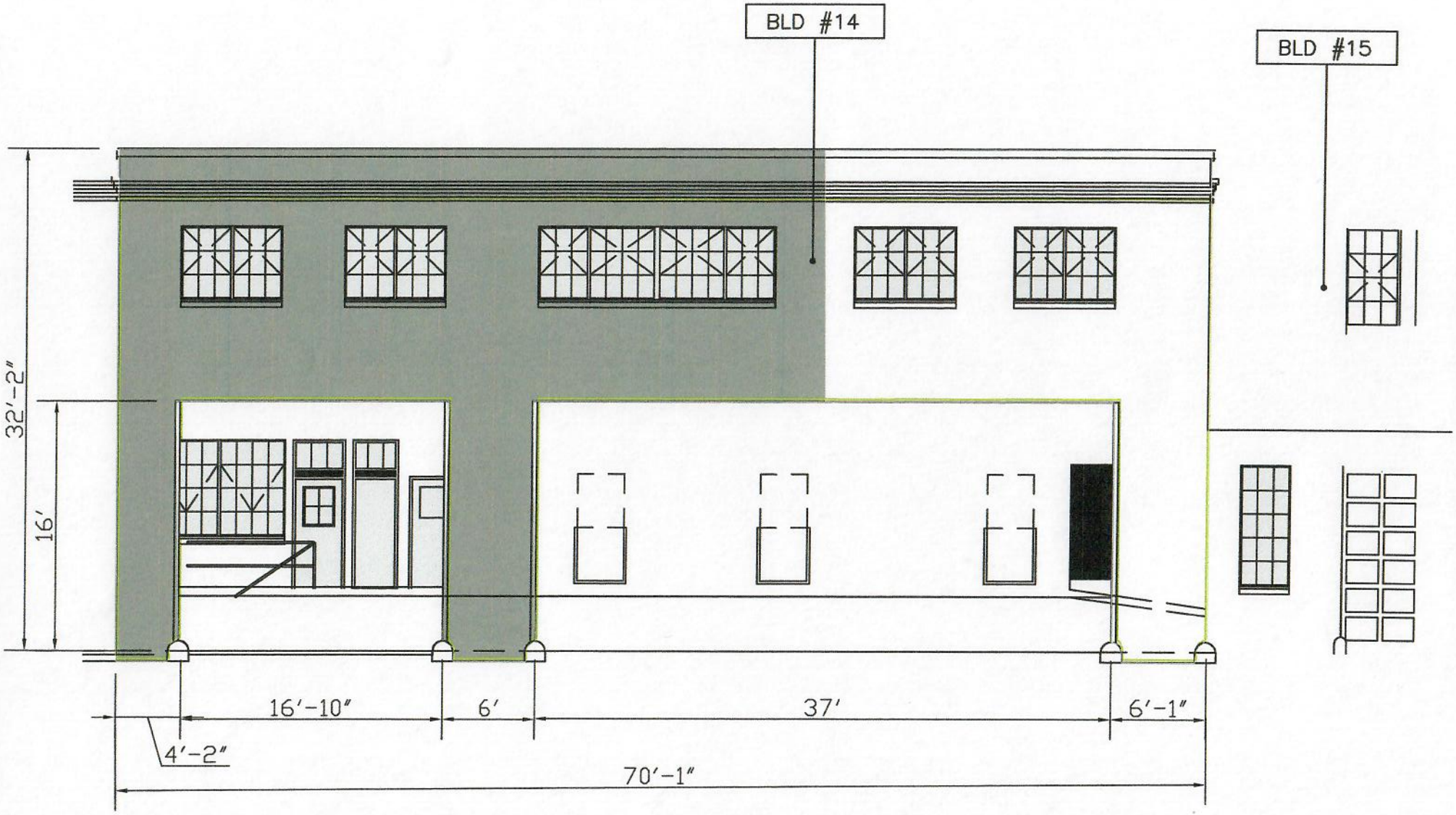
Roof Protection: N/A

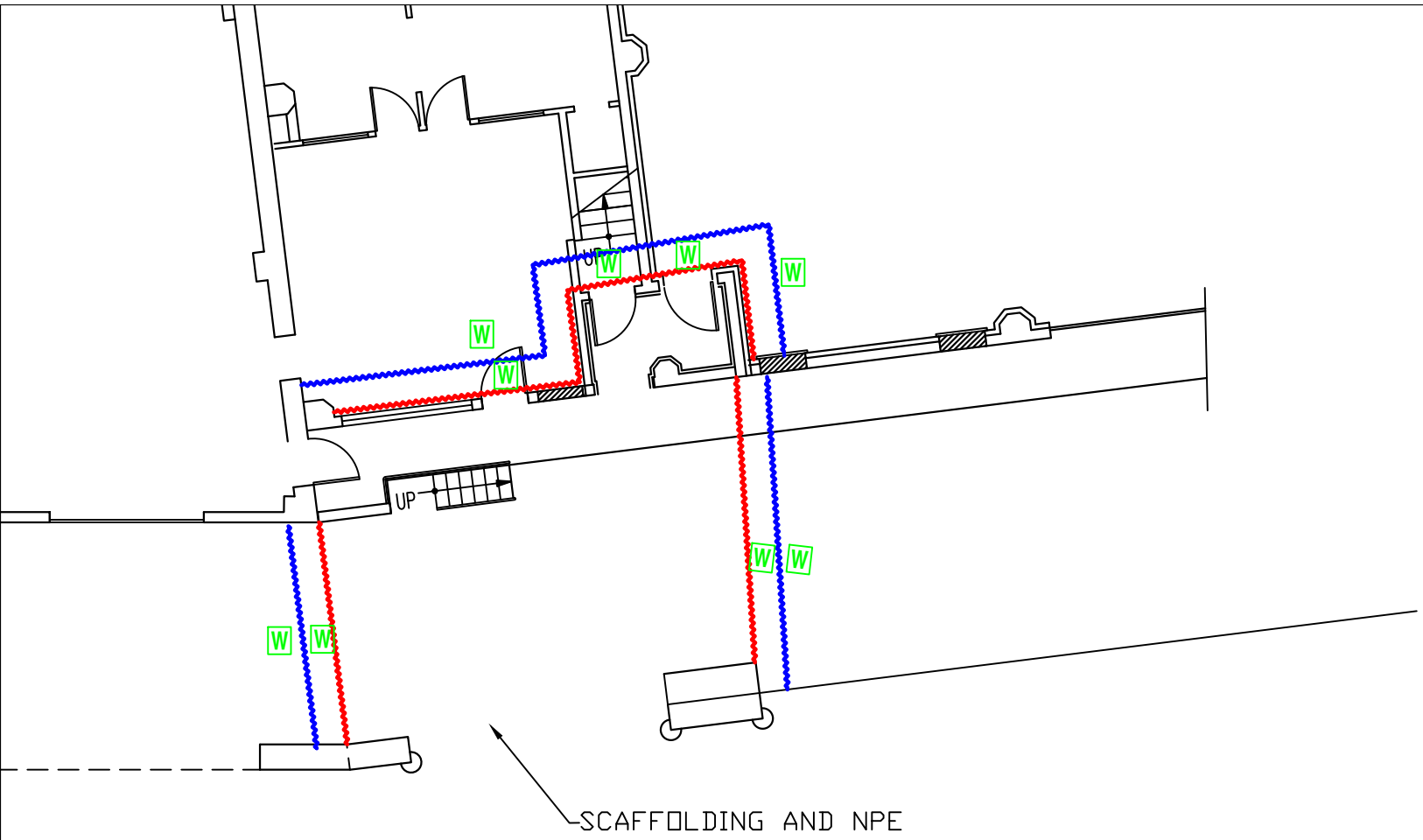


BUILDING 14, WEST ELEVATION, NORTH QUAD

BUILDING 14, NORTH DOCK


1-800-GOT-JUNK
THE WORLD'S LARGEST JUNK REMOVAL SE


BLD #14
BLD #15
32'-2"
16'
16'-10"
6'
37'
6'-1"
4'-2"
70'-1"



LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

PHASE THREE, SETUP 24

BUILDING 14, 100 LEVEL

WEST ELEVATION (NORTH QUADRANT)

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0"
(REF)

PHASE THREE, SETUP 24

BUILDING 14, 200 LEVEL

WEST ELEVATION (NORTH QUADRANT)

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

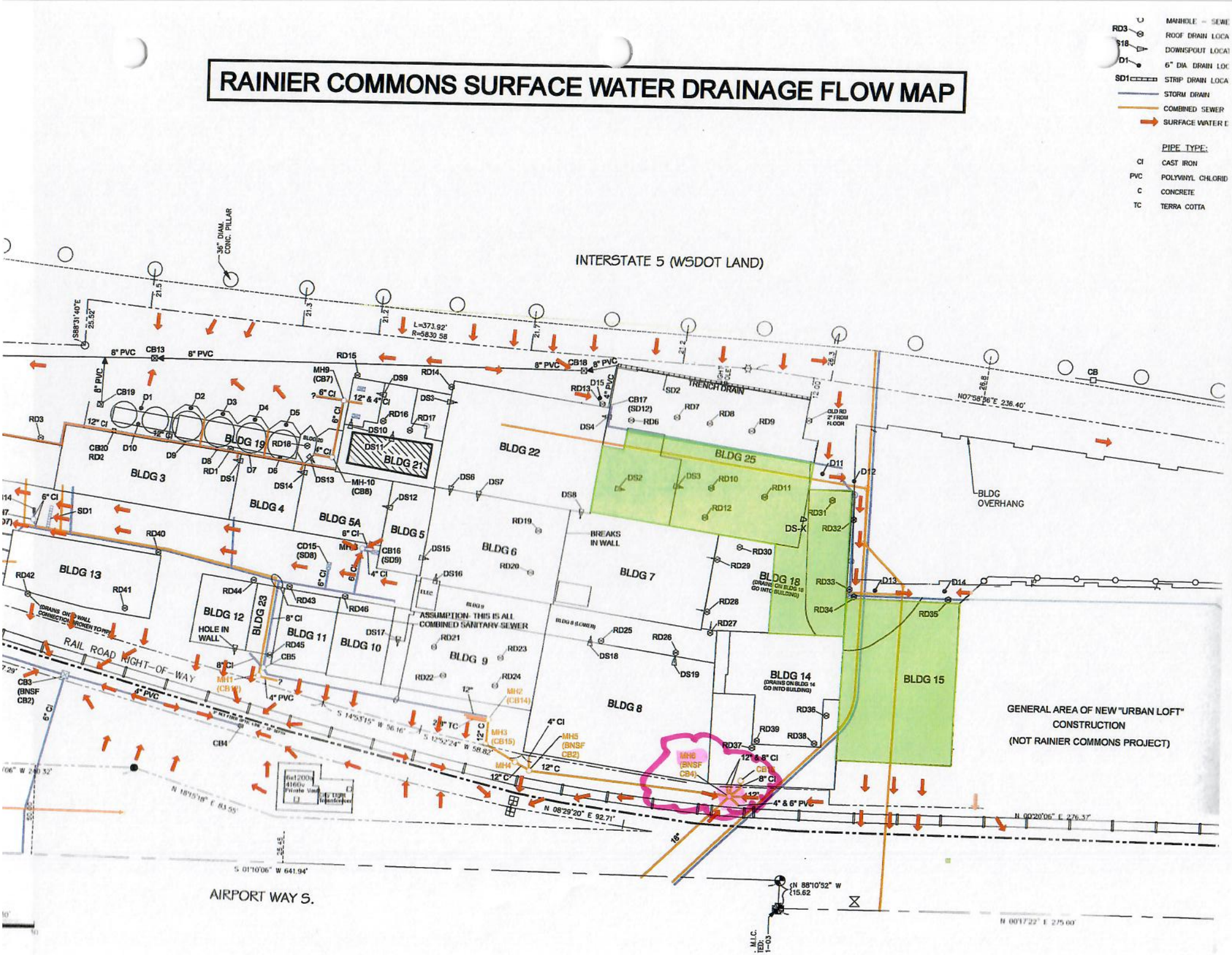
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)

RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 25

Location: Building 8 West Elevation, Southern Quadrant, including dock. Phases 25 and 26 divide the building for accessibility. These Phases include both the west façade, the loading dock ceiling, and the outer loading dock walls

Stories: Building 8 = 4

Material: Concrete

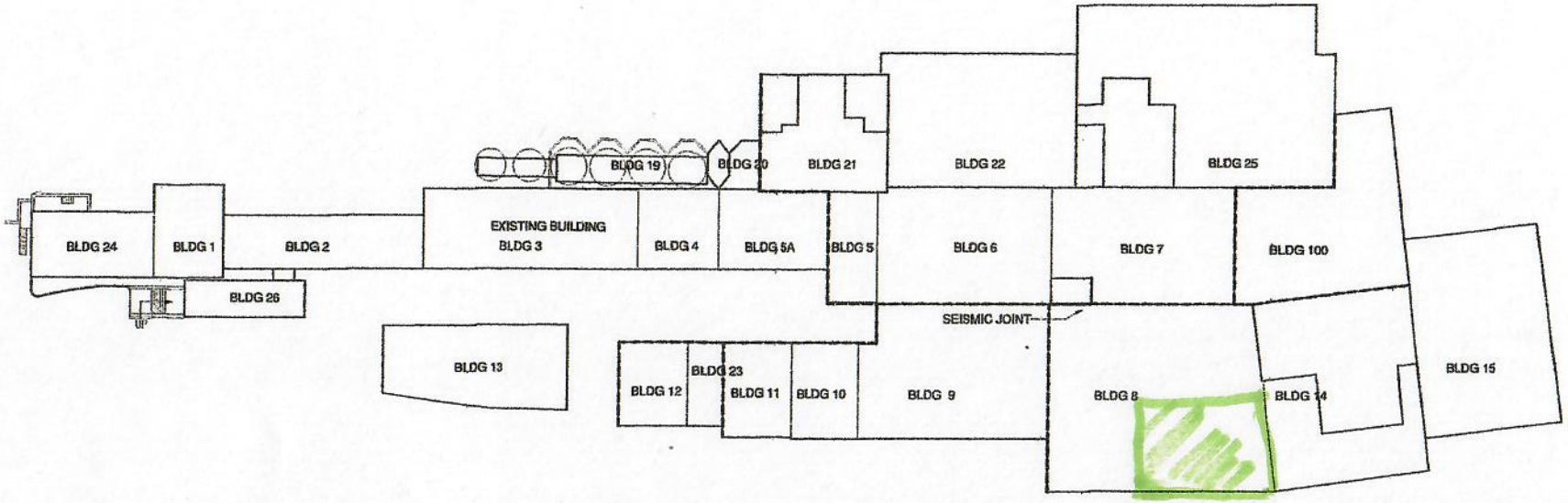
Square Feet: Building 8 West Ele., South quad = 2,274
Building 8 Loading Dock = 2,555

Tenants: Commercial

C/B Zone: Blue

Roof Drain: No roof drain penetrations through wall

Roof Protection: N/A

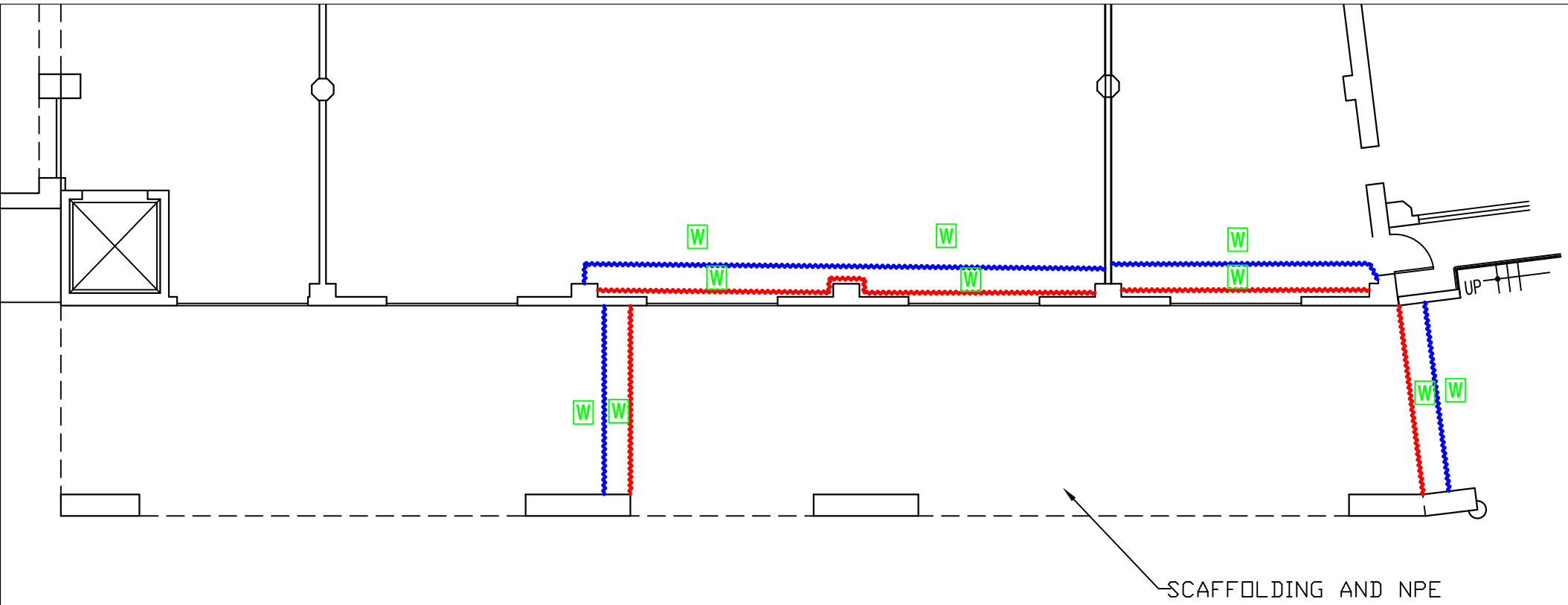


BUILDING 8, WEST ELEVATION, SOUTH QUAD

BUILDING 8, SOUTH DOCK

R-S-DOCK


BLD #8



PHASE THREE, SETUP 25

BUILDING 8, 100 LEVEL

WEST ELEVATION (SOUTH QUADRANT)

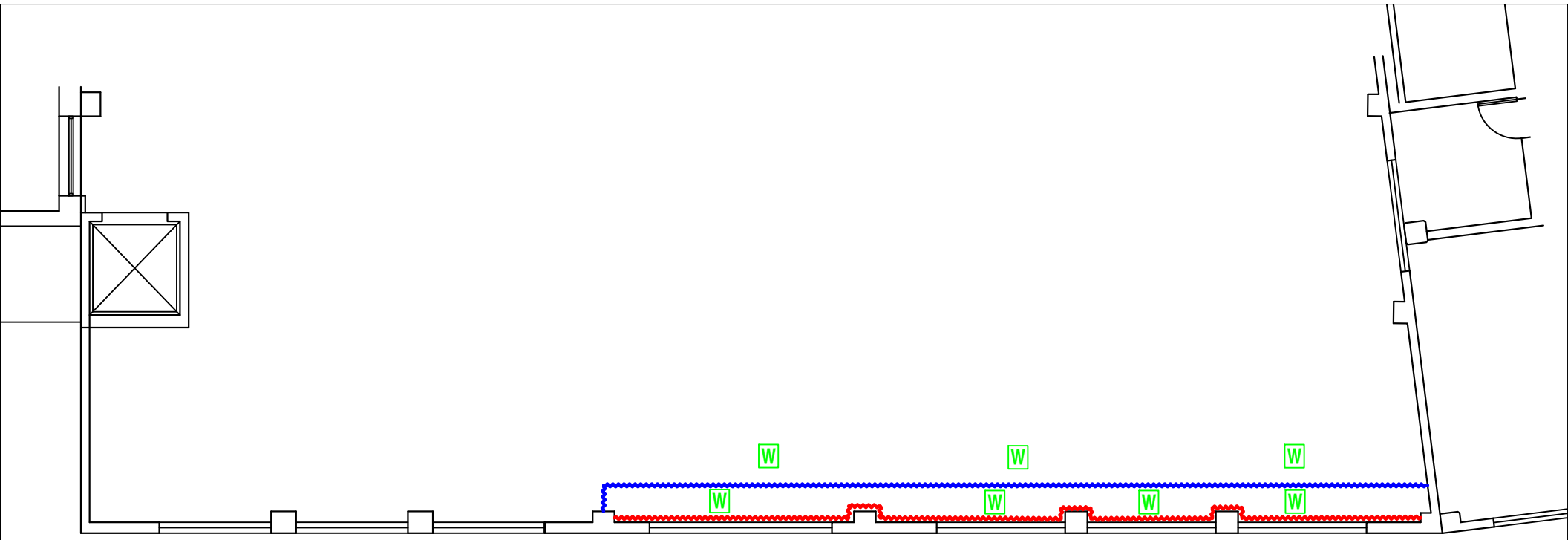
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

PHASE THREE, SETUP 25

BUILDING 8, 200 LEVEL

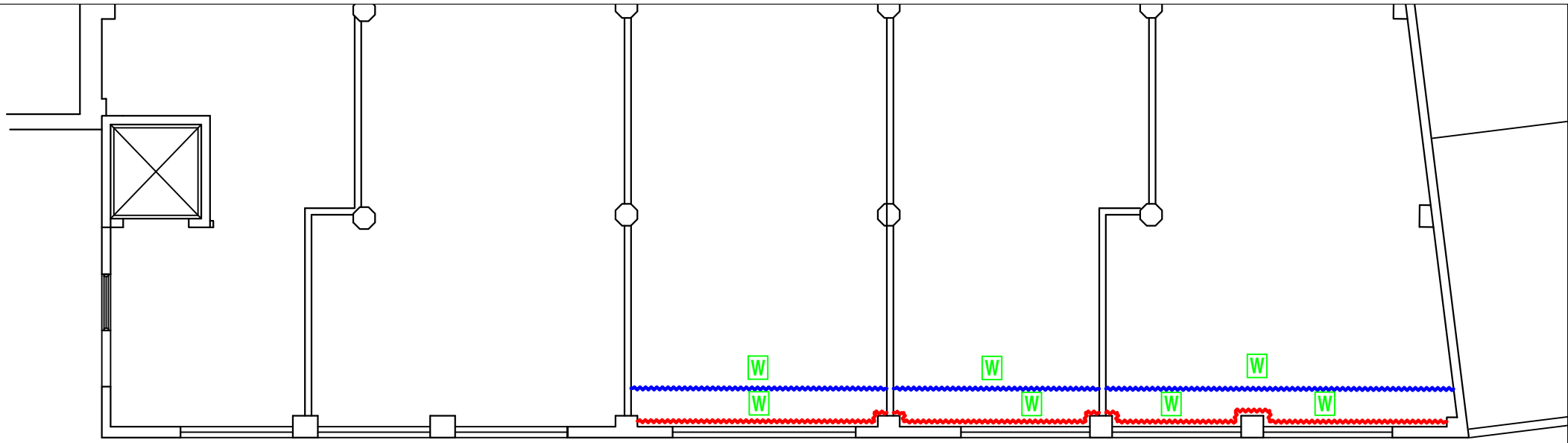
WEST ELEVATION (SOUTH QUADRANT)

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0" (REF)



PHASE THREE, SETUP 25

BUILDING 8, 300 LEVEL

WEST ELEVATION (SOUTH QUADRANT)

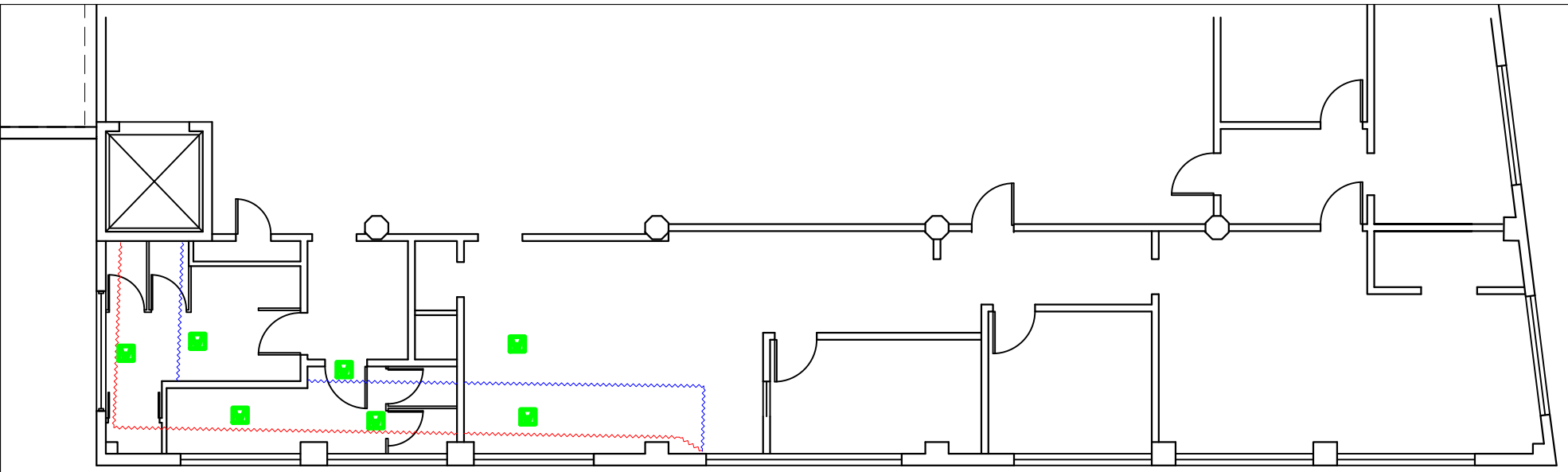
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 25

BUILDING 8, 400 LEVEL

WEST ELEVATION (SOUTH QUADRANT)

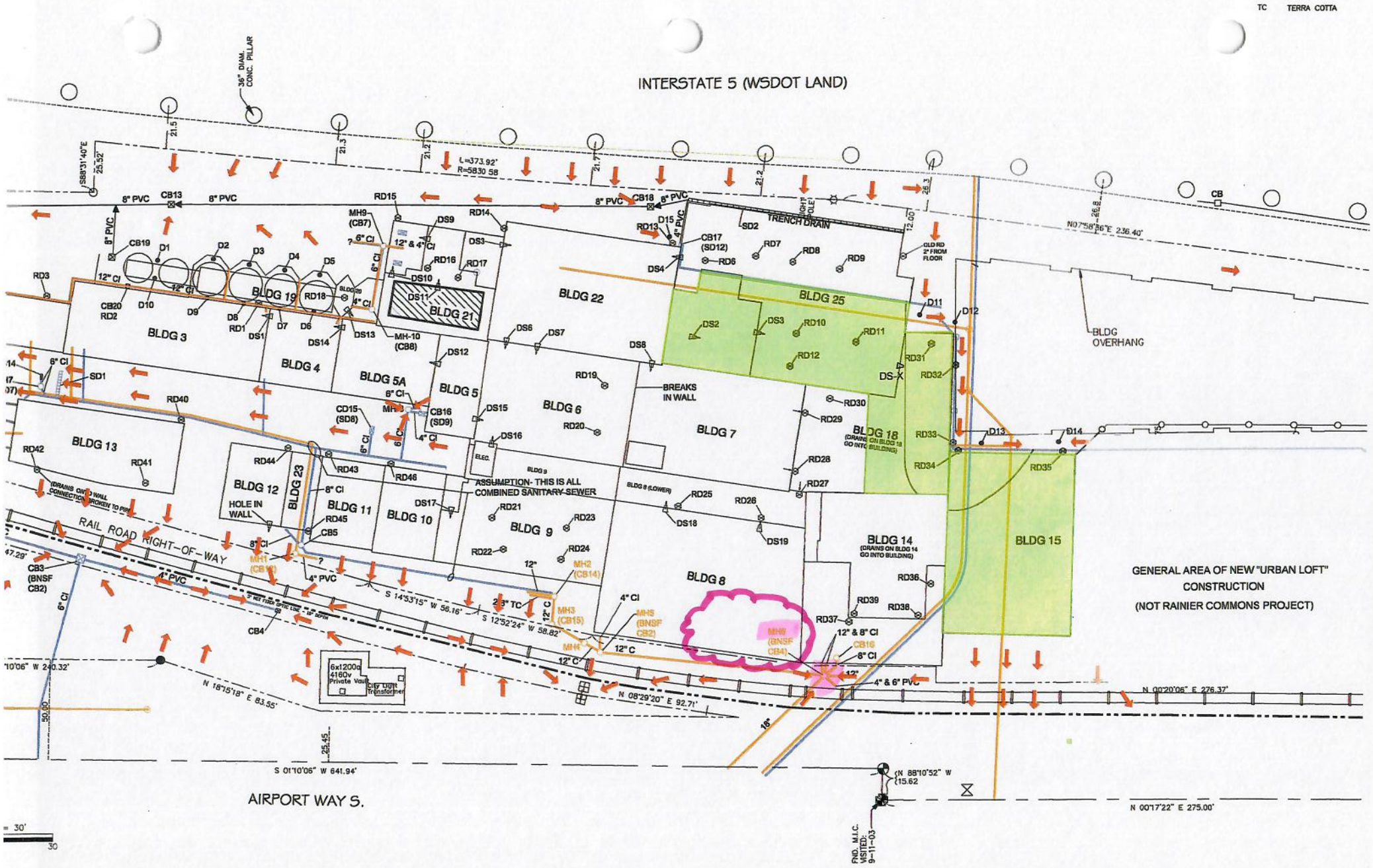
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8363 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	

Phase 3 Set-up 26

Location: Building 8 West Elevation, Northern Quadrant, including dock, and the North Elevation. Phases 25 and 26 divide the building for accessibility. These Phases include both the west façade, the loading dock ceiling, and the outer loading dock walls

Stories: Building 8 = 4

Material: Concrete

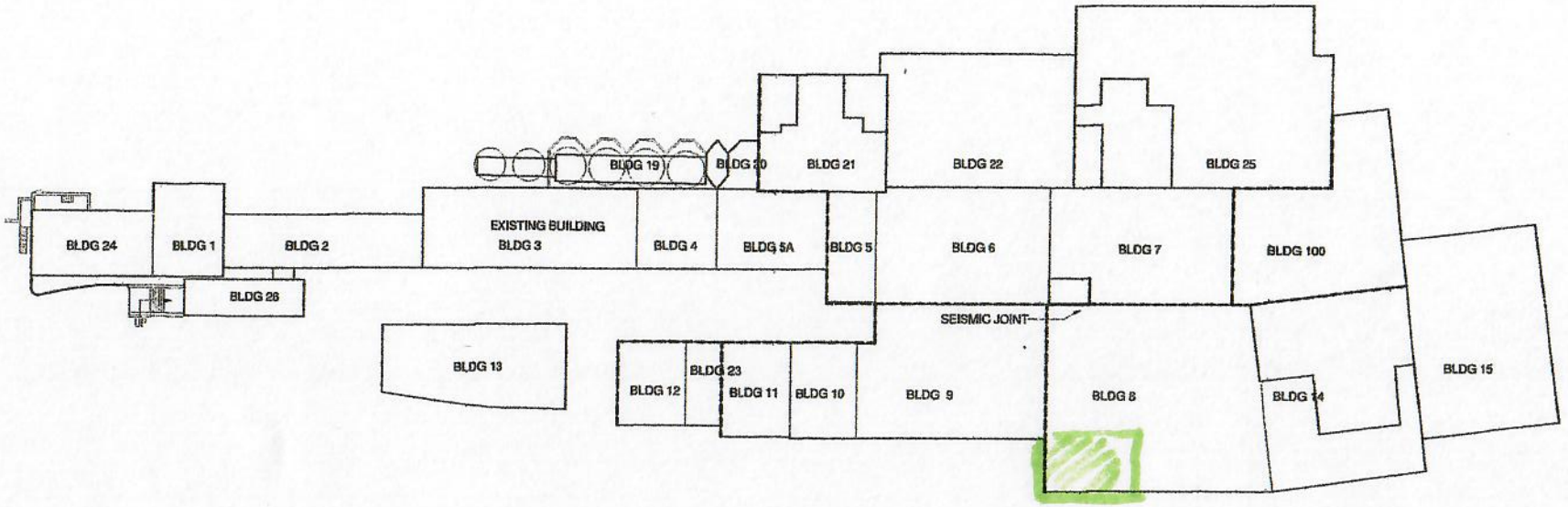
Square Feet: Building 8 West Ele. North quad = 1,710
Building 8 Loading Dock = 2,224
Building 8 North Elevation = 1,217

Tenants: Commercial

C/B Zone: Blue

Roof Drain: No roof drain penetrations through wall

Roof Protection: N/A



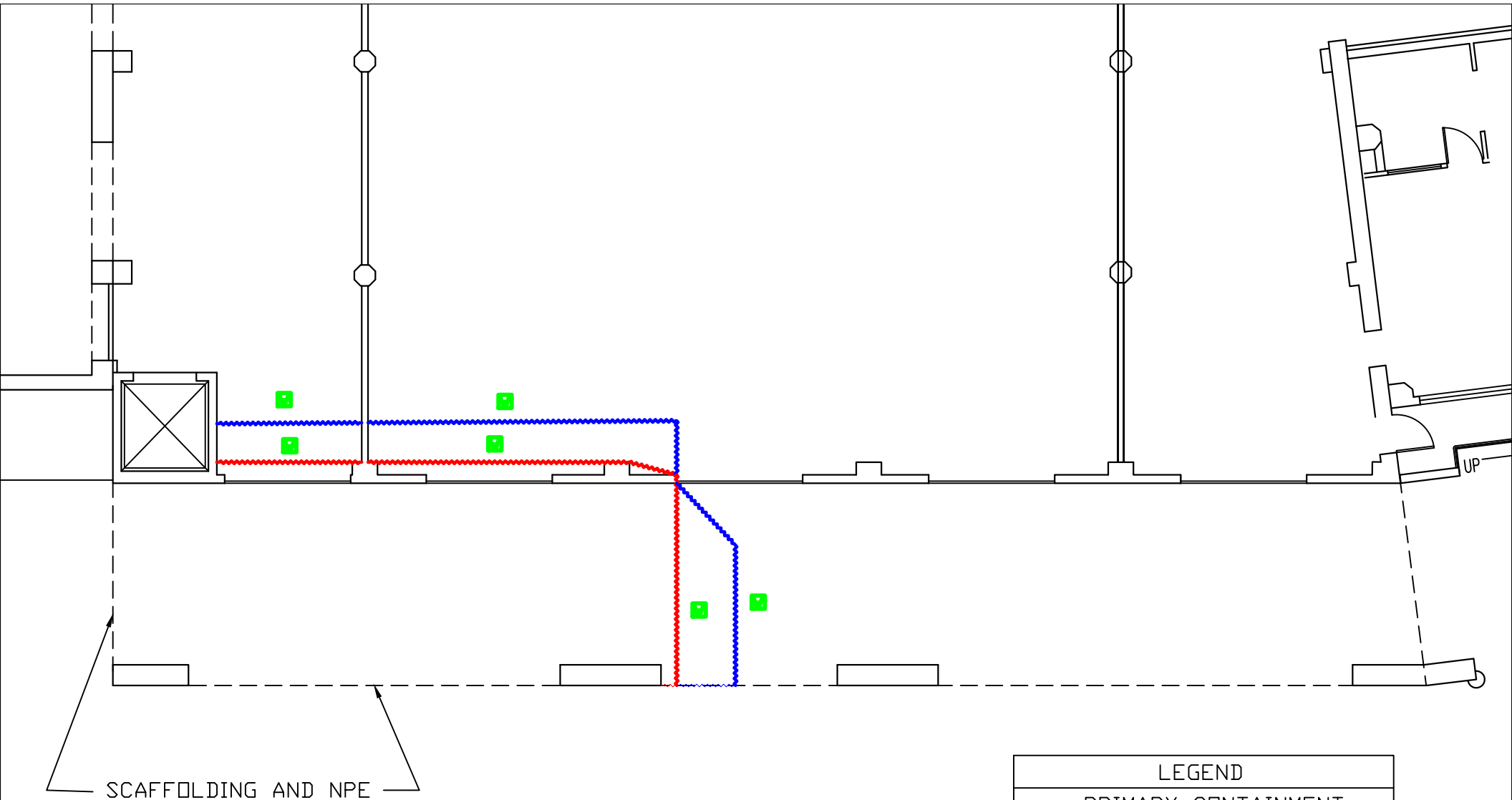
BUILDING 8, WEST ELEVATION, NORTH QUAD

BUILDING 8, NORTH DOCK

BUILDING 8, NORTH ELEVATION


BLD #8


BLD #8



LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

PHASE THREE, SETUP 26

BUILDING 8, 100 LEVEL

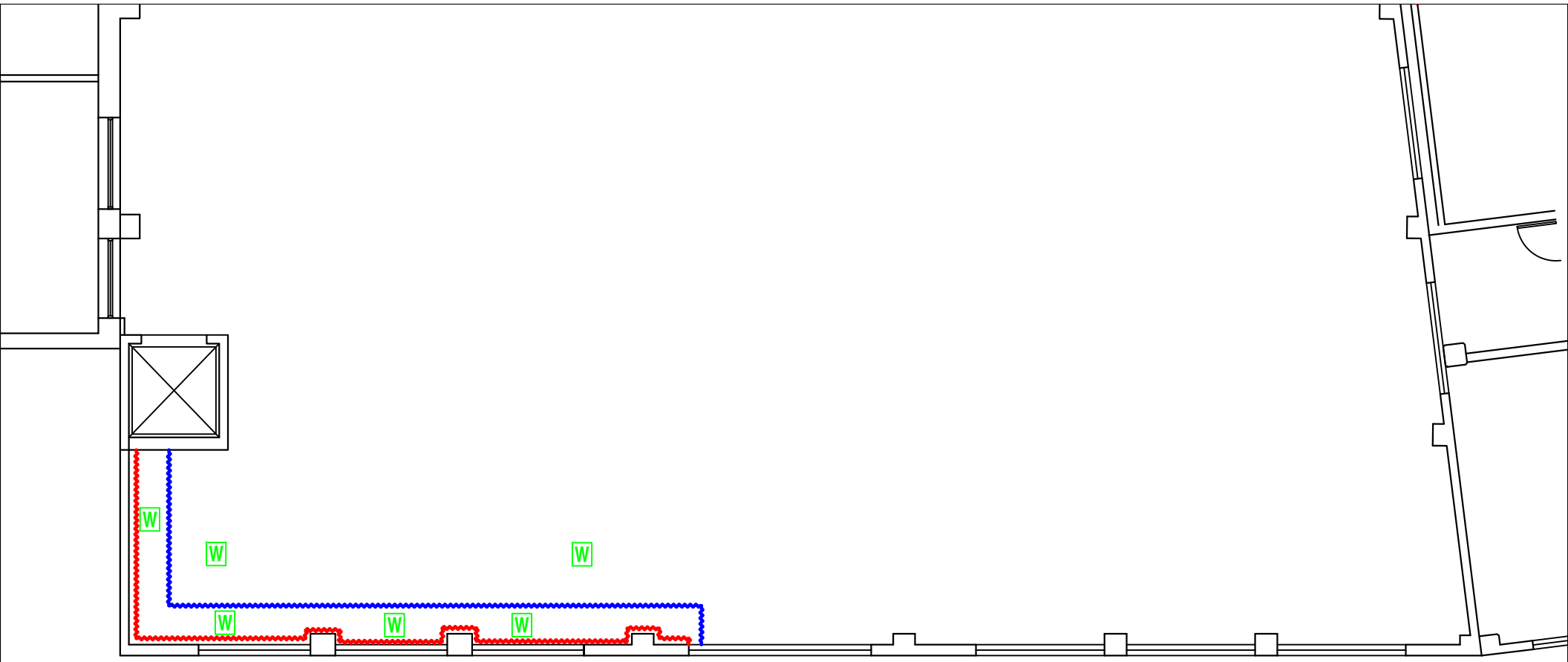
WEST ELEVATION (NORTH QUADRANT)

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

N

10'-0"
(REF)



PHASE THREE, SETUP 26

BUILDING 8, 200 LEVEL

NORTH & WEST ELEVATION (NORTH QUADRANT

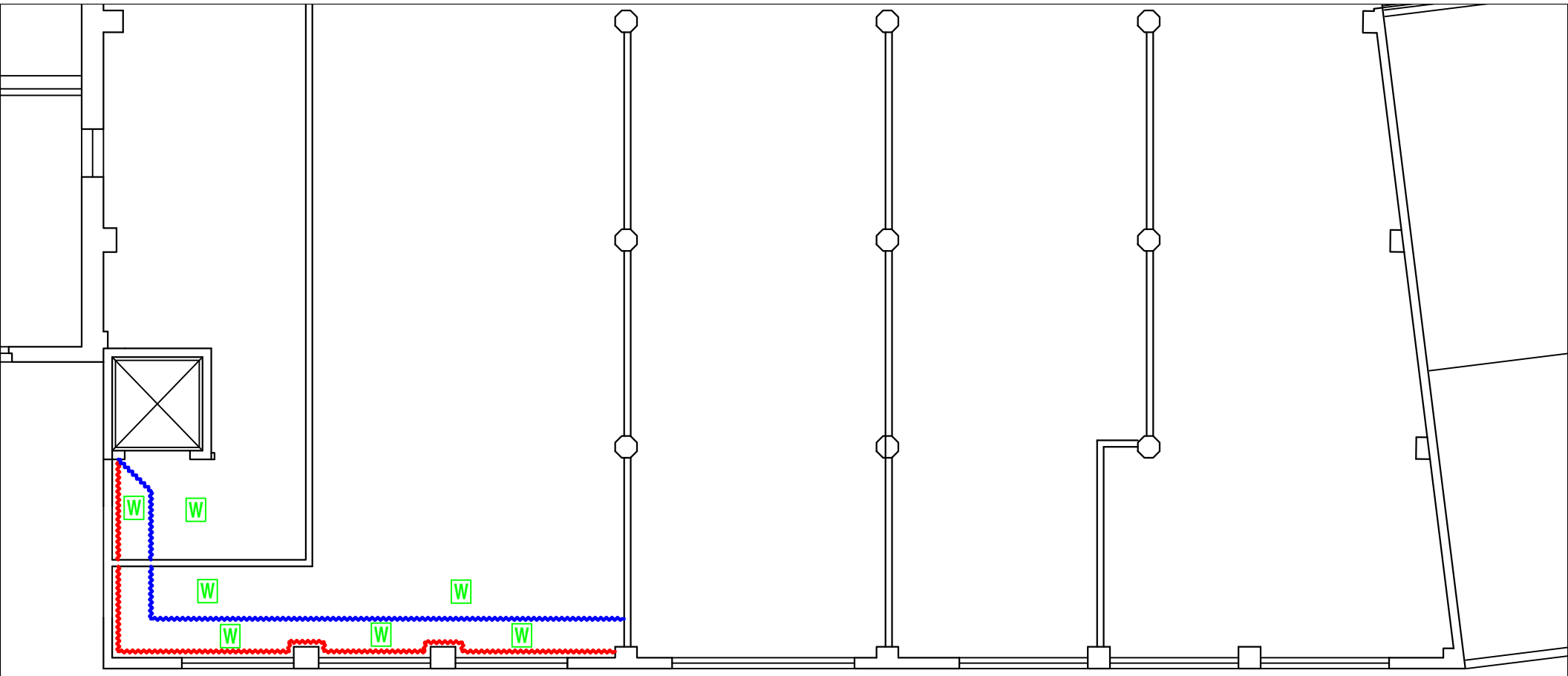
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 26

BUILDING 8, 300 LEVEL

NORTH & WEST ELEVATION (NORTH QUADRANT)

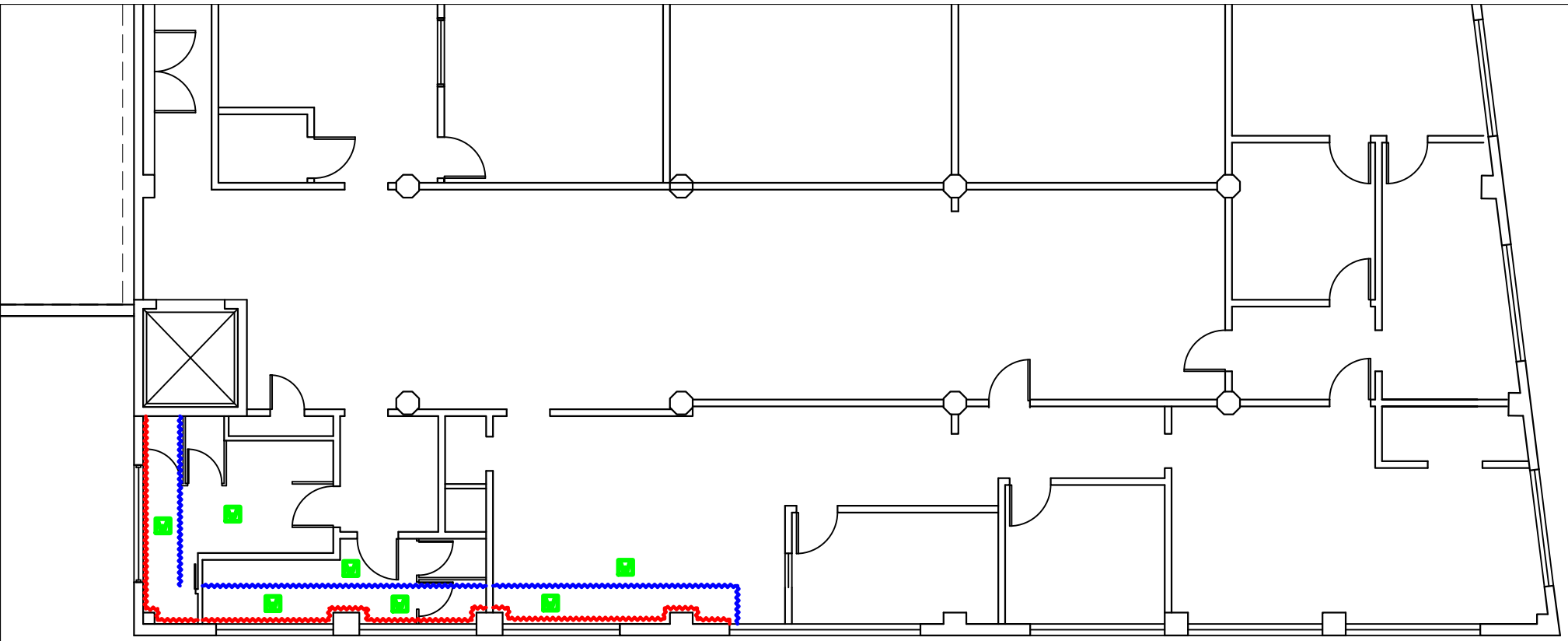
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′-0″
(REF)



PHASE THREE, SETUP 26

BUILDING 8, 400 LEVEL

NORTH & WEST ELEVATION(NORTH QUADRANT)

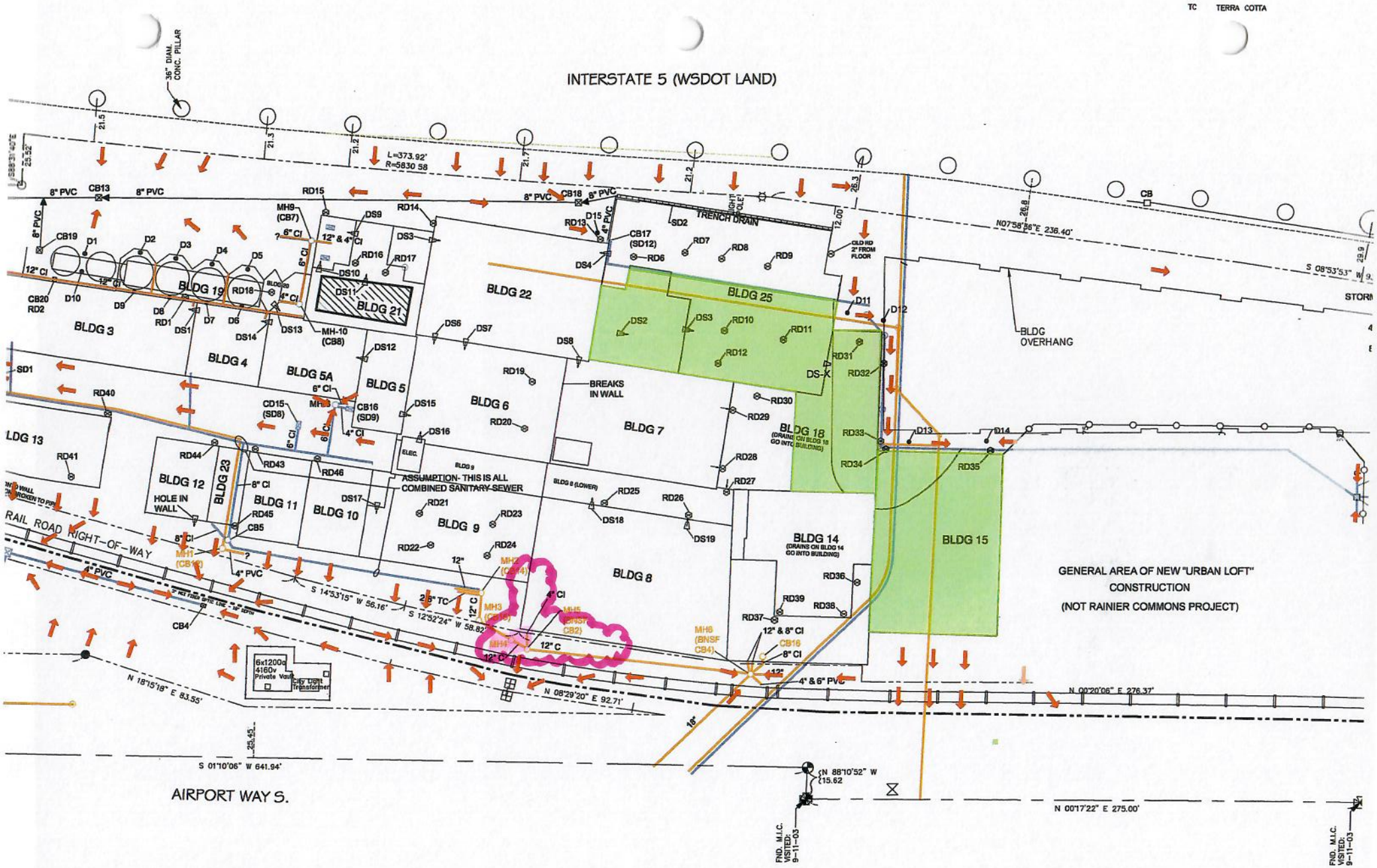
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

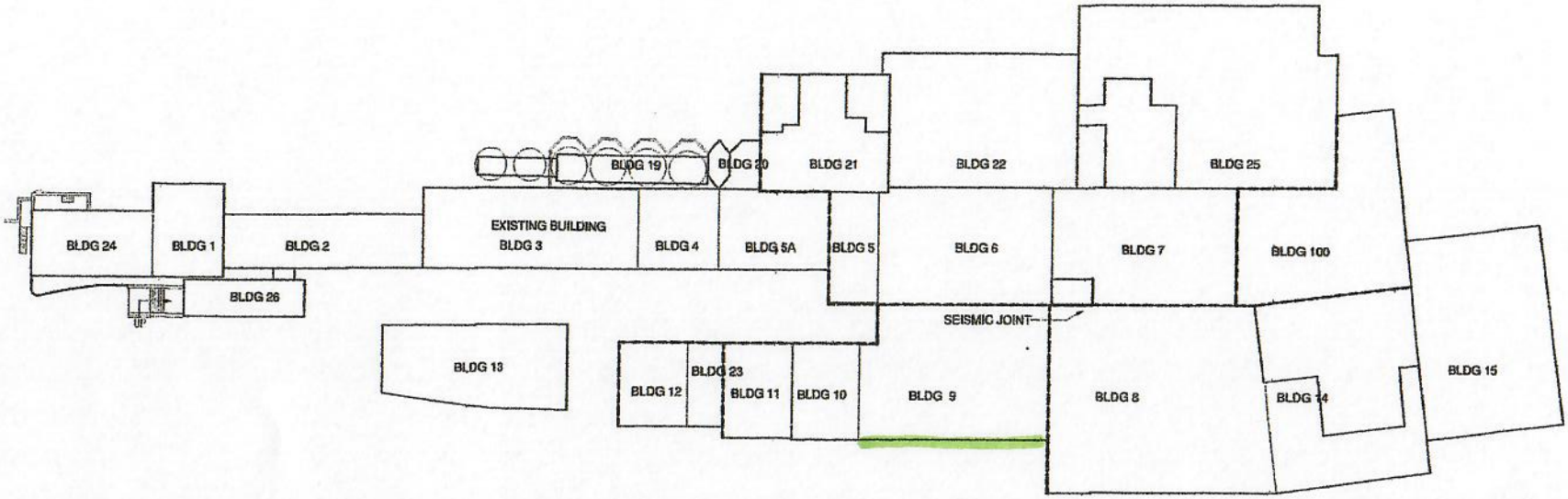
10'-0" (REF)



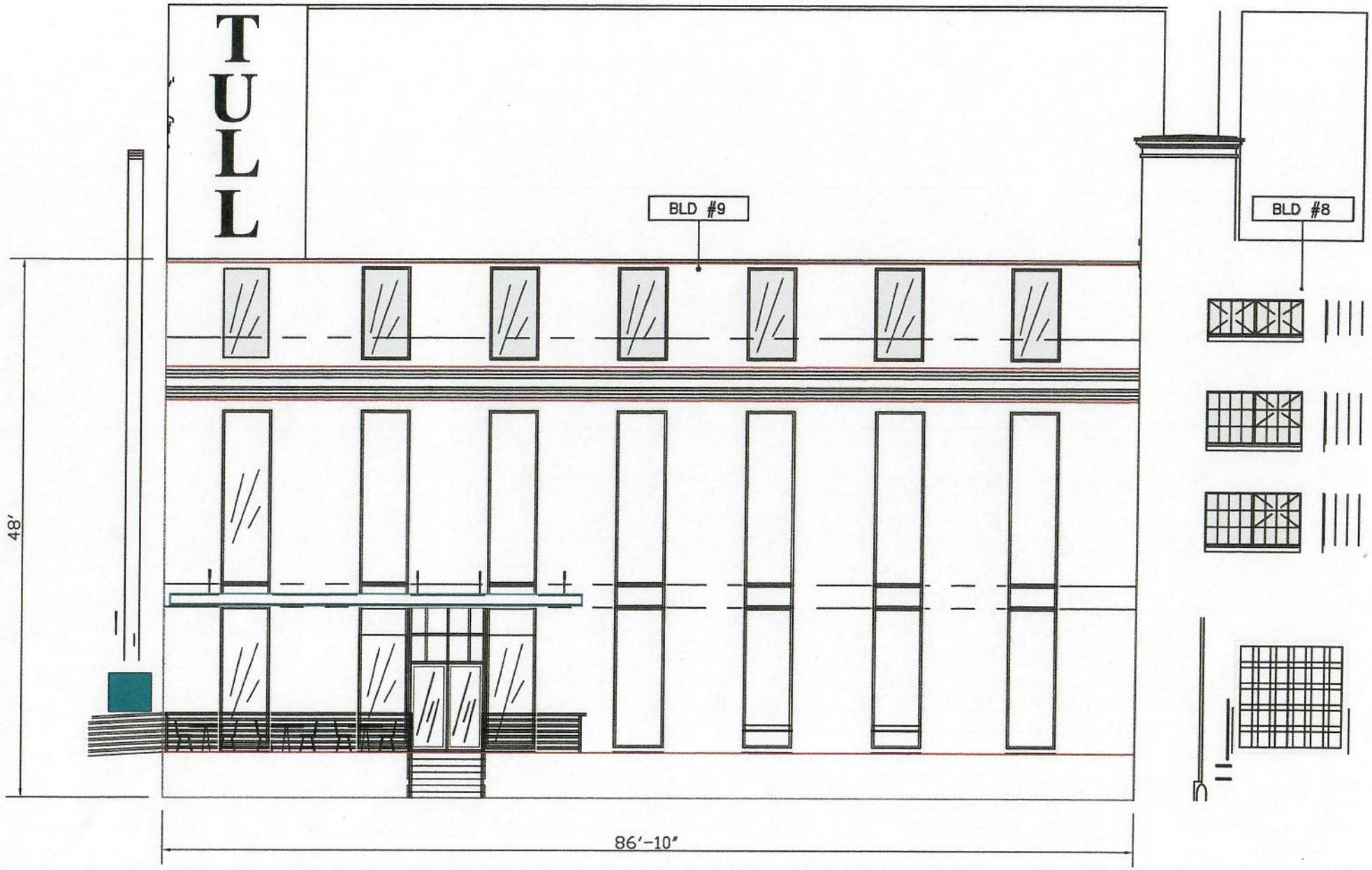
DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	

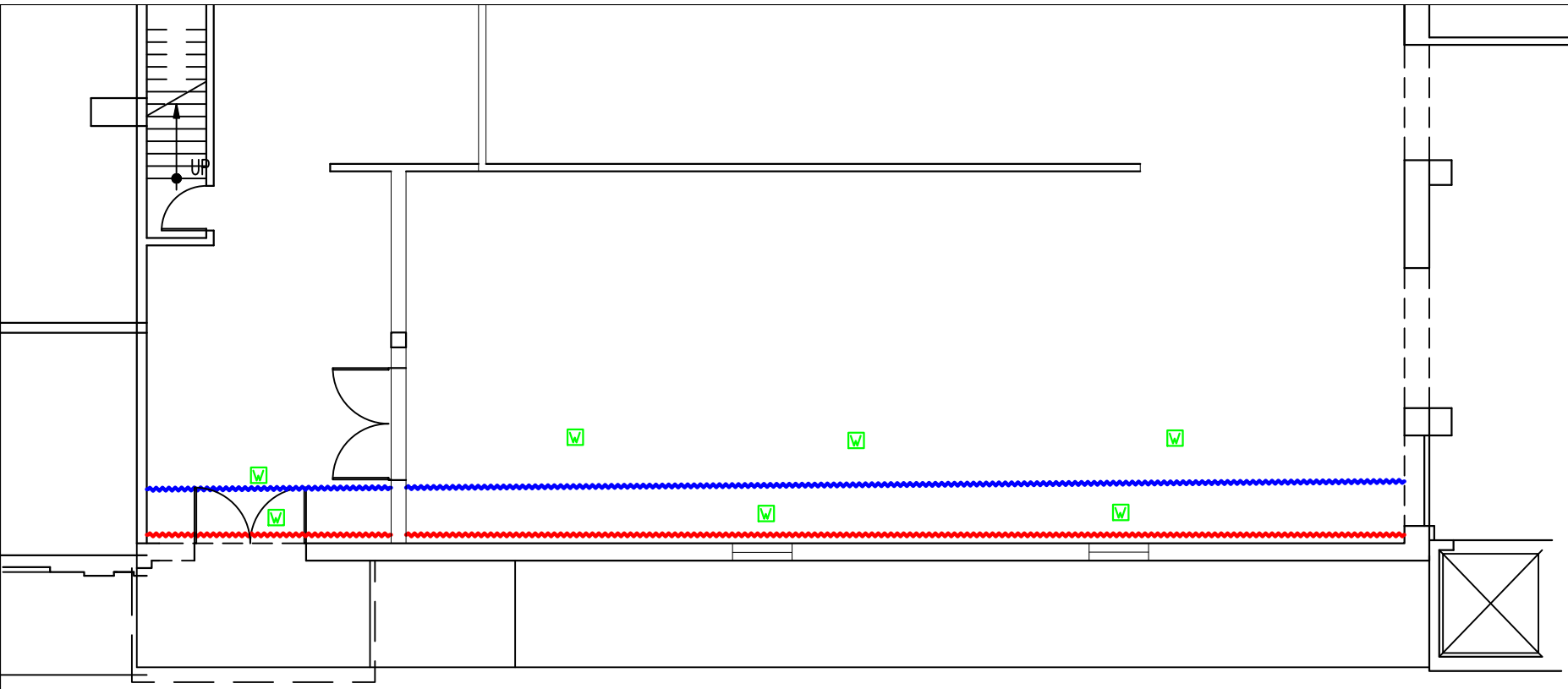
Phase 3 Set-up 27

Location:	Building 9 West Elevation
Stories:	Building 9 = 2
Material:	Concrete
Square Feet:	Building 9 = 4,176
Tenants:	Commercial
C/B Zone:	Blue
Roof Drain:	No roof drain penetrations through wall
Roof Protection:	N/A



BUILDING 9, WEST ELEVATION


TULL
BLD #9
BLD #8
48'
86'-10"



PHASE THREE, SETUP 27

BUILDING 9, 100 LEVEL

WEST ELEVATION

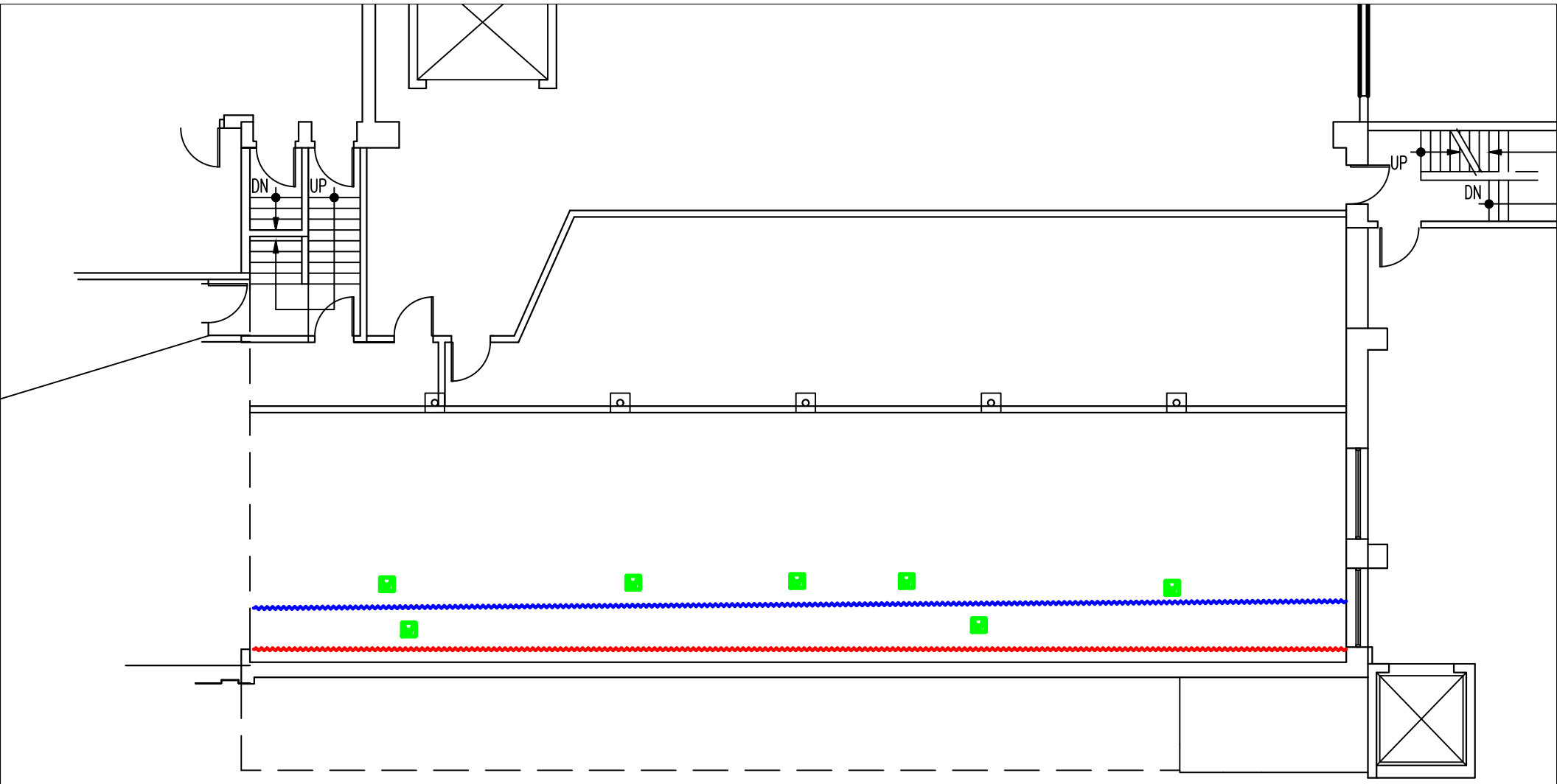
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 27

BUILDING 9, 200 LEVEL

WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)

DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3865 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	

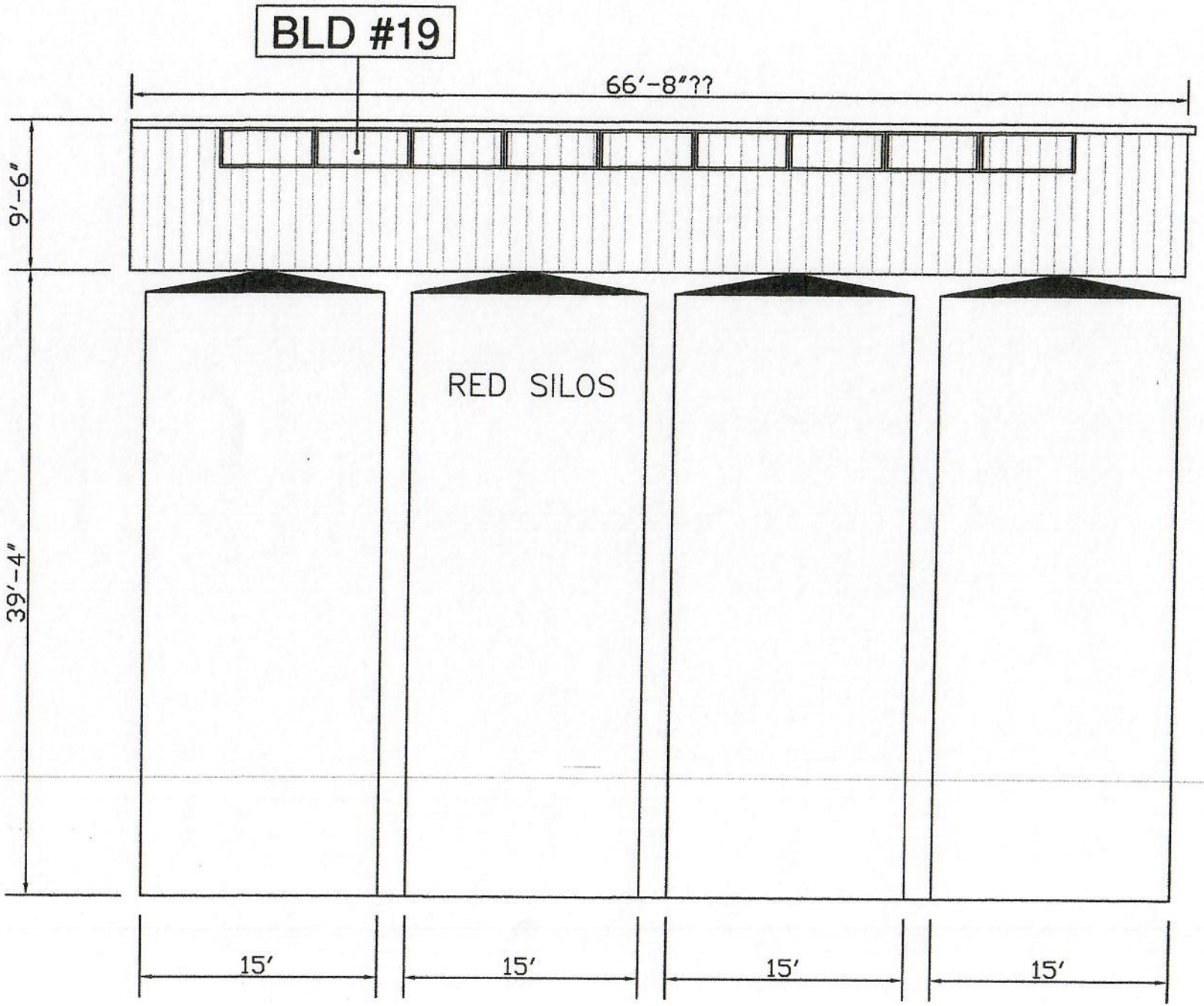
Phase 3 Set-up 28

Location: Building 19 and the Red Silos. These buildings are uninhabited. They will be completely enclosed in the Negative Pressure Enclosure (NPE), and therefore will not have an "interior" space requiring protection. Access to the interior spaces of both areas is unsafe.

Stories:	Building 19 = 1 atop red silos Red Silos = 39' tall
Material:	Building 19 = Wood Siding Red Silos = Steel
Square Feet:	Building 19 = 1,419 Red Silos = 7,476
Tenants:	None, uninhabitable
C/B Zone:	Yellow

Roof Drain: No roof drains

Roof Protection: N/A


BLD #19
66'-8"??
9'-6"
39'-4"
RED SILOS
15'
15'
15'
15'

PHASE THREE, SETUP 28

BUILDING 19 & RED SILOS

ALL ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: UNOCCUPIED

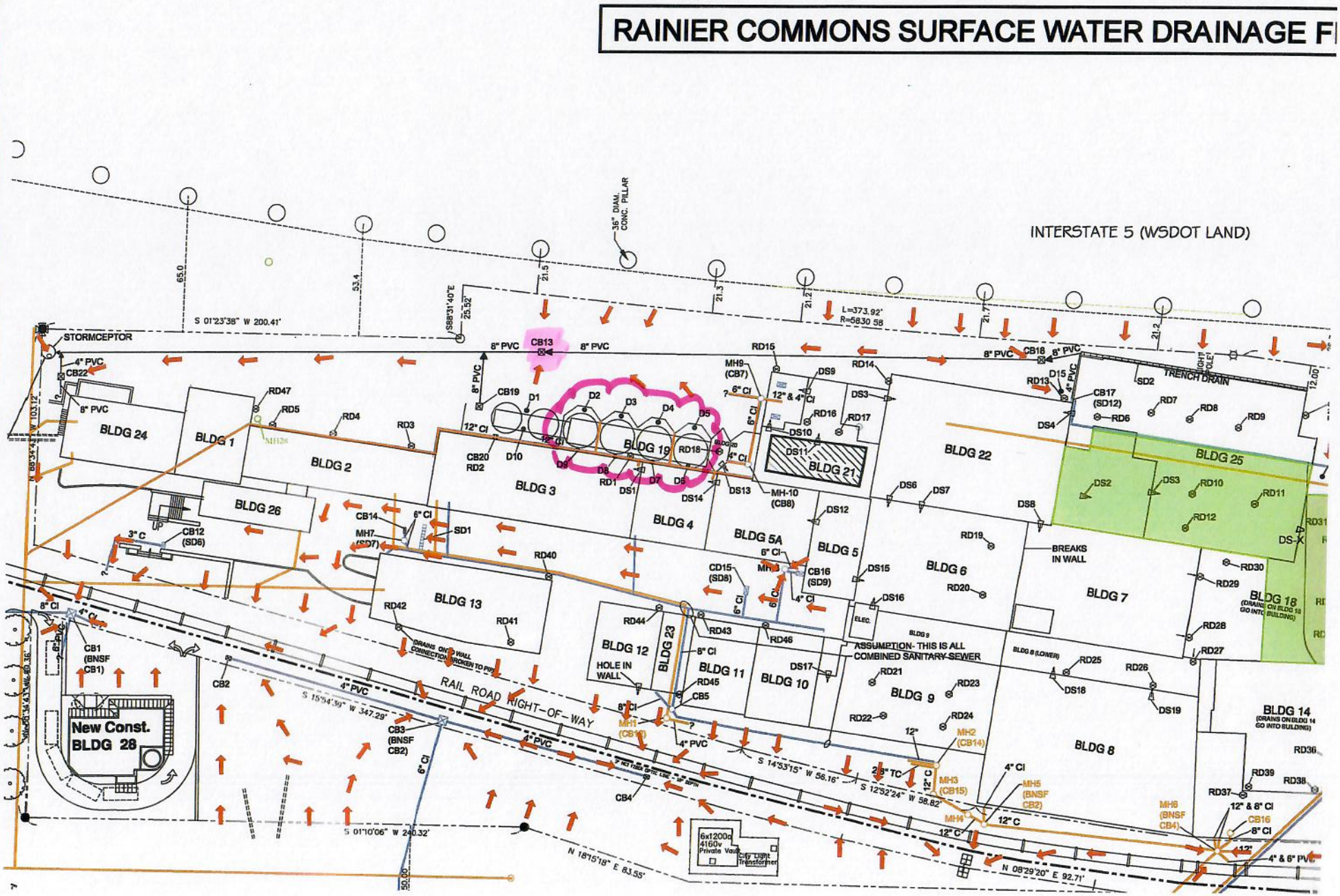
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)

NO INTERIOR PROTECTION REQUIRED

RAINIER COMMONS SURFACE WATER DRAINAGE F

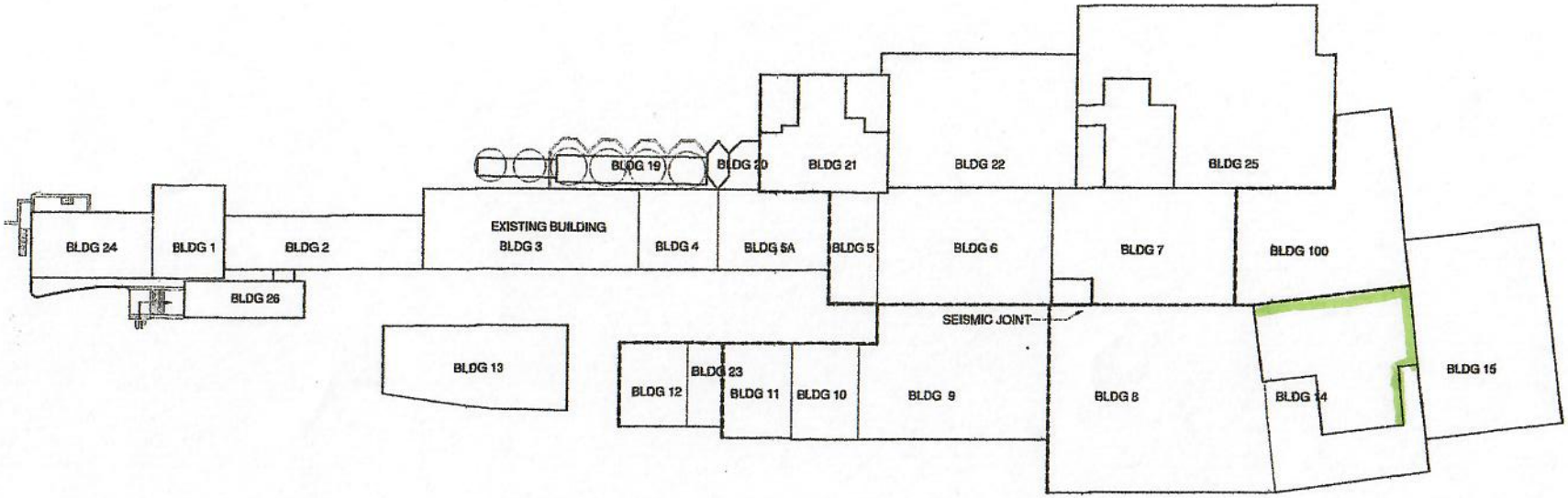


XREFS: cdm-site-utility, Site Utilities, CDM-22x34bdr, building 100 BASE, SDS Street Improvements, Survey, tank farm fence (block), Tullys Drive Thru, East Fire Road (block)

Phase 3 Set-up 29

Location:	Building 14-200 North Elevation Building 15-200 North Elevation Building 18-200 West Elevation
Stories:	Building 14-200 = 1 Building 15-200 = 1 Building 18-200 = 1
Material:	Building 14-200 – Concrete Building 15-200 – Concrete and Brick Building 18-200 - Concrete
Square Feet:	Building 14-200 = 577 Building 15-200 = 582 Building 18-200 = 1,124
Tenants:	Commercial
C/B Zone:	Orange
Roof Drain:	No roof drain penetrations through wall

Roof Protection: N/A



BUILDING 14-200, NORTH ELEVATION (GALLERY)

BUILDING 15-200, NORTH ELEVATION (GALLERY)

BUILDING 18-200, WEST ELEVATION (GALLERY)

14-200-N EE

15-200-N

18-200-W

PHASE THREE, SETUP 29

BUILDING 14 & 15 200 LEVEL

NORTH ELEVATION

BUILDING 18 200 LEVEL

WEST ELEVATION

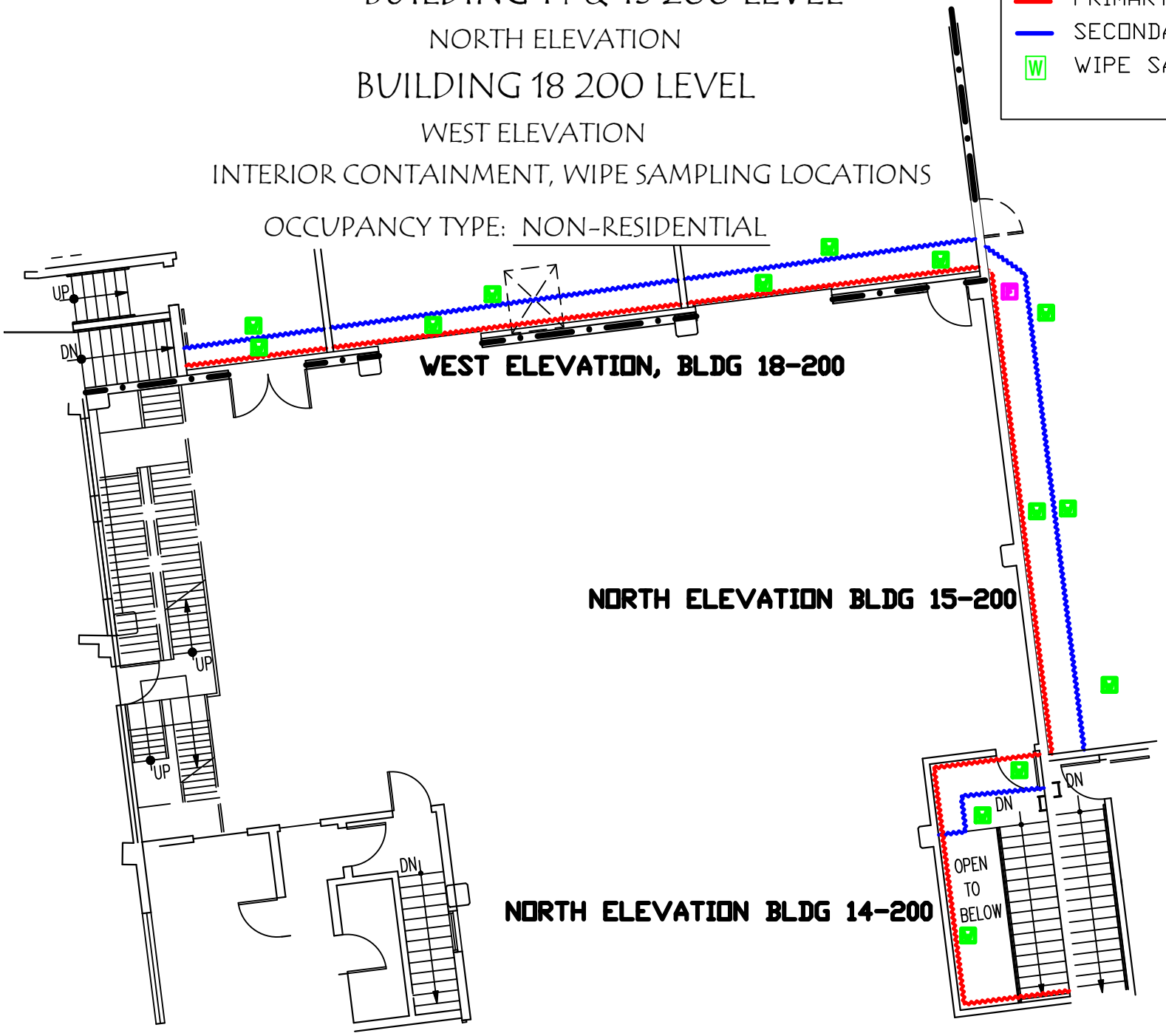
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

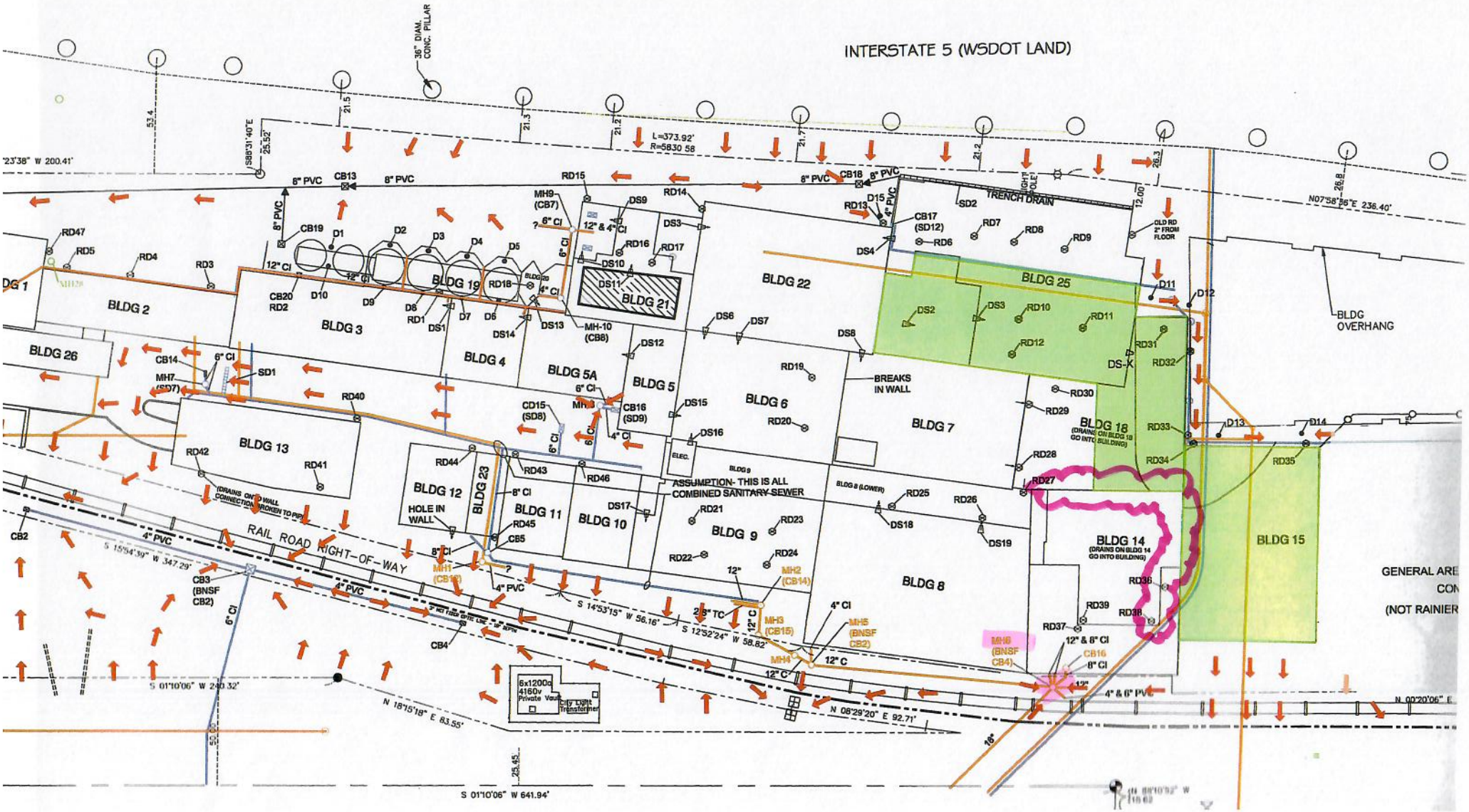
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



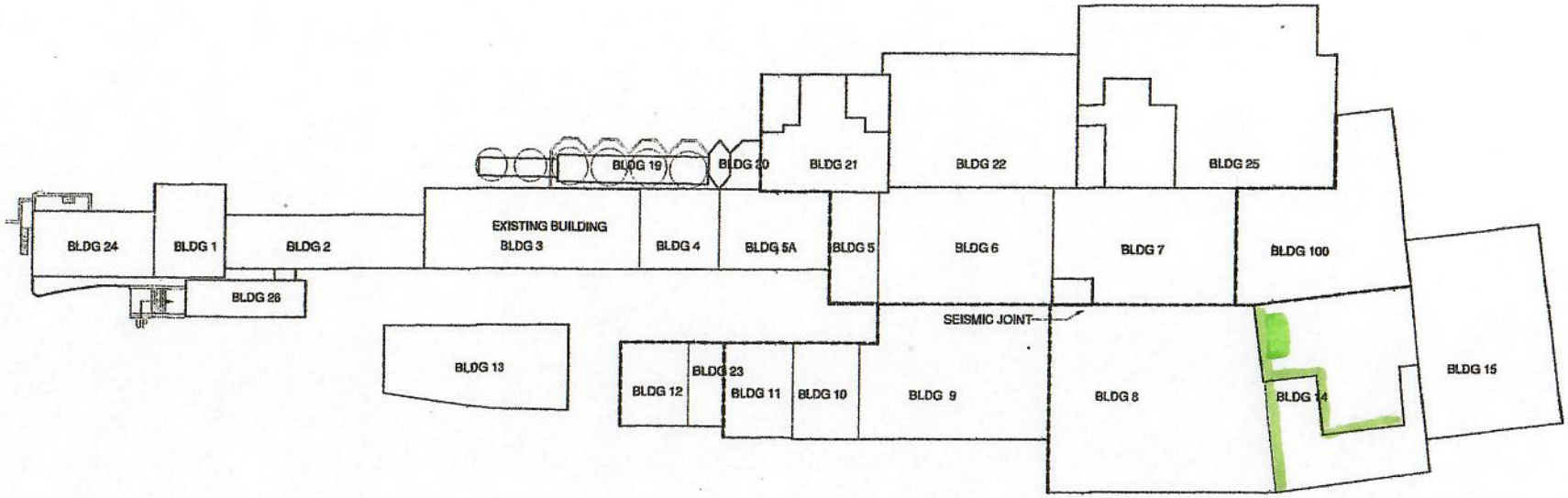
RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 30

Location:	Building 8 South Elevation Building 8 Stairs Building 14-200 East Elevation Building 14-200 South Elevation
Stories:	Building 8-200 and stairs = 3 Building 14-200 = 1
Material:	Building 8-200 – Concrete Building 8 Stairs - Steel Building 14-200 – Concrete
Square Feet:	Building 8-200 = 1,941 Building 8 Stairs = 158 Building 14-200 East = 751 Building 14-200 South = 506
Tenants:	Commercial
C/B Zone:	Orange
Roof Drain:	No roof drain penetrations through wall

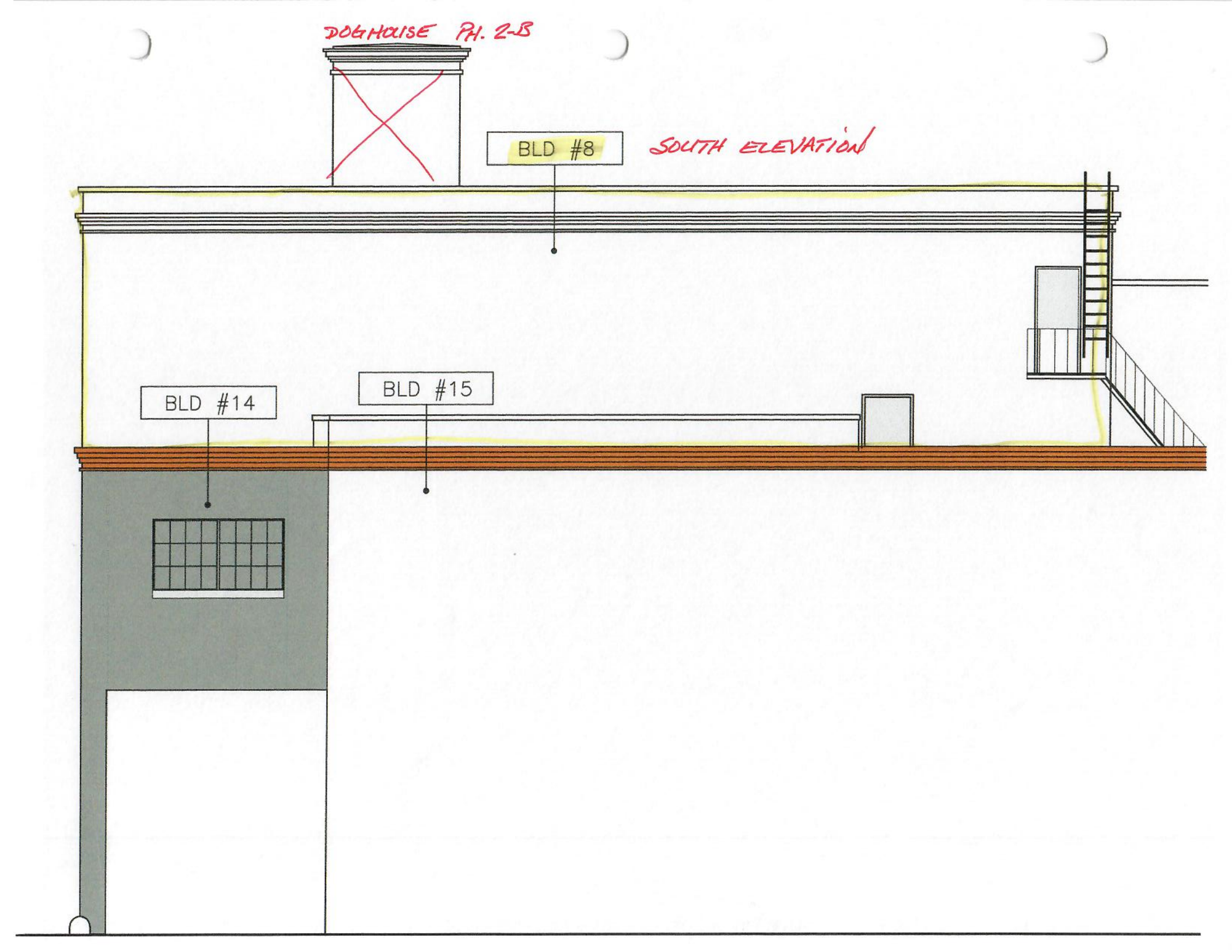
Roof Protection: N/A

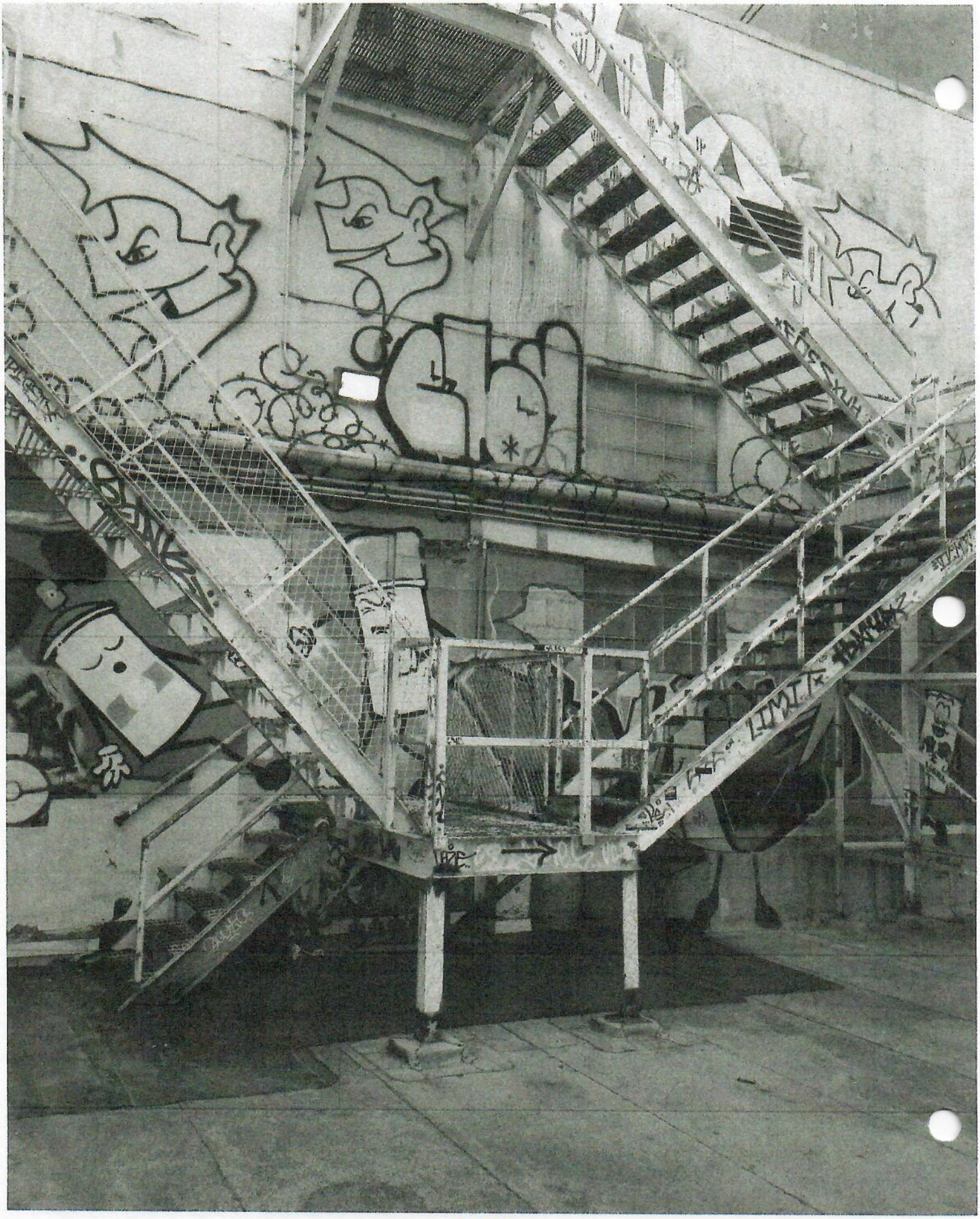


BUILDING 8, SOUTH ELEVATION (GALLERY)

BUILDING 14-200, EAST ELEVATION (GALLERY)

BUILDING 14-200, SOUTH ELEVATION (GALLERY)


DOGHOUSE PH. 2-B
BLD #8
SOUTH ELEVATION
BLD #14
BLD #15



SOUTH
B. ~~ELEV.~~ ~~ROOF~~ - STAIRS


IN THE
YARD

14-200-E

14-200-S

PHASE THREE, SETUP 30

BUILDING 8 & 14 200 LEVEL

SOUTH ELEVATION

BUILDING 14 200 LEVEL

EAST ELEVATION

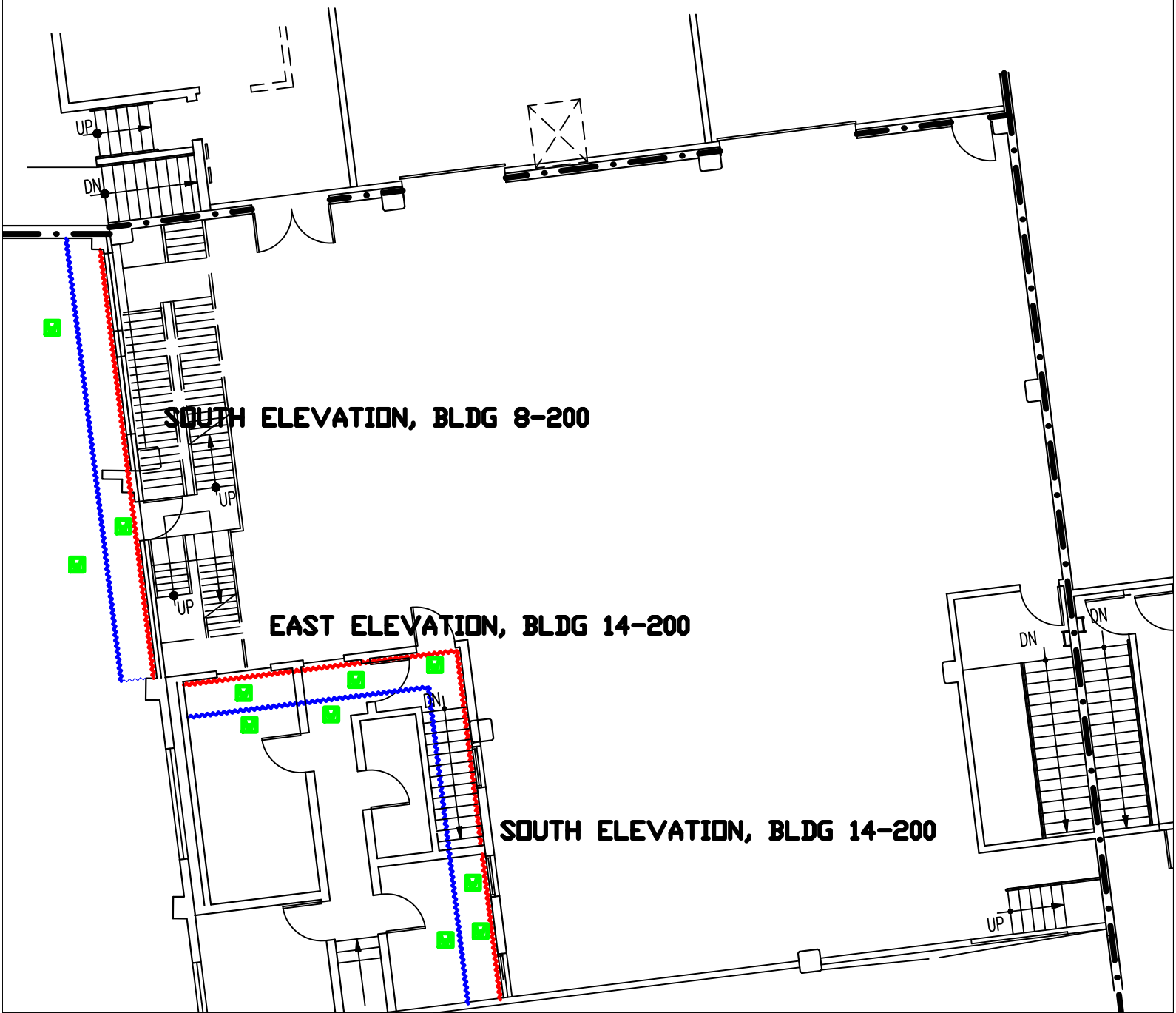
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



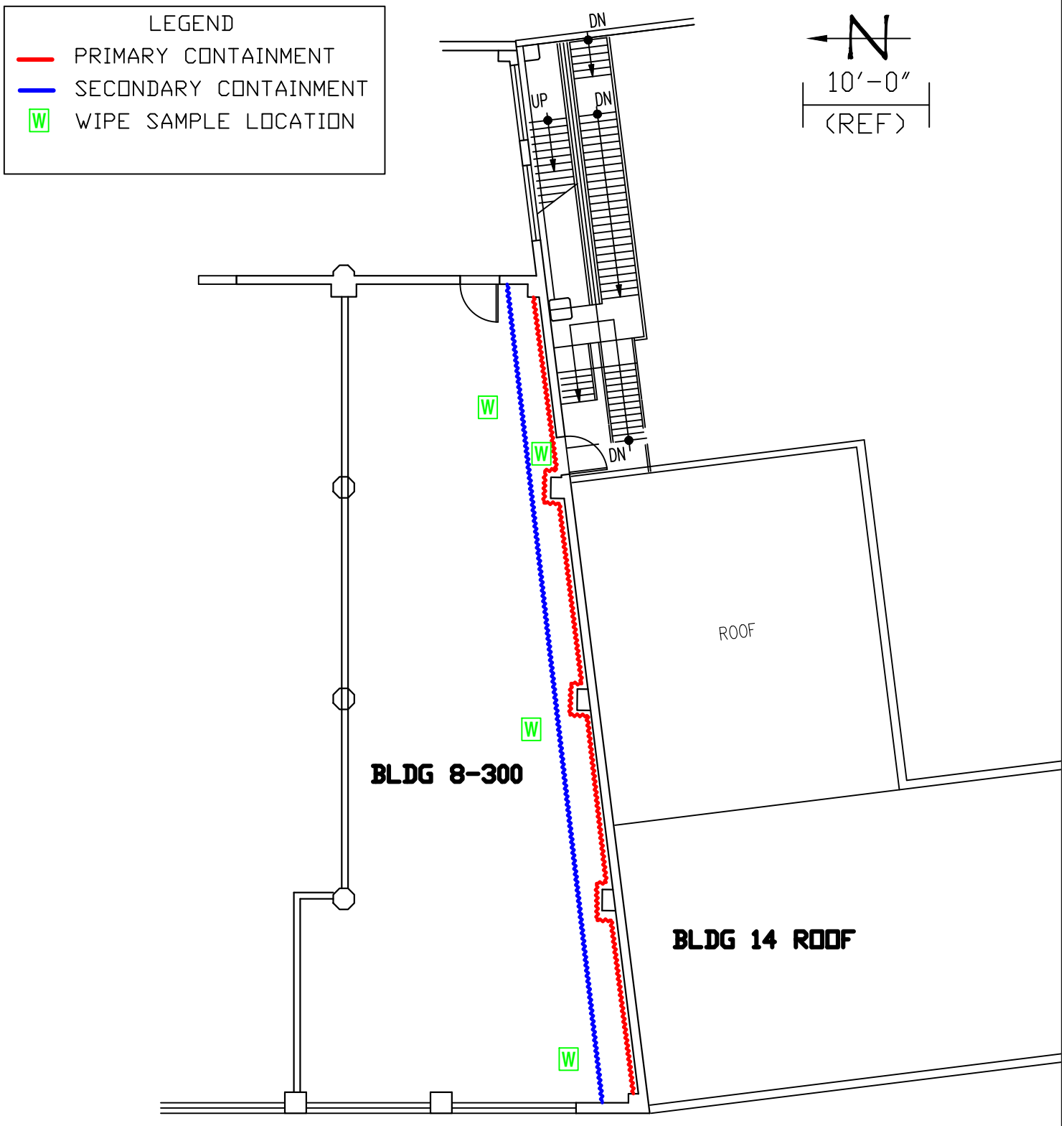
PHASE THREE, SETUP 30

BUILDING 8, 300 LEVEL

SOUTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL



PHASE THREE, SETUP 30

BUILDING 8, 400 LEVEL

SOUTH ELEVATION

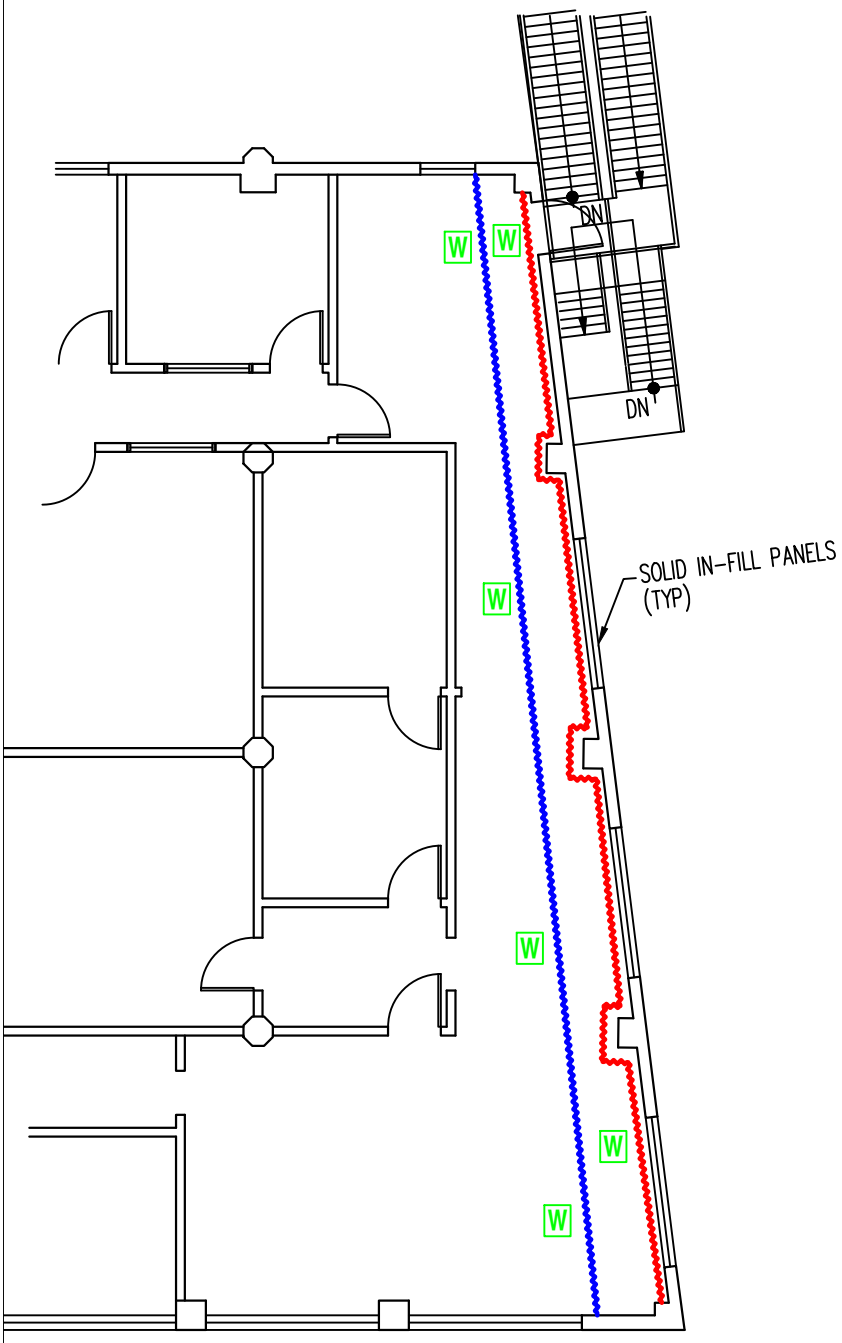
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL

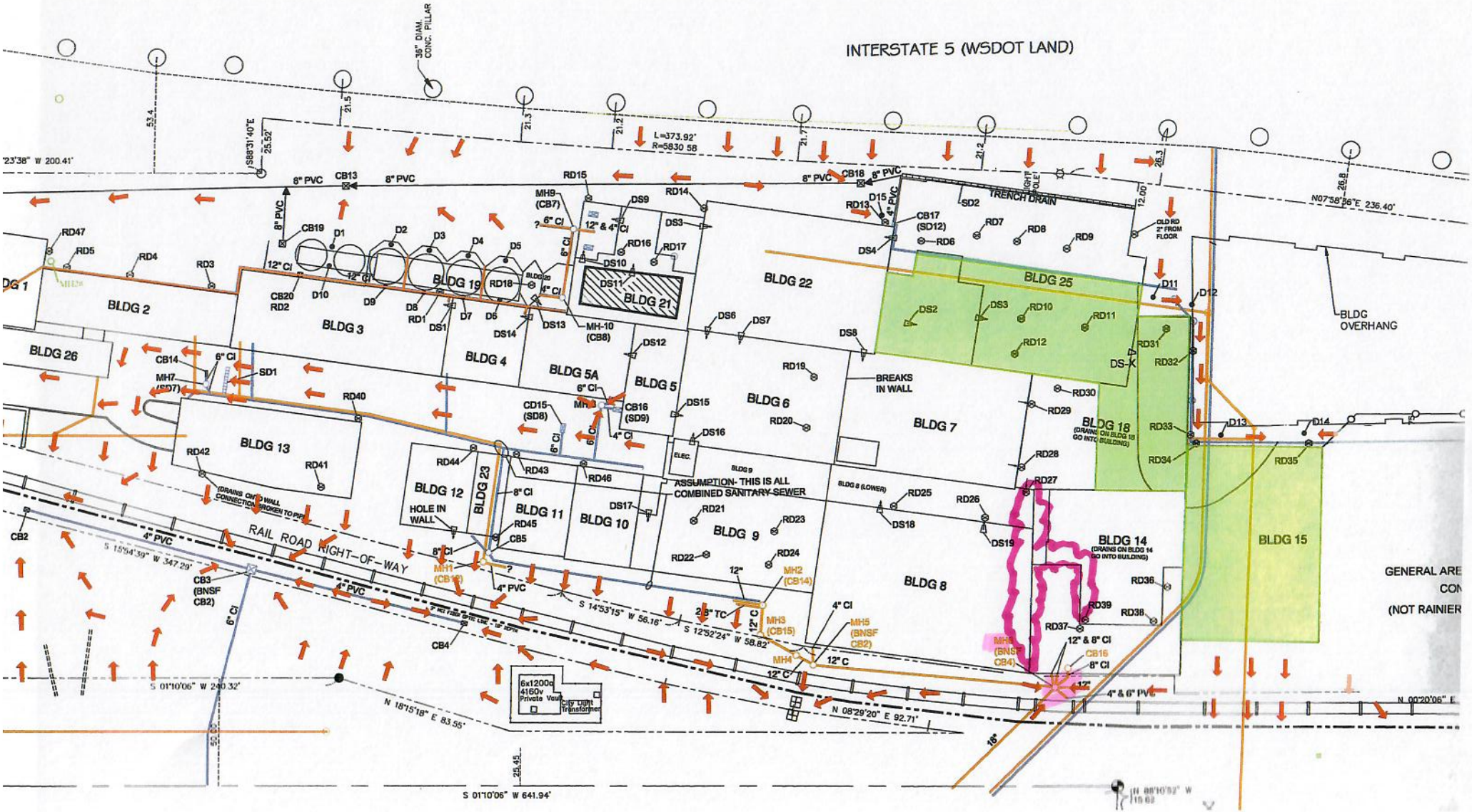
LEGEND	
PRIMARY CONTAINMENT	
SECONDARY CONTAINMENT	
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 31

Location:	Building 18-Roof Doghouses/Skylights Building 15-Roof North Parapet Building 15-Roof West Parapet Building 14-Roof Flashing/Caps
Stories:	N/A
Material:	Building 18 Doghouses – Steel Building 15-Roof Parapets - Steel Building 14-Roof Caps - Steel
Square Feet:	Building 18 Roof= 417 Building 15 North Roof = 364 Building 15 West Roof = 252 Building 14 Roof = 383
Tenants:	Commercial
C/B Zone:	Green

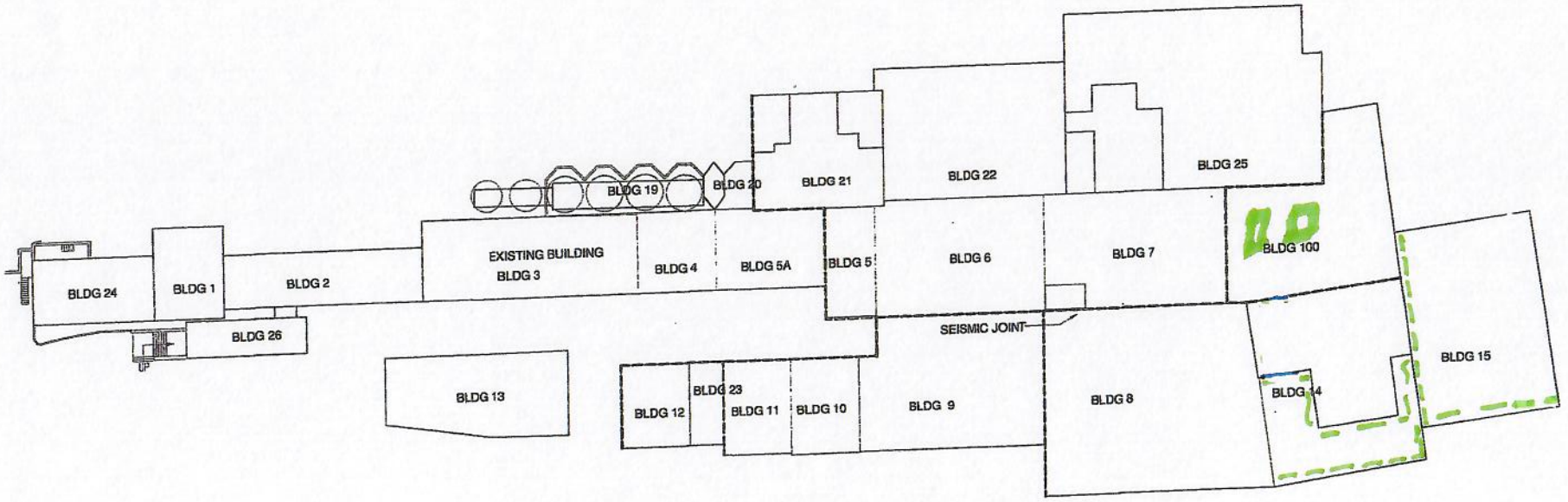
Roof Drain: No roof drain penetrations through parapets

Roof Protection: N/A

Additional Protection: Protect parapet walls on the opposite side of the areas being abated by applying a single layer of 6-mil poly, attached to the building utilizing duct tape on all four surfaces, where it is safe to do so.

On parapet walls that cannot be safely sealed, apply one layer of 6-mil poly, attaching to the top of building with duct tape. The bottom edge shall be weighted, to allow the poly to drape at least one foot lower than the height of the parapet wall. During abatement operations, a safety monitor will continuously observe the draped area, immediately notifying the abatement supervisor should any visible dust be detected.

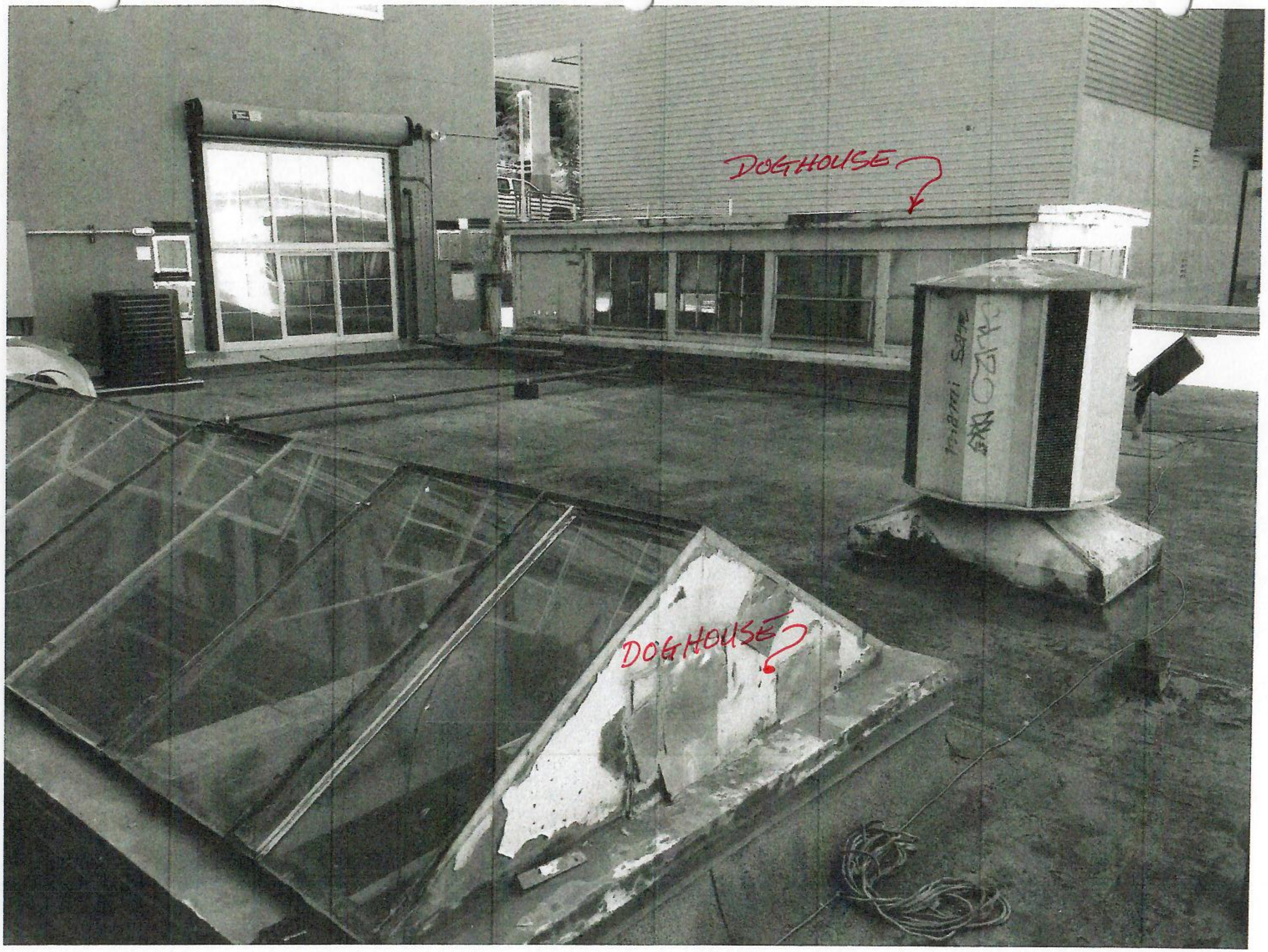
Skylights and Doghouses will have one layer of 6-mil poly applied directly to the interior surfaces adjacent to the abated areas. A secondary protective layer of 6-mil poly will be applied horizontally, at the interior base (bottom) of each skylight/doghouse. Protection will be held in place utilizing duct tape and/or spray adhesive.



BUILDING 18, ROOF, DOGHOUSES (GALLERY)

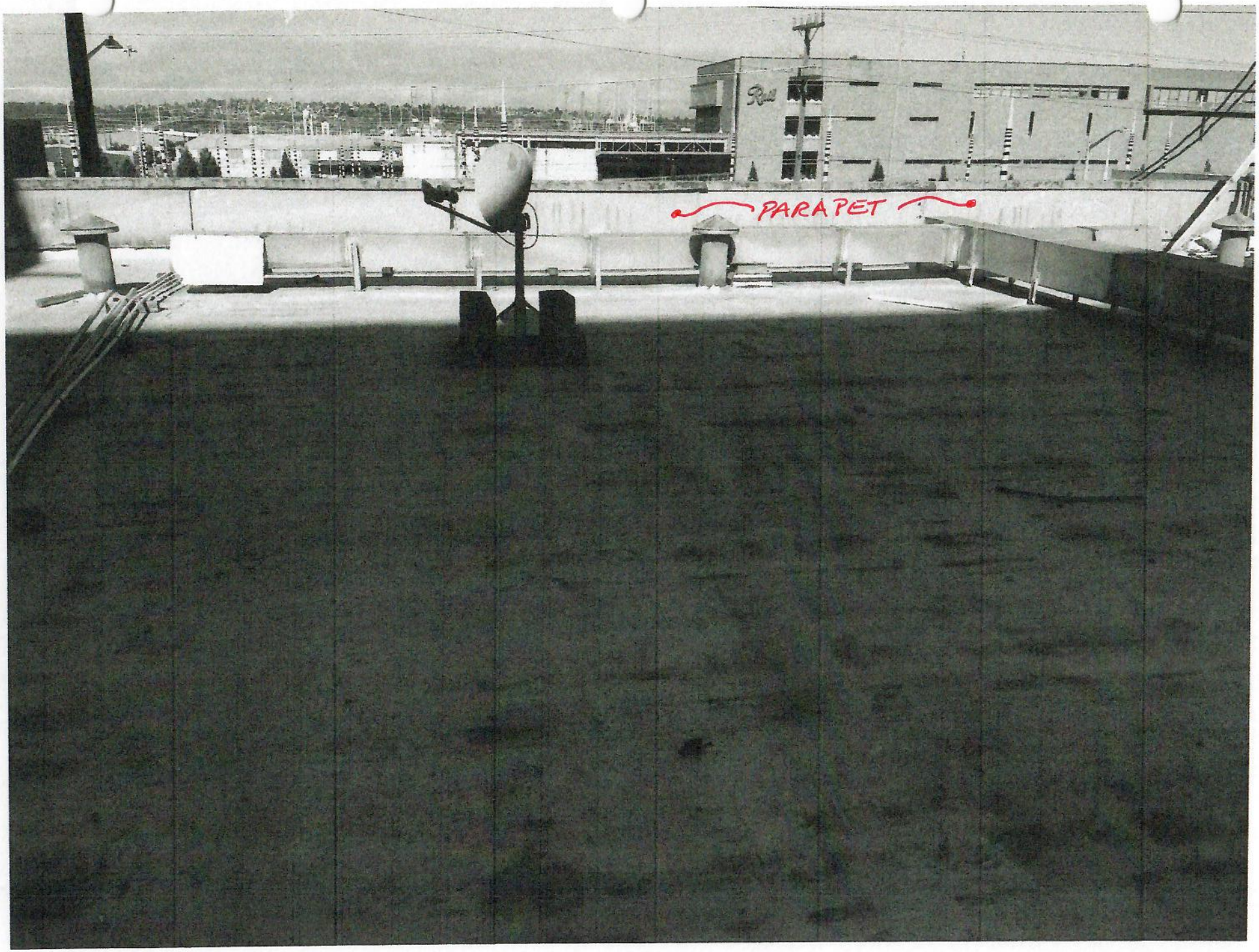
BUILDING 15-200, ROOF PARAPETS (GALLERY)

BUILDING 14-200 ROOF PARAPETS

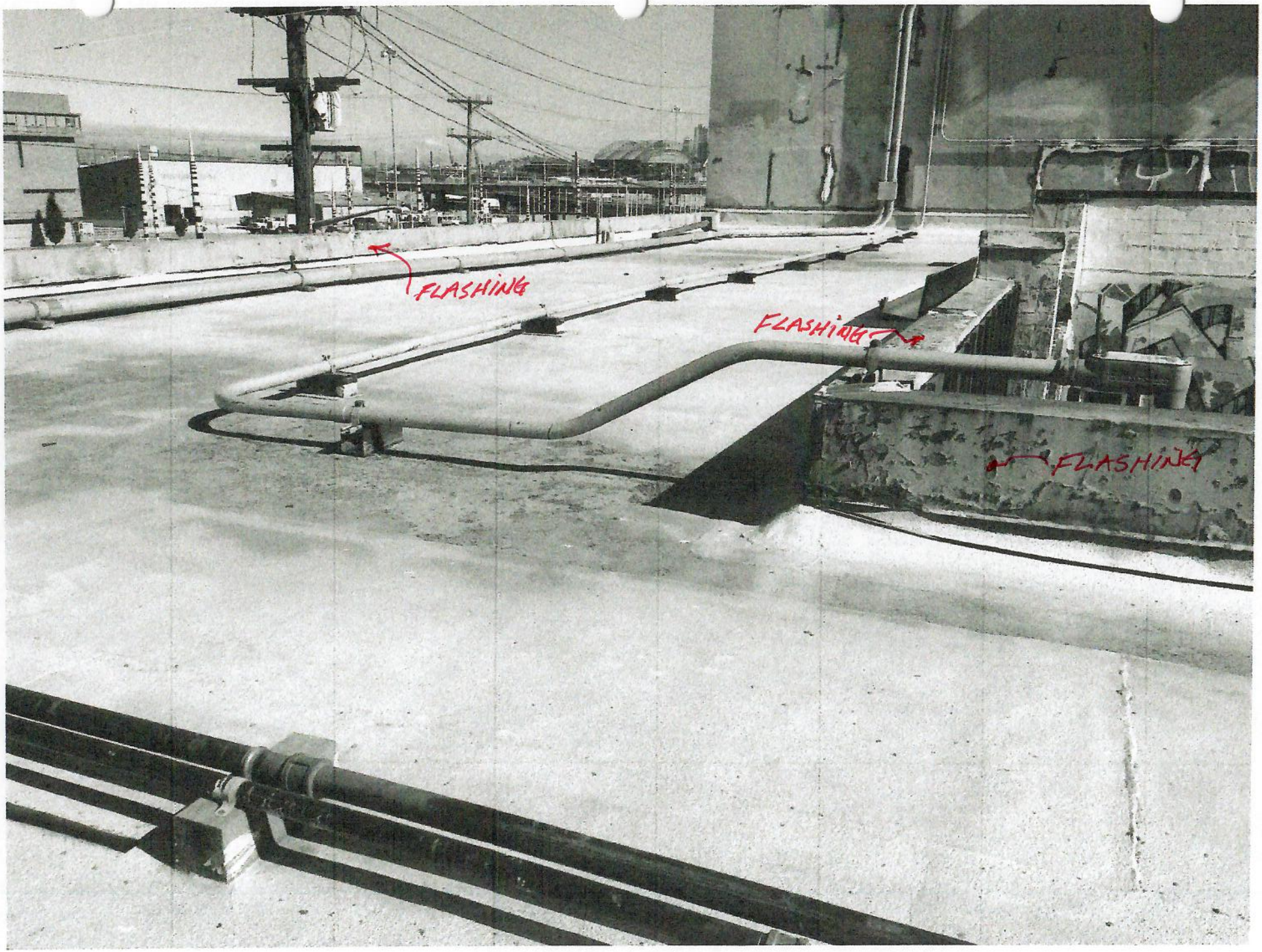


18-ROOF-DOGHOUSE

15-N-ROOF



15-W-ROOF



14- ROOF FLASHING

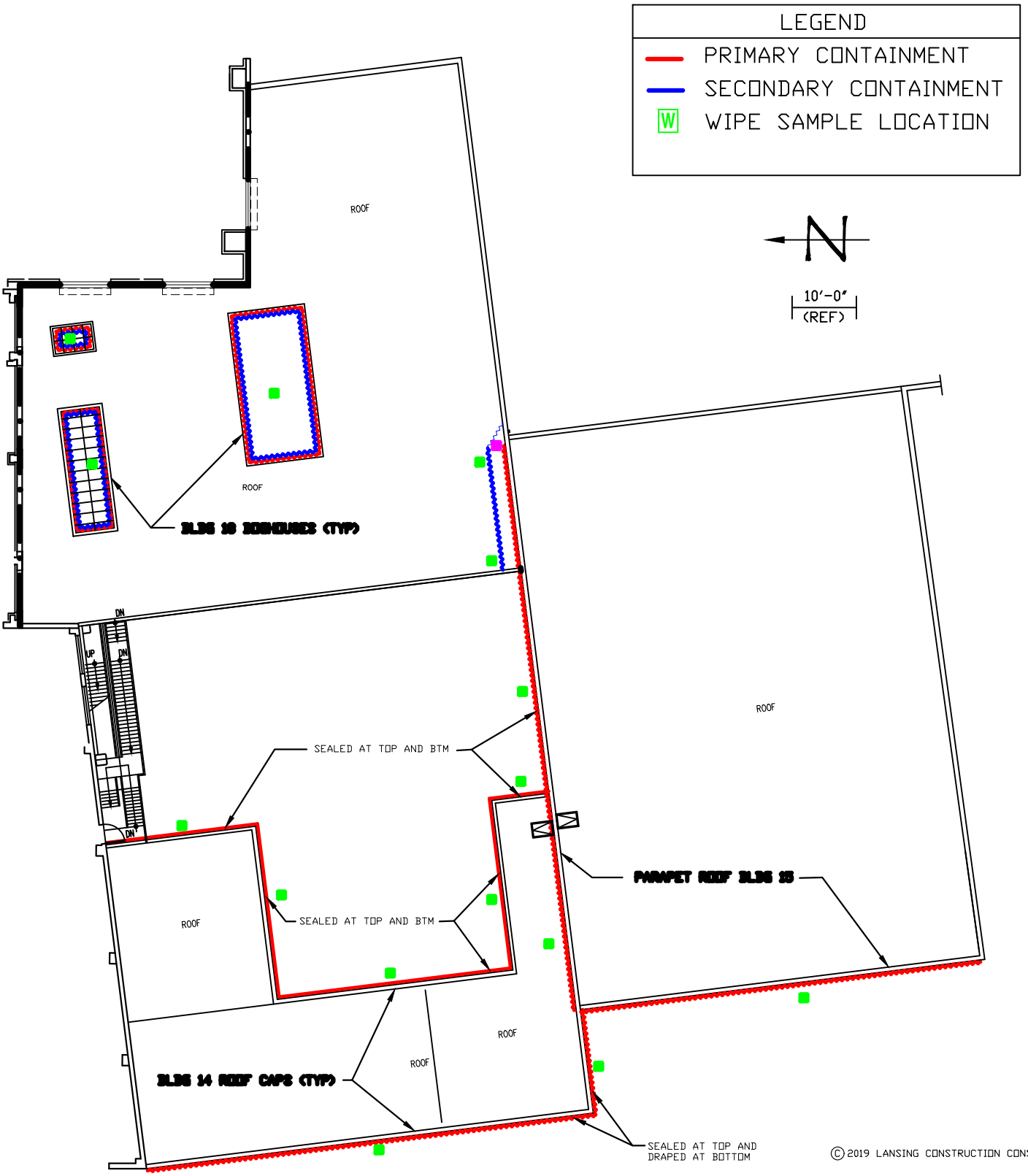
PHASE THREE, SETUP 31

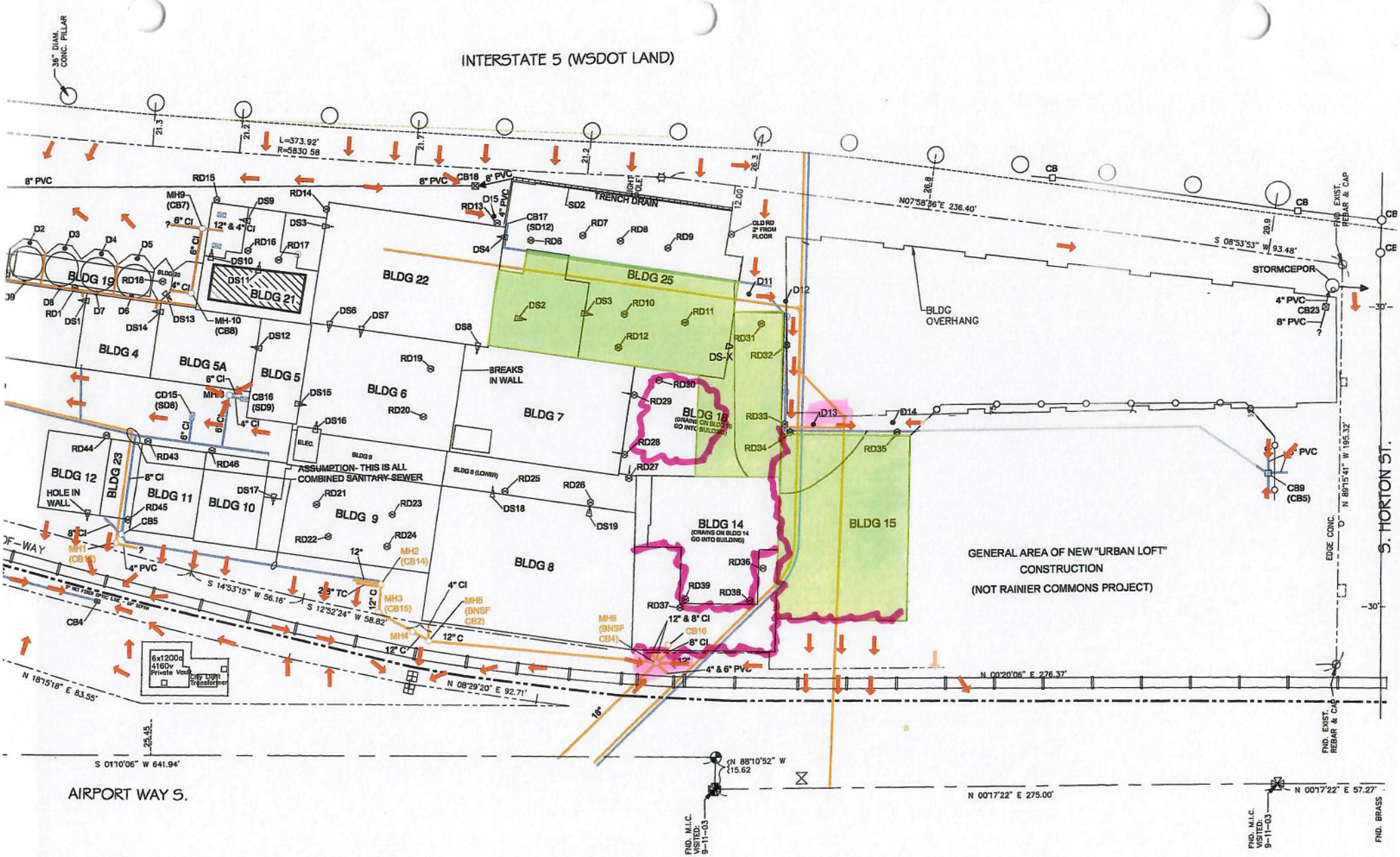
BUILDINGS 14, 15, & 18 ROOF LEVEL

ALL ELEVATIONS

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY: NON-RESIDENTIAL



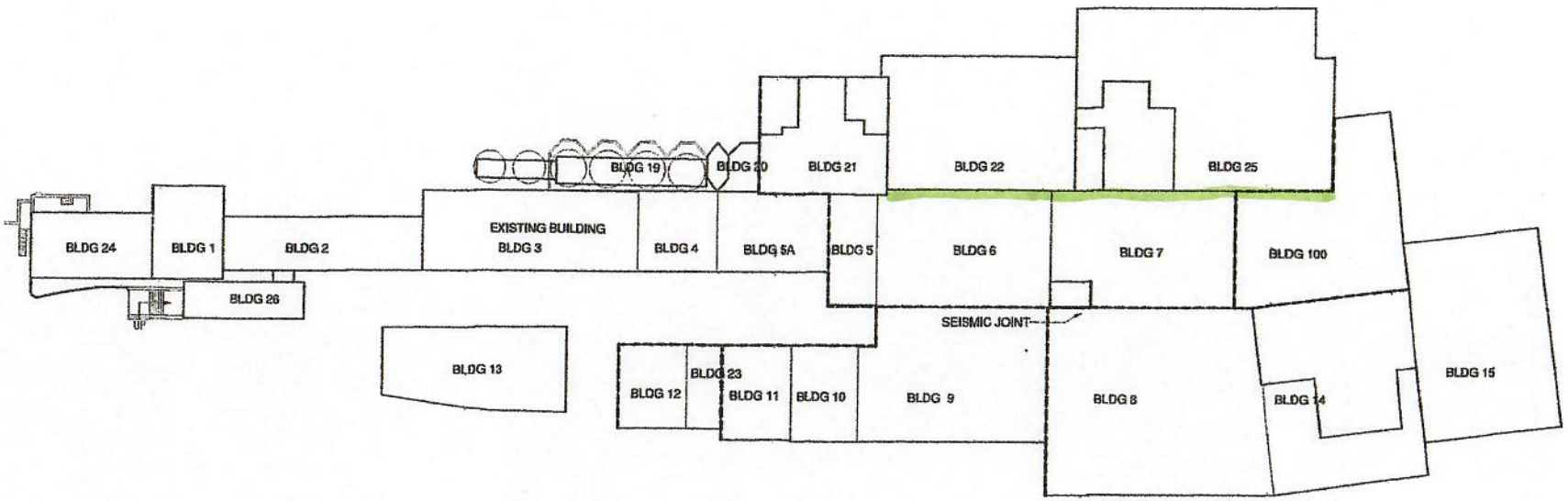


AEM PJR BY: PJM BY: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LOCATIONS PLAN	PROJECT NO 78898 FILE NAME: SHEET NO. 1

Phase 3 Set-up 32

Location:	Building 25 West Elevation Building 22 West Elevation
Stories:	Building 25 – 6 Building 22 - 1
Material:	Building 25 - Concrete Building 22 - Concrete
Square Feet:	Building 25 W. Elevation= 6,638 Building 22 W. Elevation = 1,892
Tenants:	Residential
C/B Zone:	Orange and Green
Roof Drain:	Bldg 22 - Scupper to downspout, to Roof of Bldg 6 (3 places)

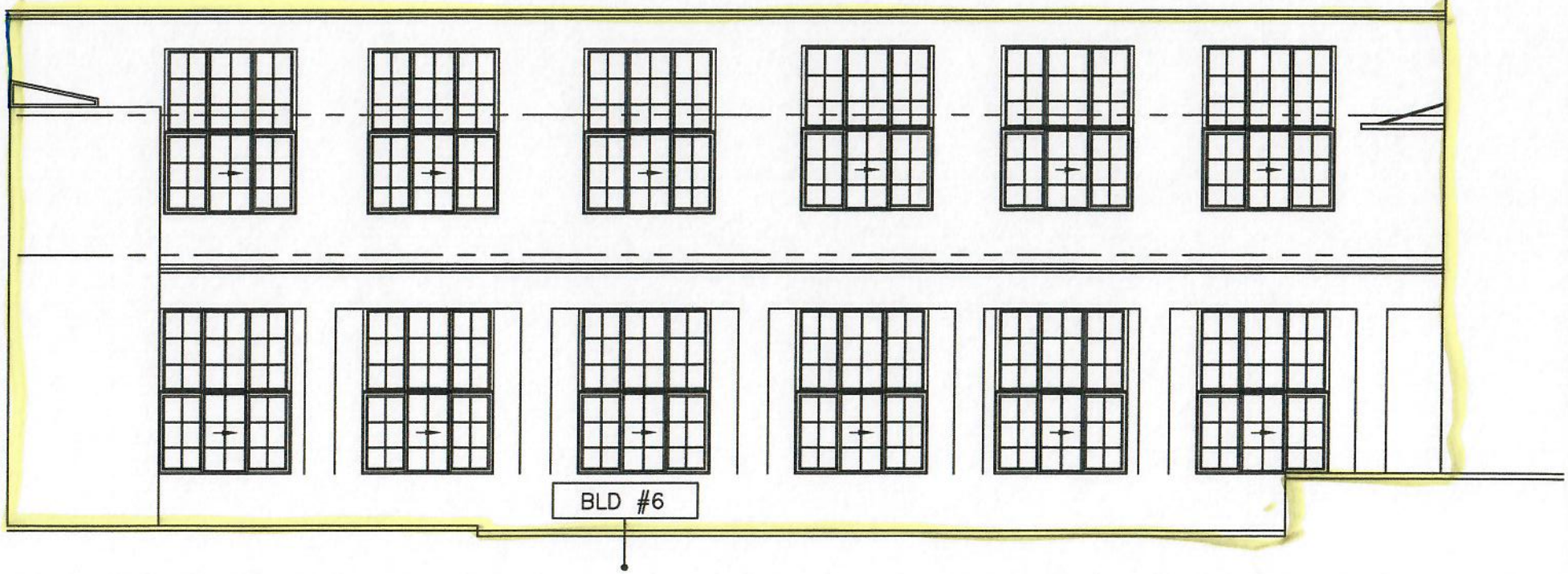
Roof Protection: Reroute with flex pipe and filters to Roof of Bldg 6

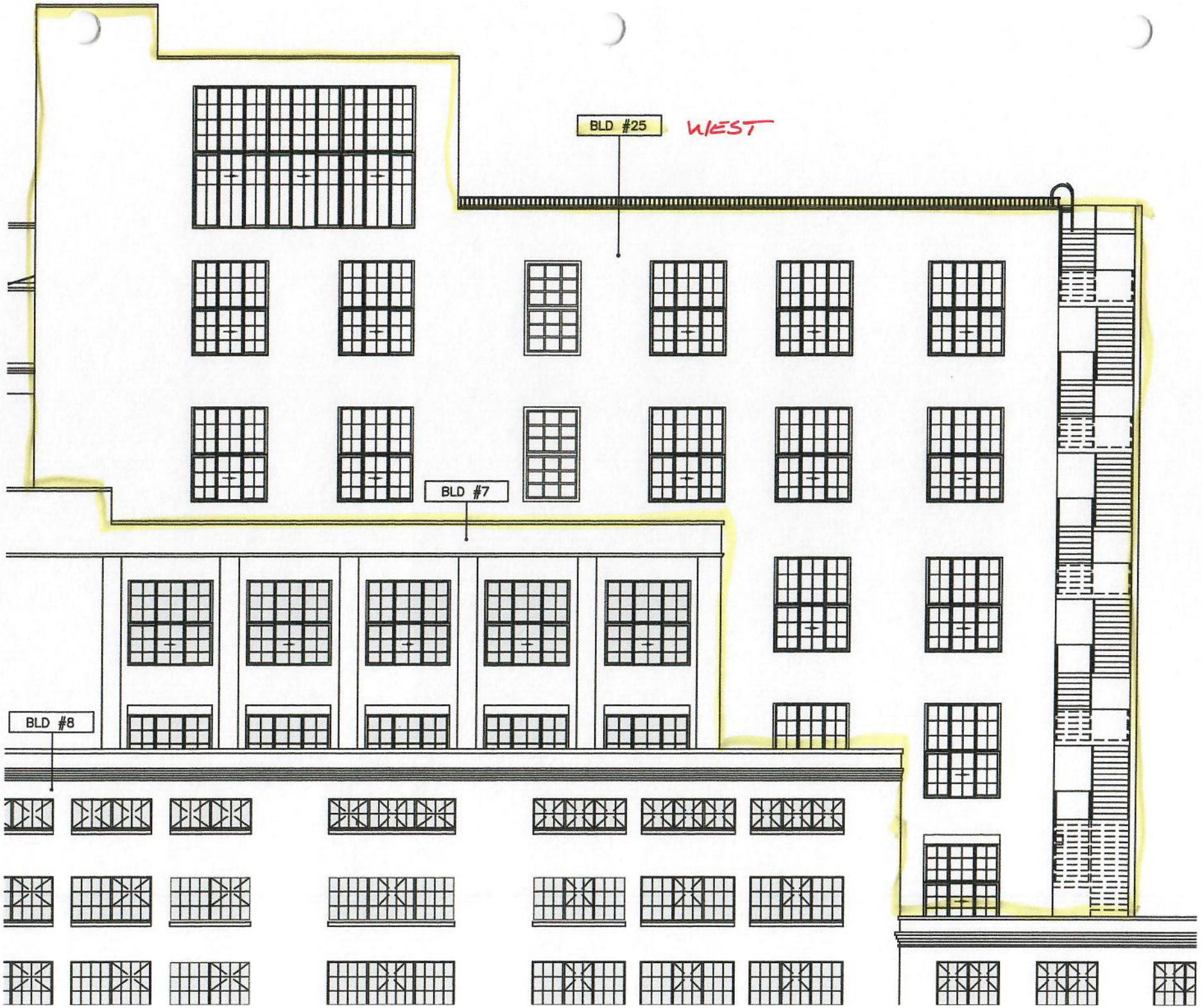


BUILDING 22, WEST ELEVATION

BUILDING 25, WEST ELEVATION

BLDG 22 - WEST




BLD #25
WEST
BLD #7
BLD #8

PHASE THREE, SETUP 32

BUILDING 25, 300 LEVEL

WEST ELEVATION

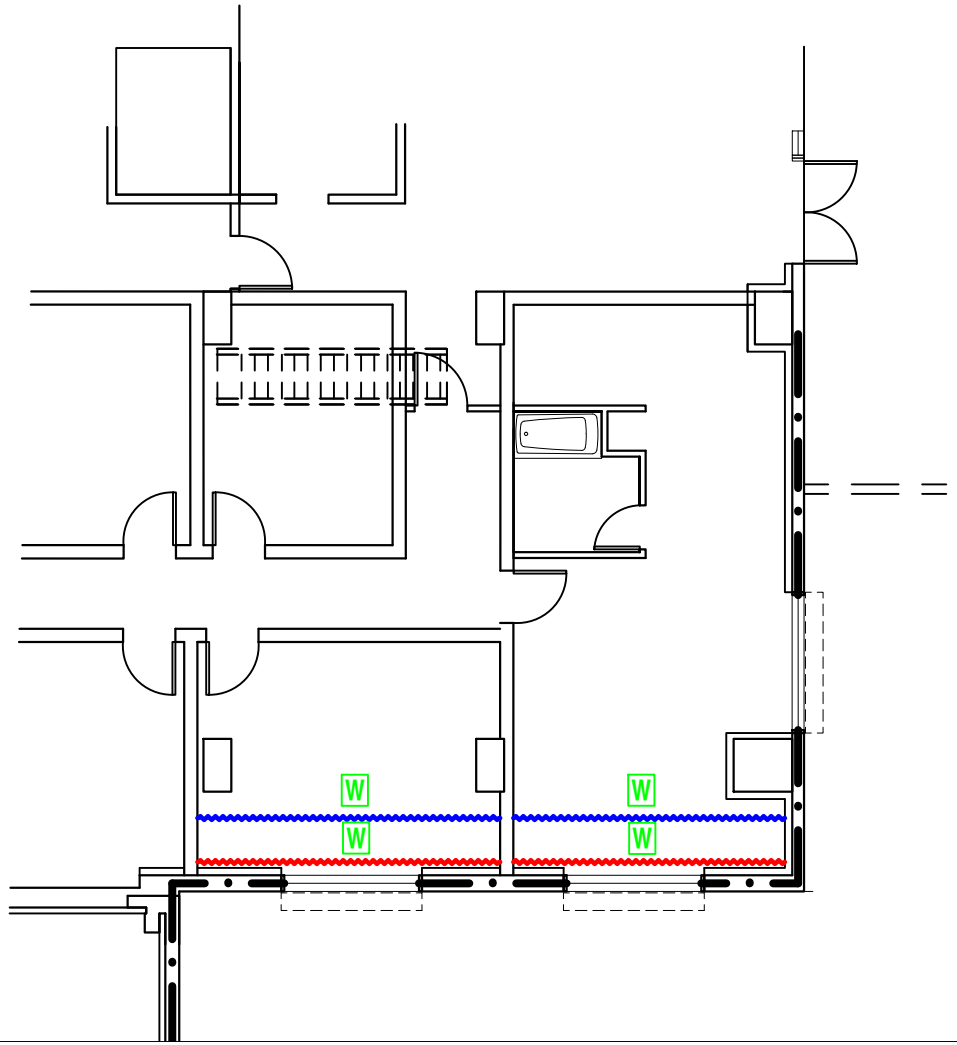
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 32

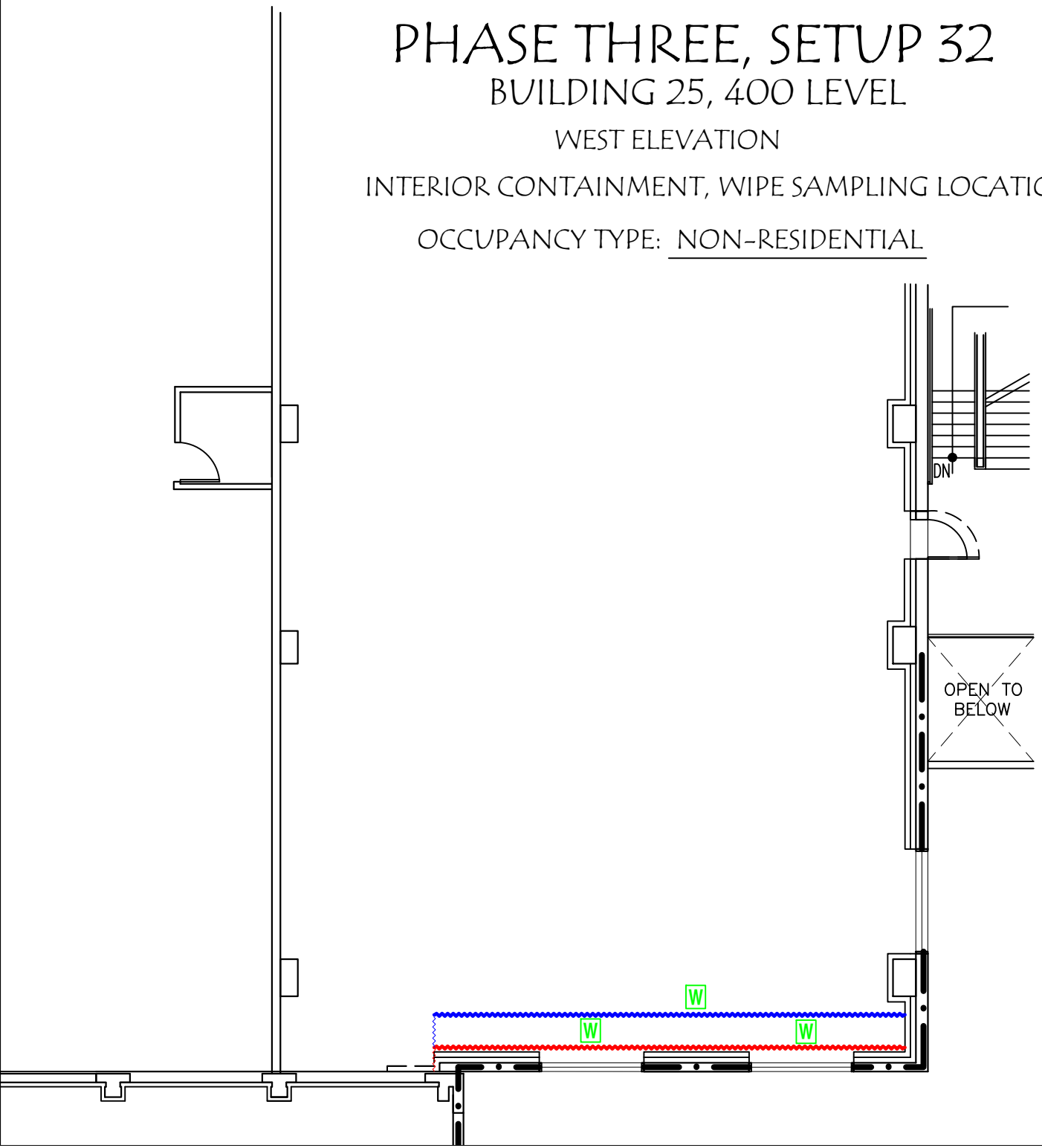
BUILDING 25, 400 LEVEL

WEST ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION



N

10'-0" (REF)

PHASE THREE, SETUP 32

BUILDING 25, 500 LEVEL

WEST ELEVATION

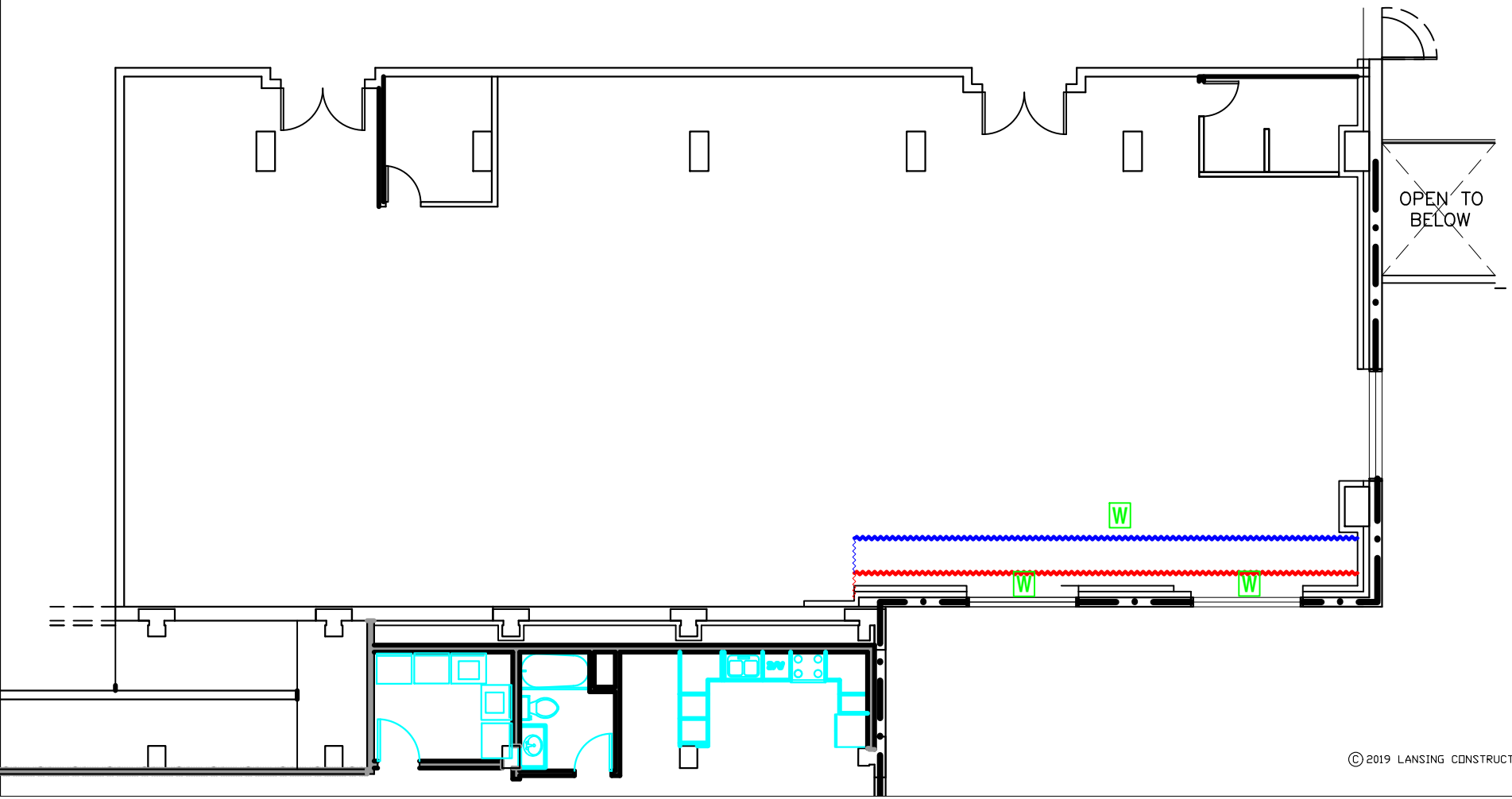
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 32

BUILDING 22 & 25, 600 LEVEL

WEST ELEVATION

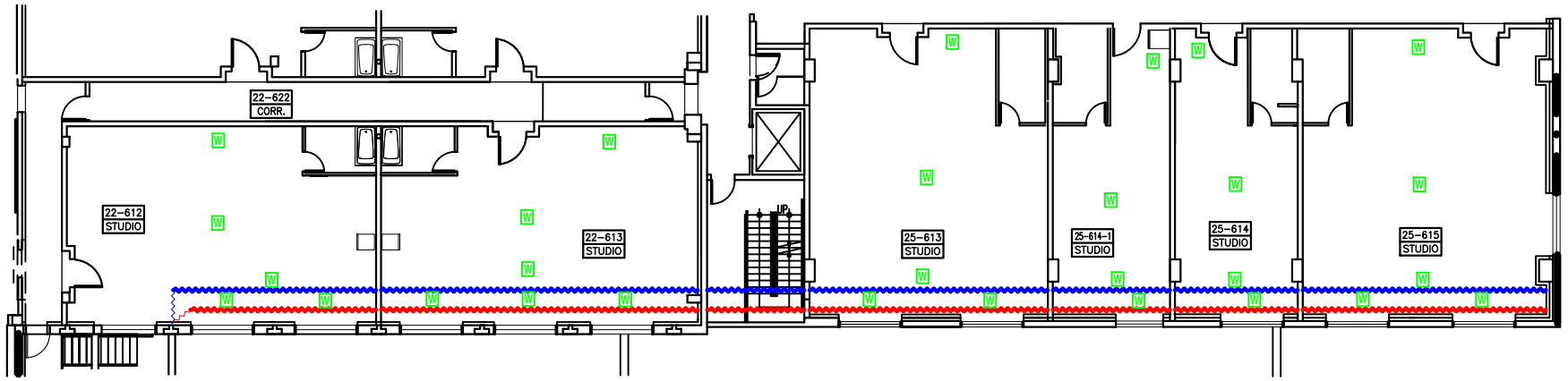
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 32

BUILDING 25, 700 LEVEL

WEST ELEVATION

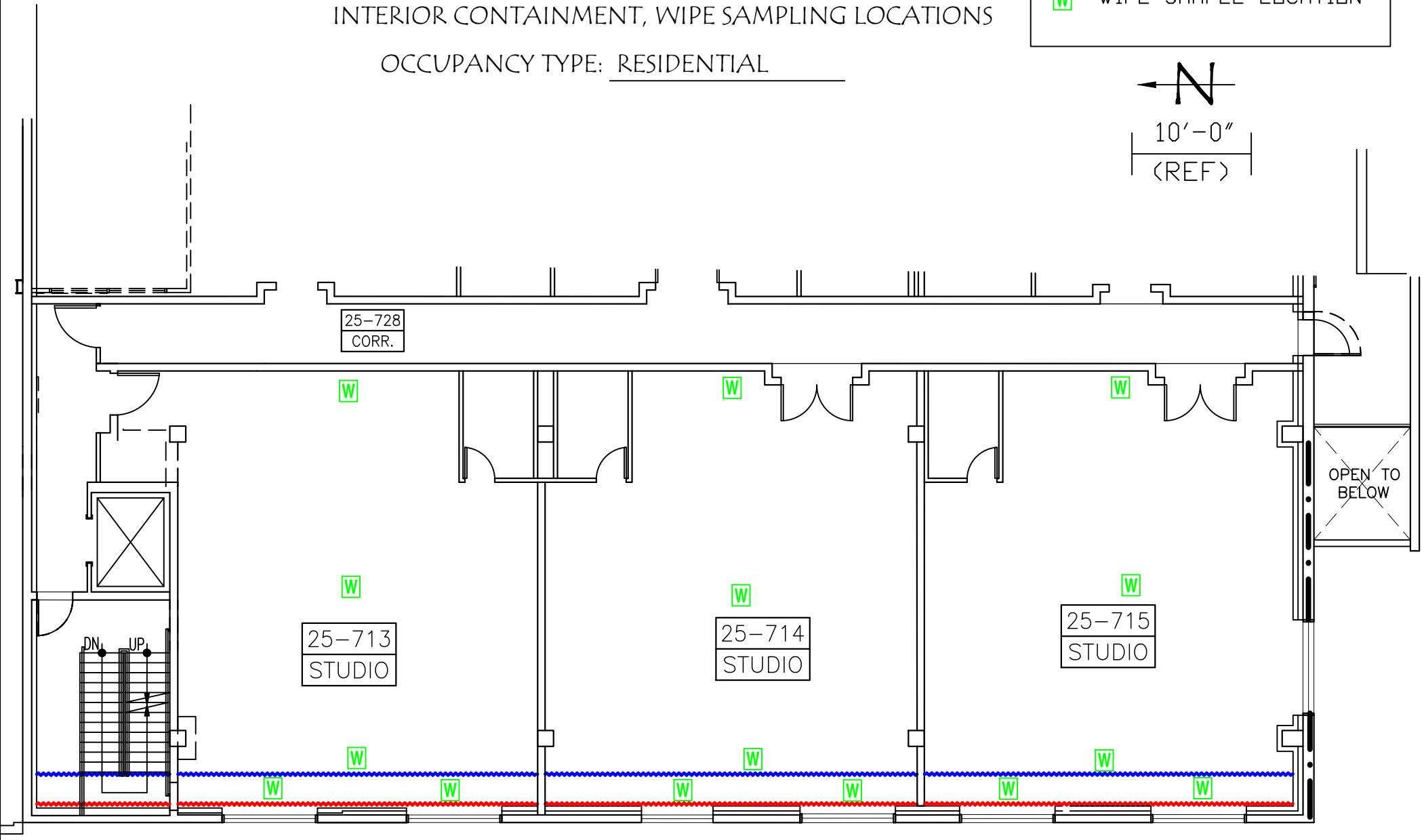
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 32

BUILDING 25, 800 LEVEL

WEST ELEVATION

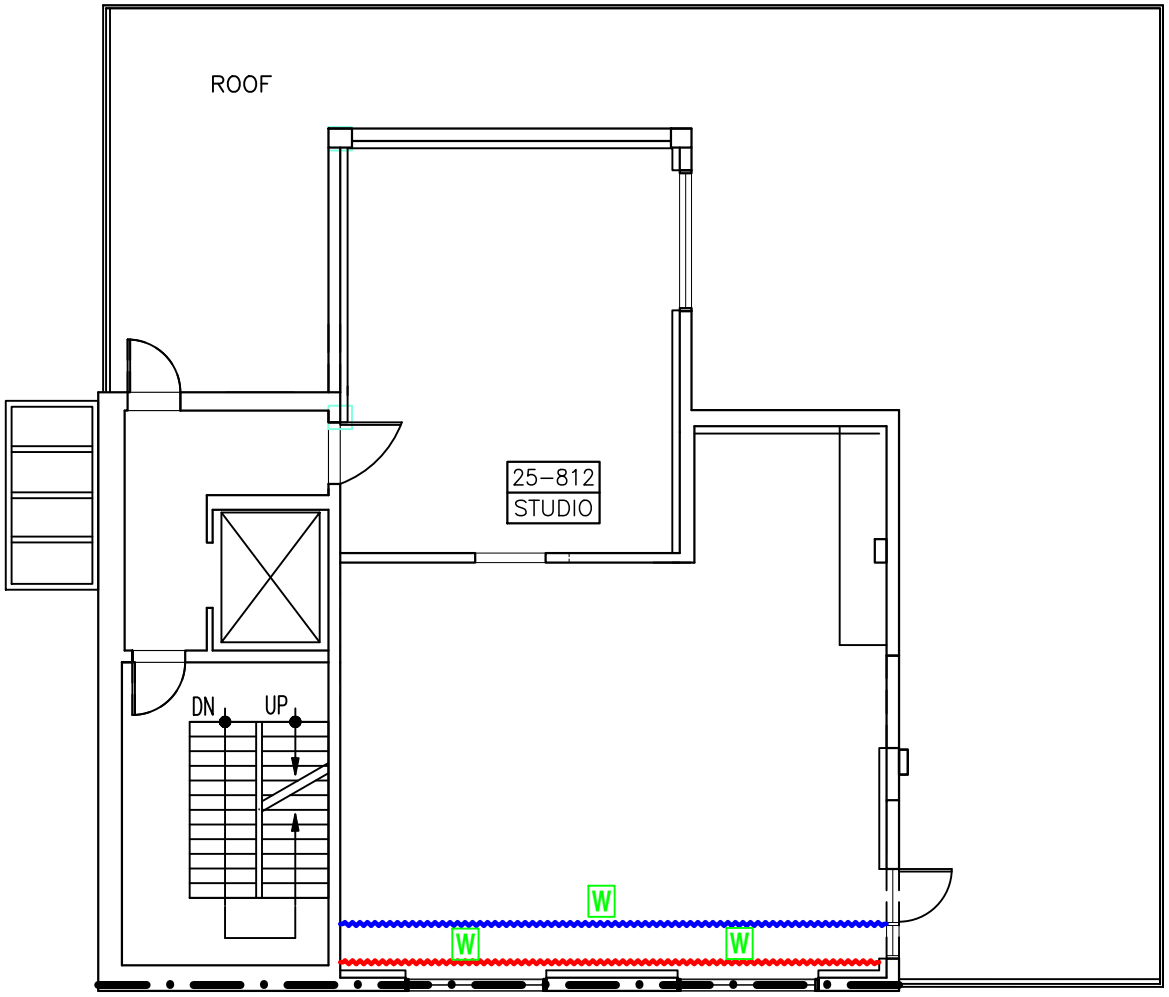
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

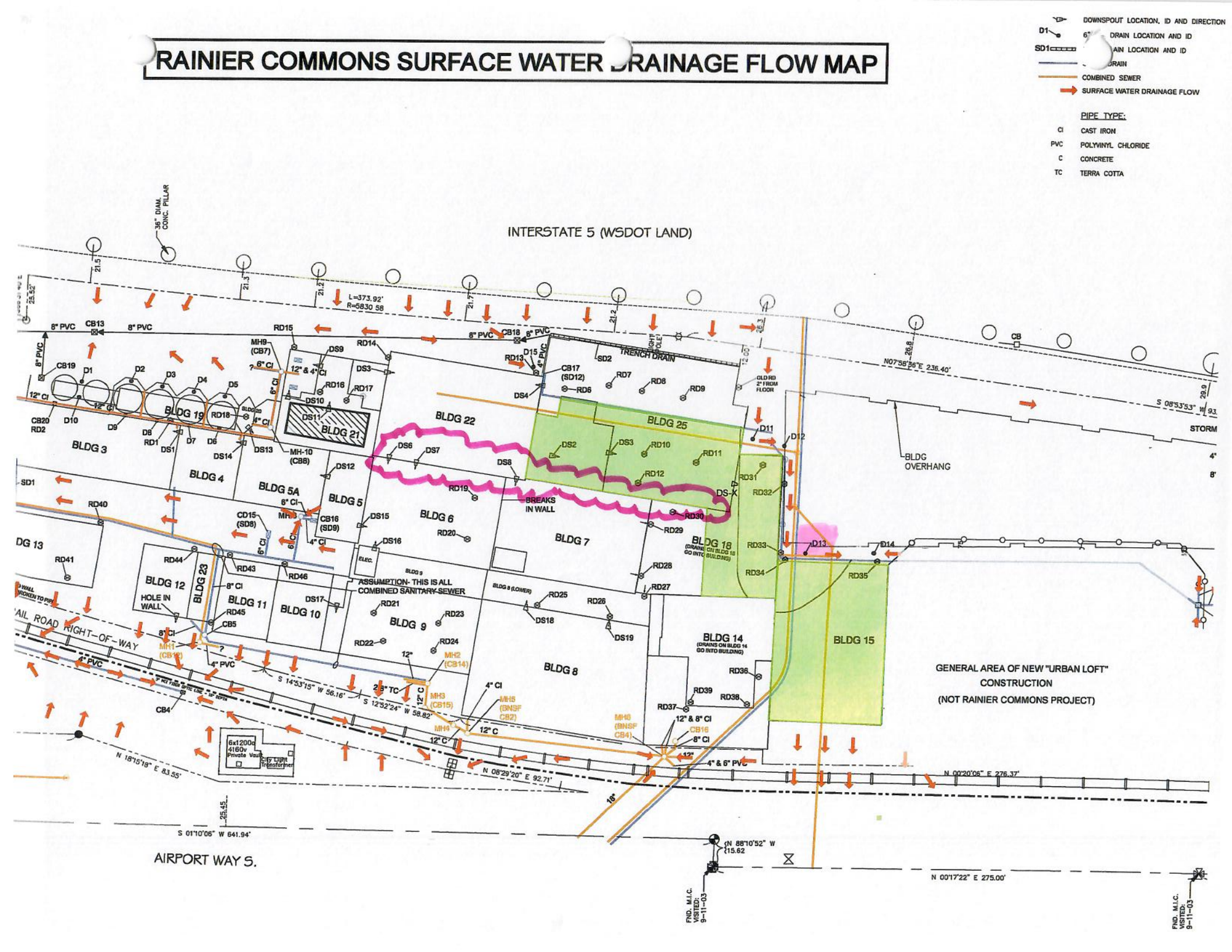
LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10′-0″ (REF)



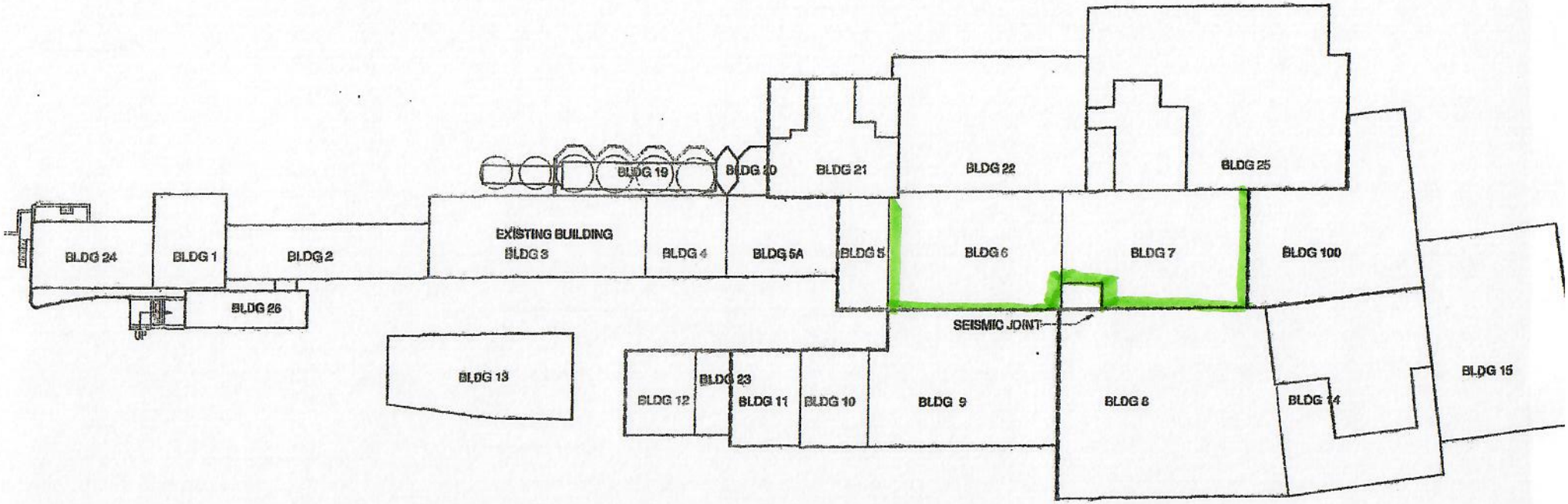
RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP



Phase 3 Set-up 33

Location:	Building 5 South Elevation Building 9 East Elevation (Elevator) Building 6&7 Roof (Elevator and Parapets)
Stories:	Building 5 – 1 Building 9 – 1 Building 6&7 -1
Material:	Building 5 - Brick Building 9 – Concrete Building 7 Elevator Room – Concrete Building 6&7 Parapet Flashing - Steel
Square Feet:	Building 5 S. Elevation= 543 Building 9 E. Elevation = 110 Building 7 Elevator Room = 258 Building 6 Parapet Flashing = 88 Building 7 Parapet Flashing = 270
Tenants:	Residential (Bldg 5) and Commercial
C/B Zone:	Orange

Roof Drain:	Bldg 5 & 9 - Scupper to downspout, to Roof of Bldg 6 (1 place each Bldg)
Roof Protection:	Reroute with flex pipe and filters to Roof of Bldg 6

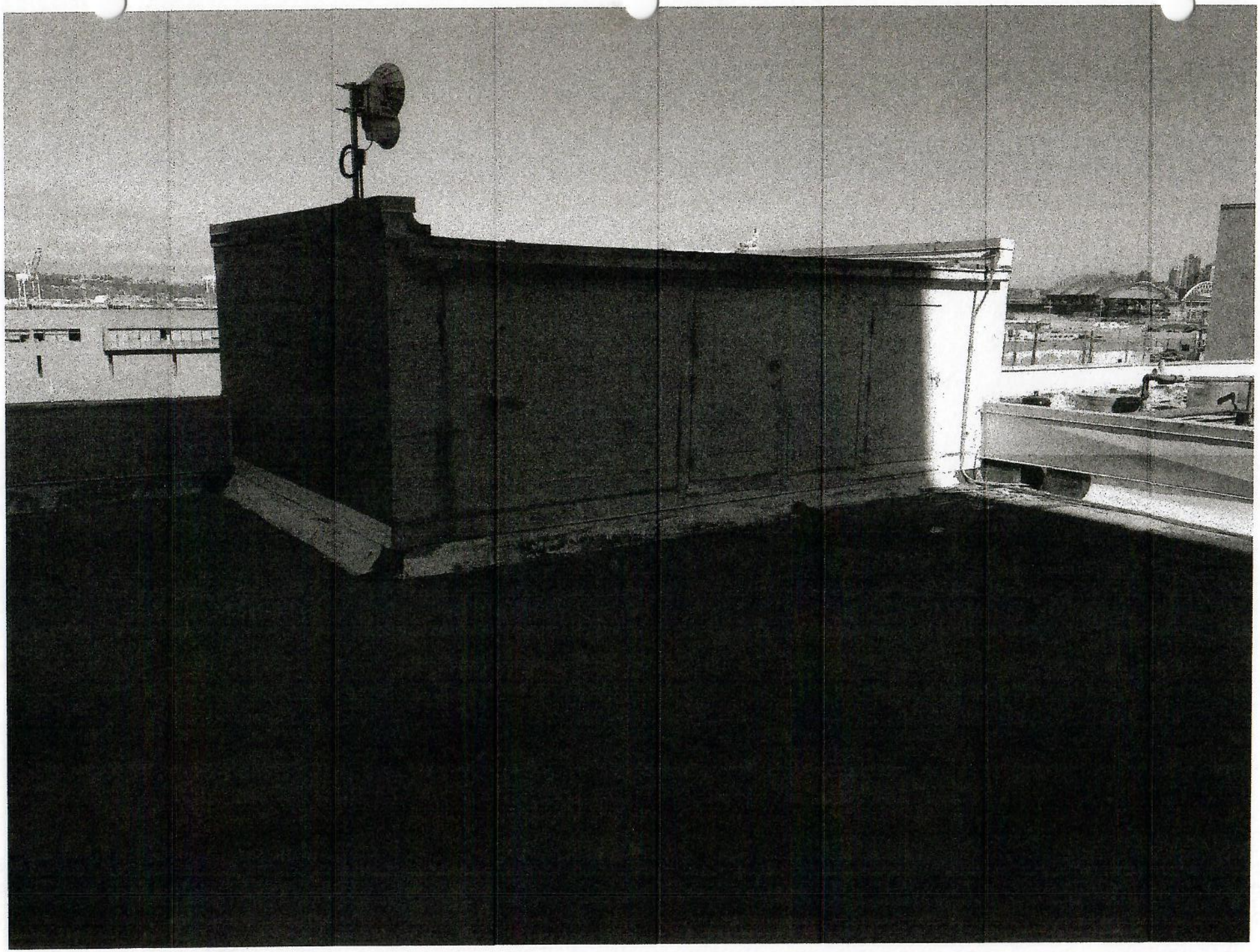


Building 5, South Elevation

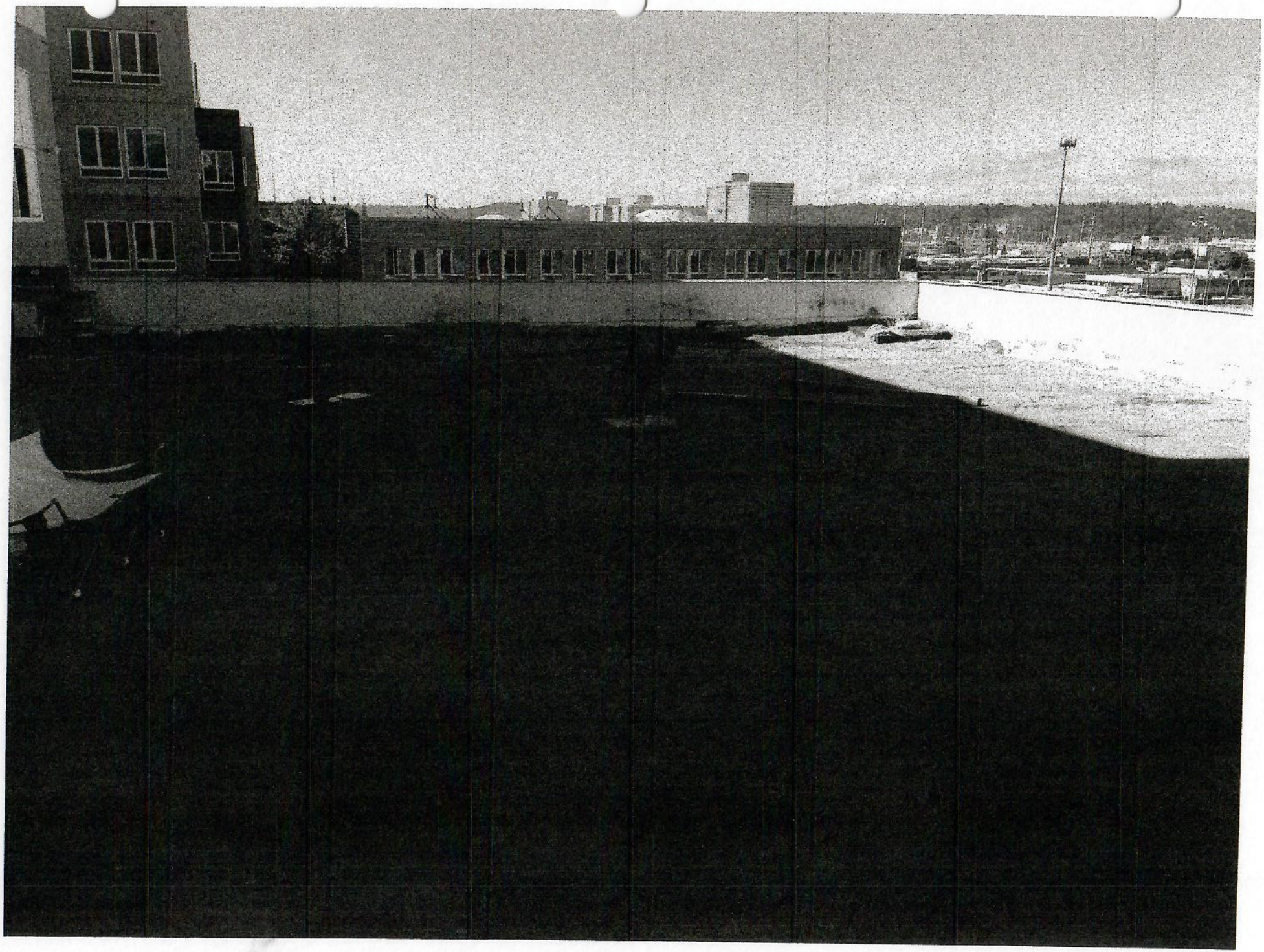
Building 9, East Elevation (Elevator Control Room)

Building 6, Parapet Roof

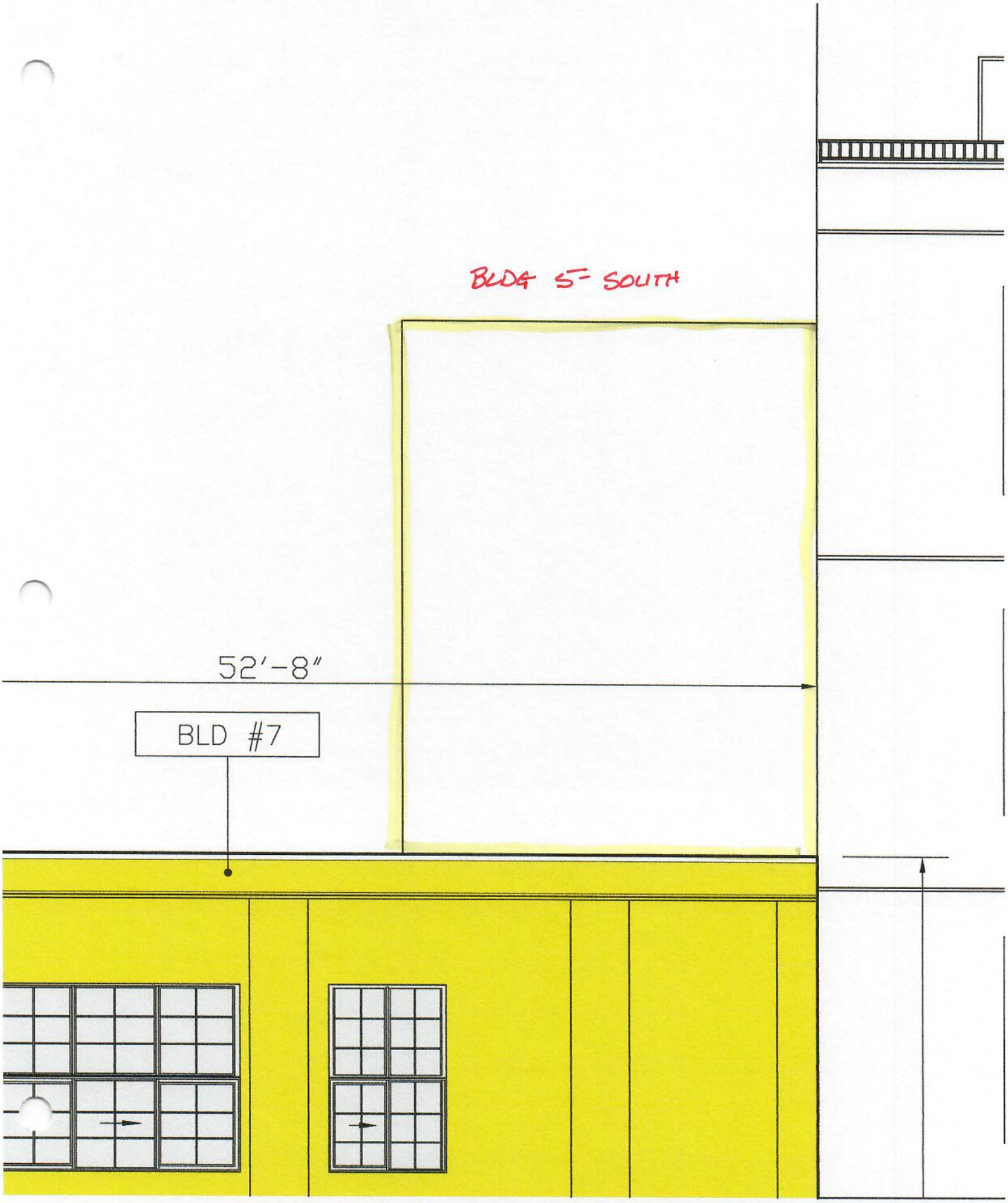
Building 7, Roof and Elevator Doghouse



7 - ROOF - DOGHOUSE



7- ROOF- PARAPETS


BLDG 5= SOUTH
52'-8"
BLD #7

PHASE THREE, SETUP 33 (R1)

BUILDING 5, 6 & 9, 600 LEVEL

SOUTH ELEVATION (5)

EAST ELEVATION ROOM (9)

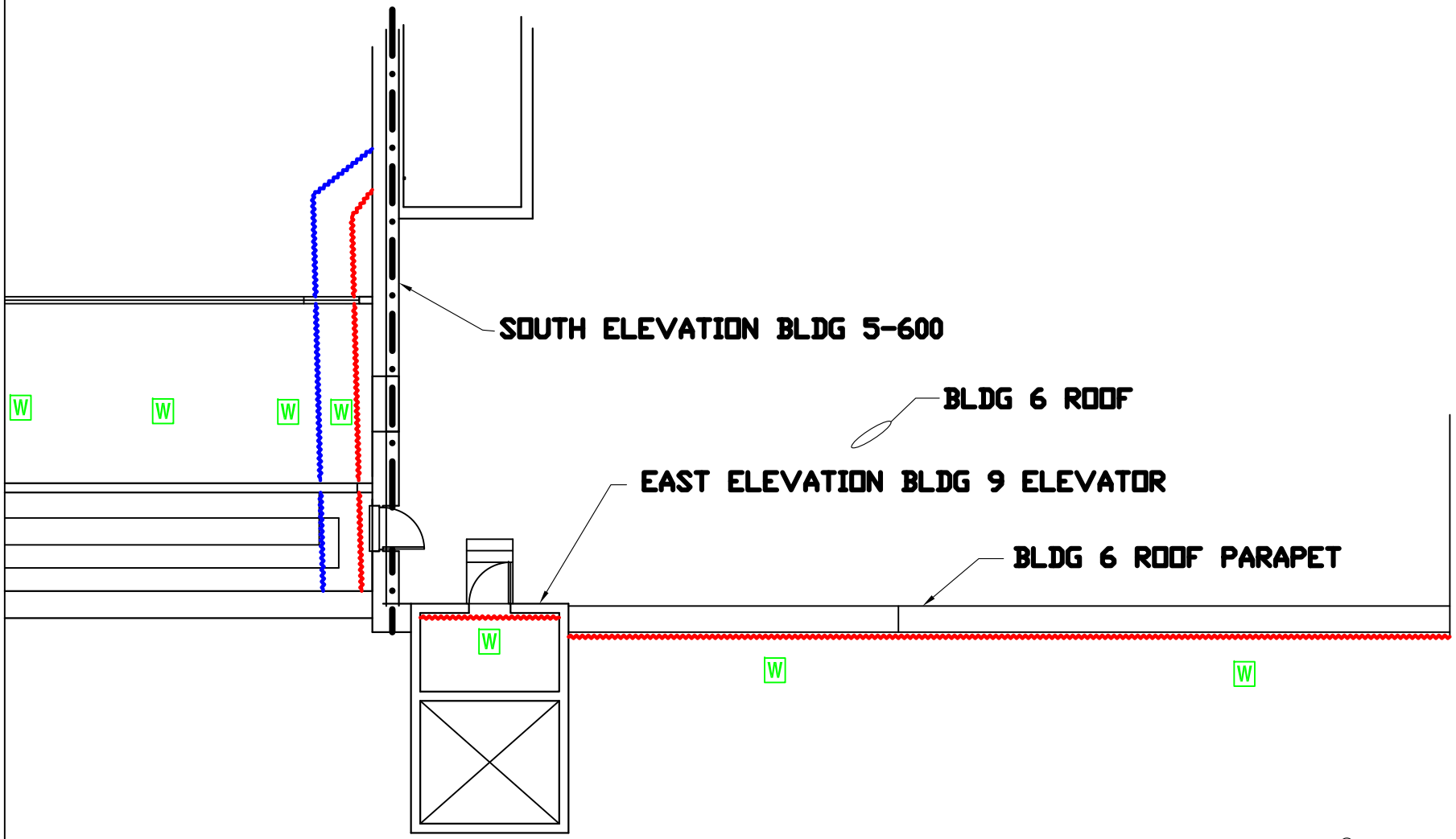
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL (5)

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 33

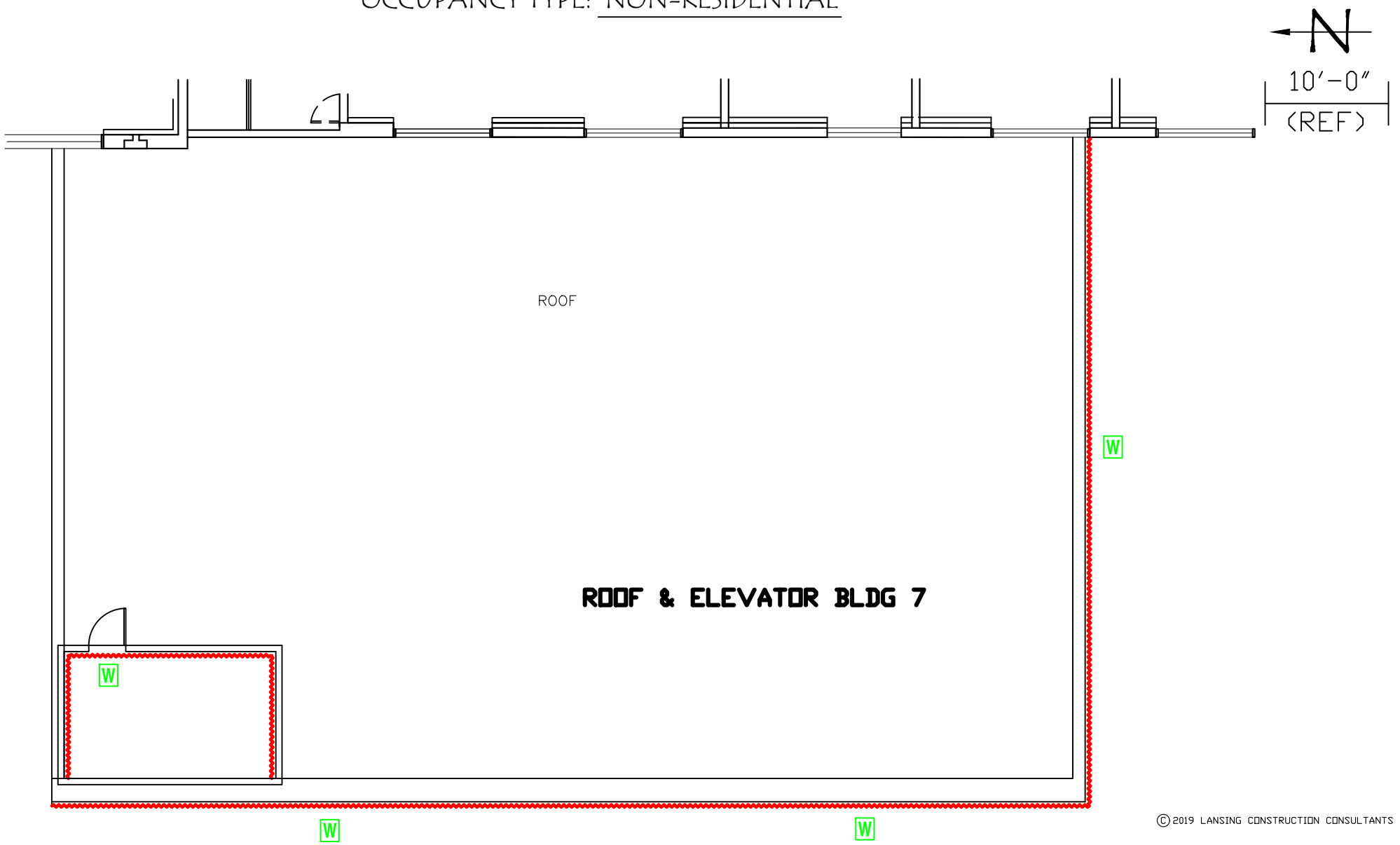
BUILDING 7, 600 LEVEL

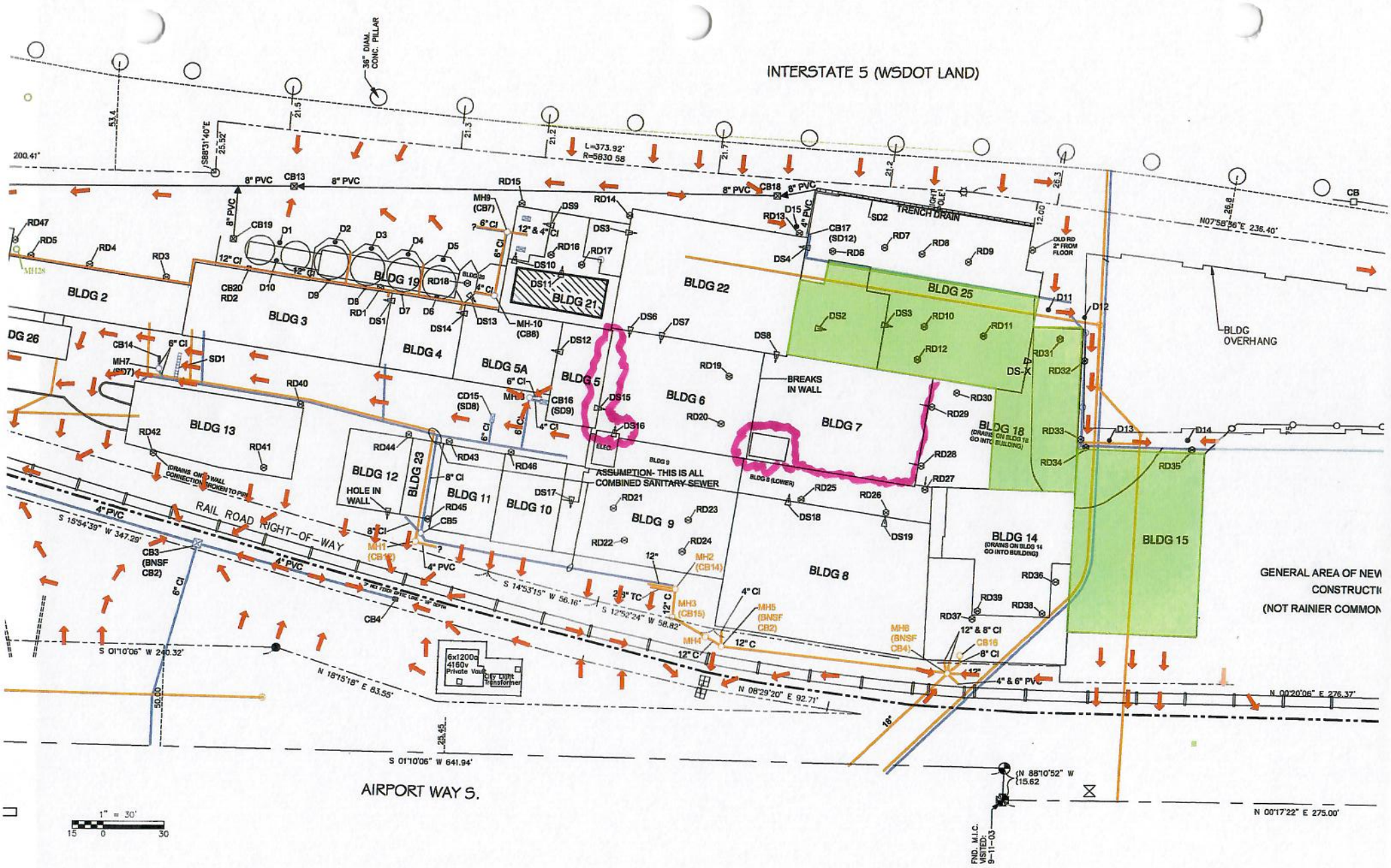
ROOF ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION



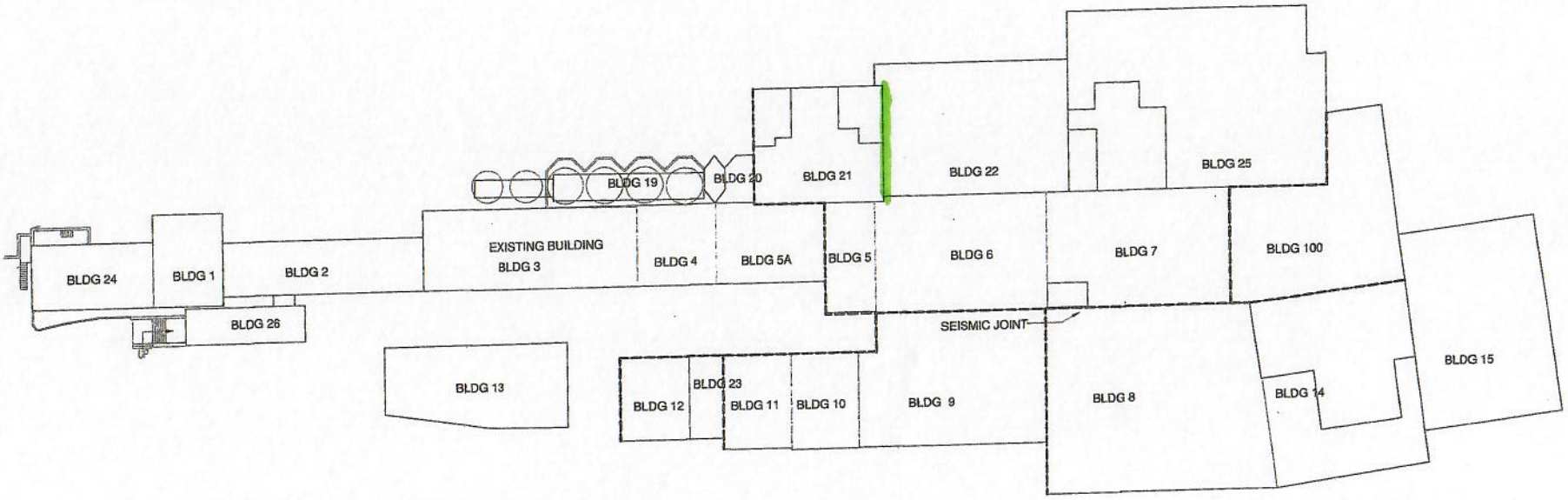


WATER DRAINAGE FLOW MAP D SOUTH OF BLDG. 25 (D11-D14) ORTH OF BLDG. 25 (D15) REMARKS	DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH BASIN LO PLAN

Phase 3 Set-up 34

Location:	Building 21 South Elevation
Stories:	Building 21 = 2
Material:	Concrete
Square Feet:	Building 21 = 1,875
Tenants:	Residential
C/B Zone:	Purple and Orange
Roof Drain:	Scupper to downspout, to Roof of Bldg 22

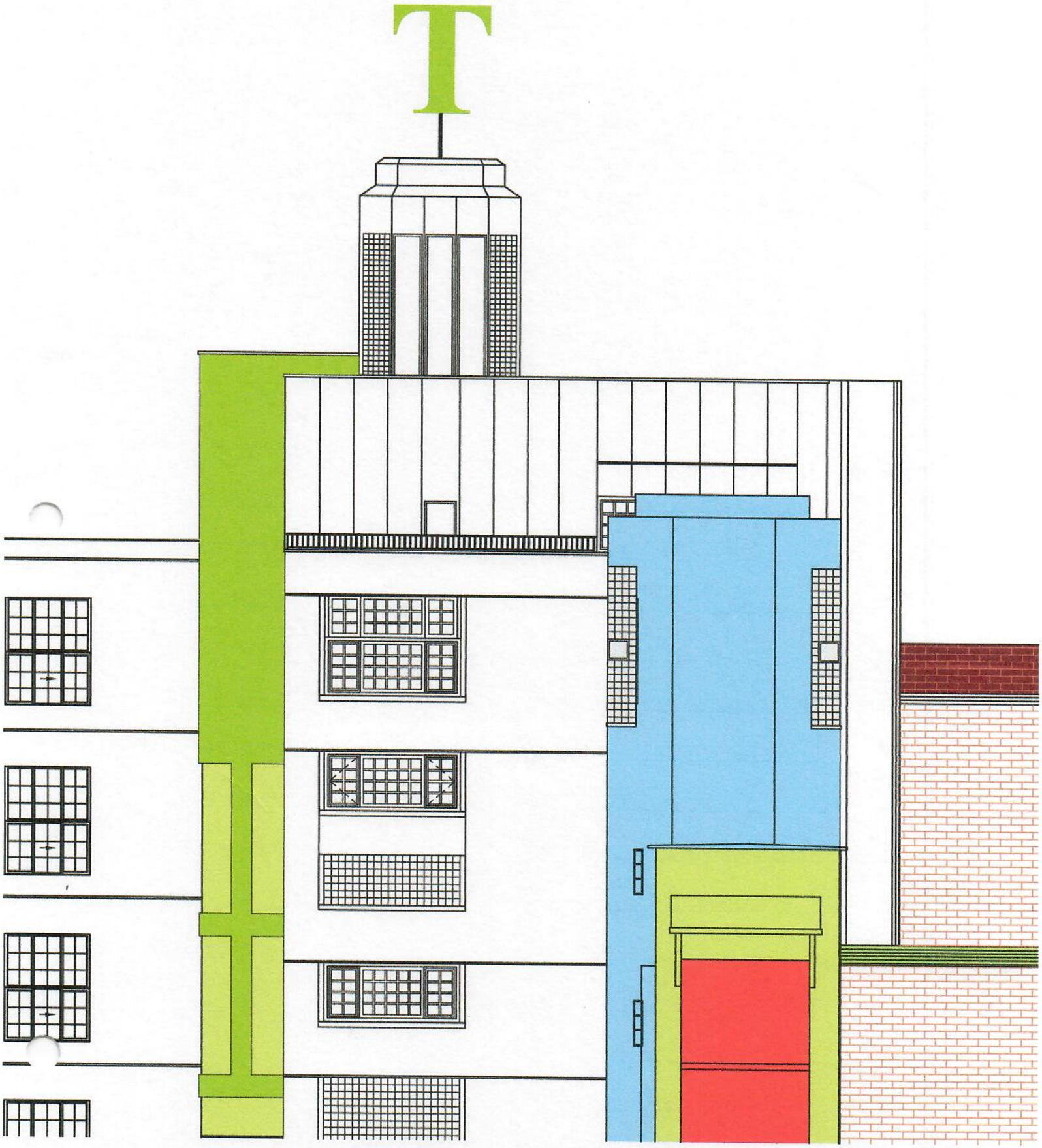
Roof Protection: Reroute with flex pipe and filters to Roof of Bldg 22



BUILDING 21, SOUTH ELEVATION

BLDG 21 - SOUTH ELEVATION

BLDG 21 - SOUTH
(MARKED-UP NORTH VIEW)



PHASE THREE, SETUP 34

BUILDING 21, 700 LEVEL

SOUTH ELEVATION

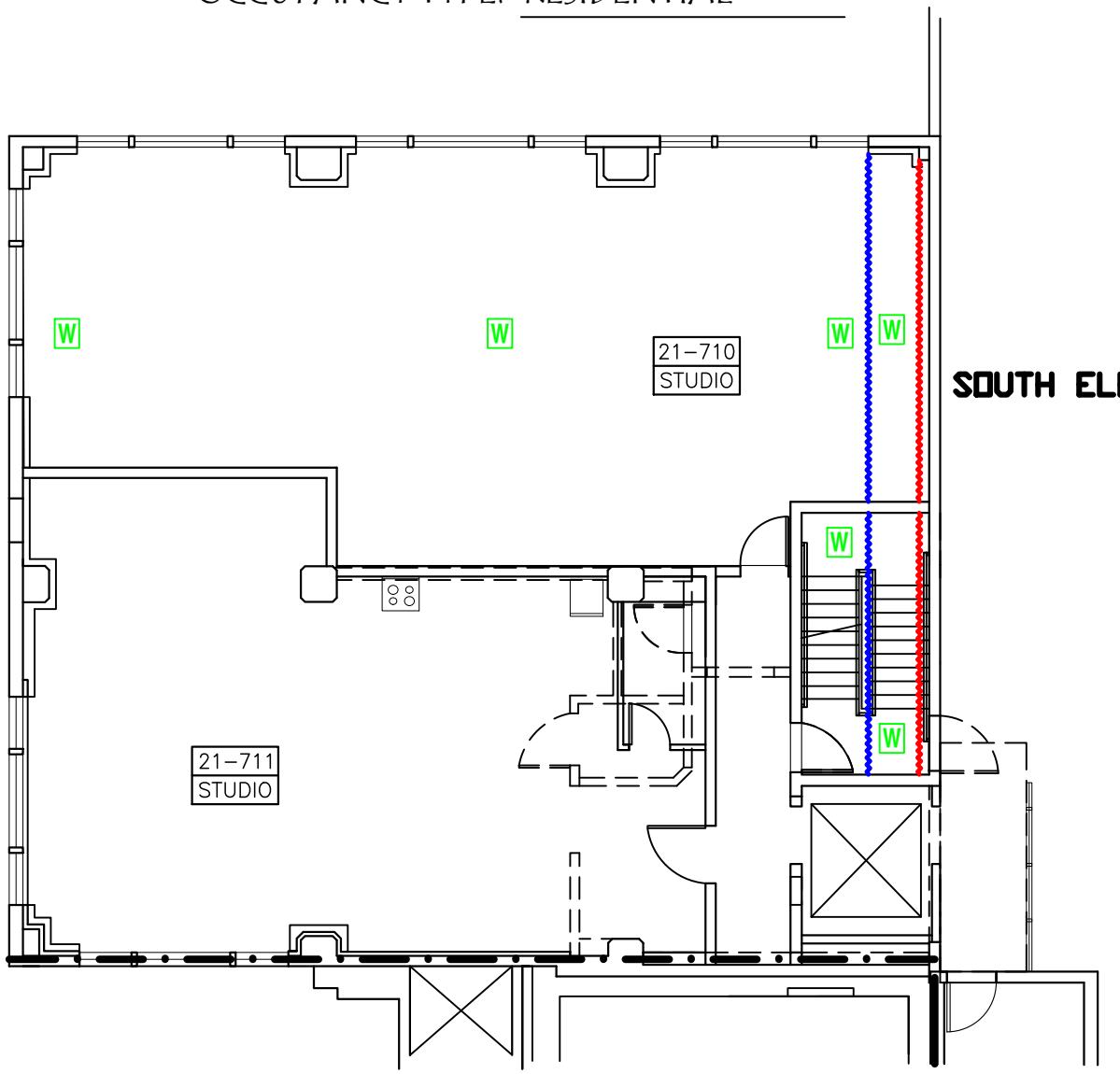
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″
(REF)



SOUTH ELEVATION, BLDG 21-700

PHASE THREE, SETUP 34

BUILDING 21, 800 LEVEL

SOUTH ELEVATION

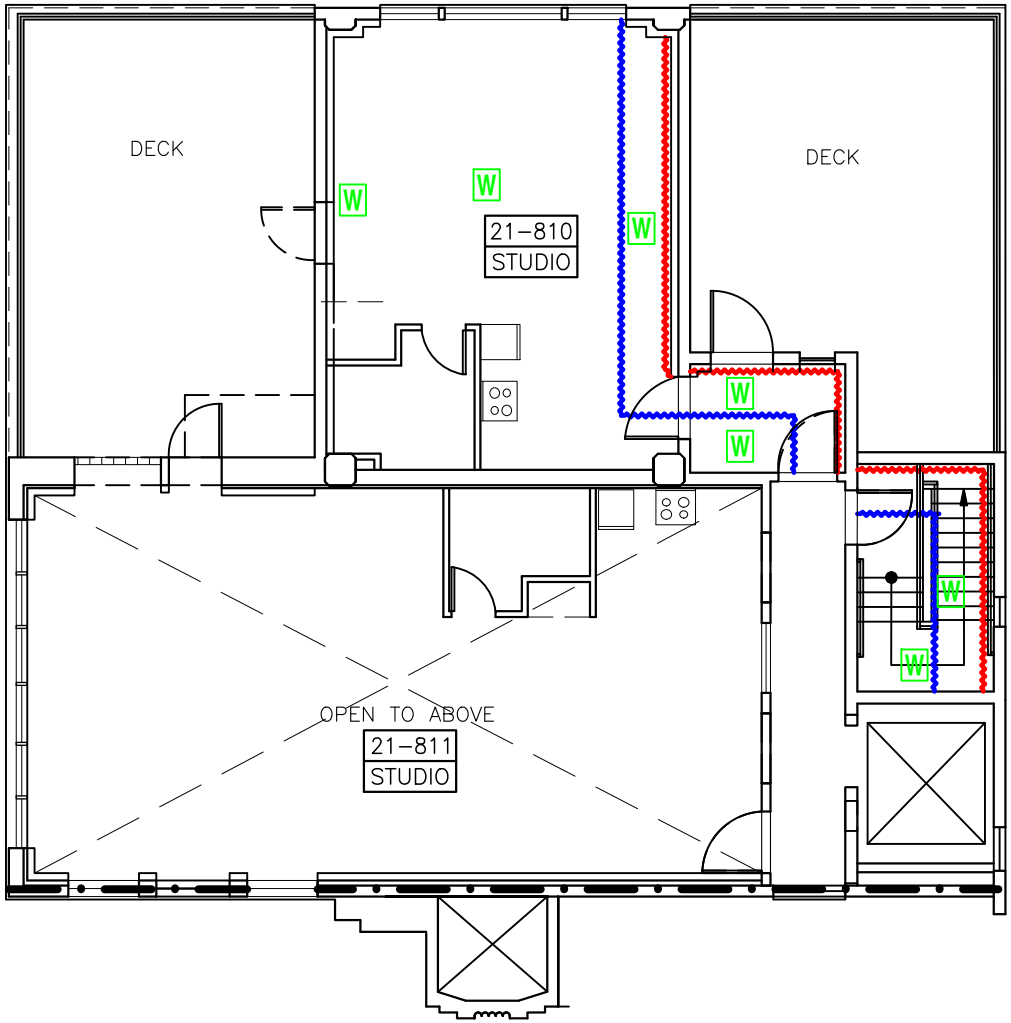
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

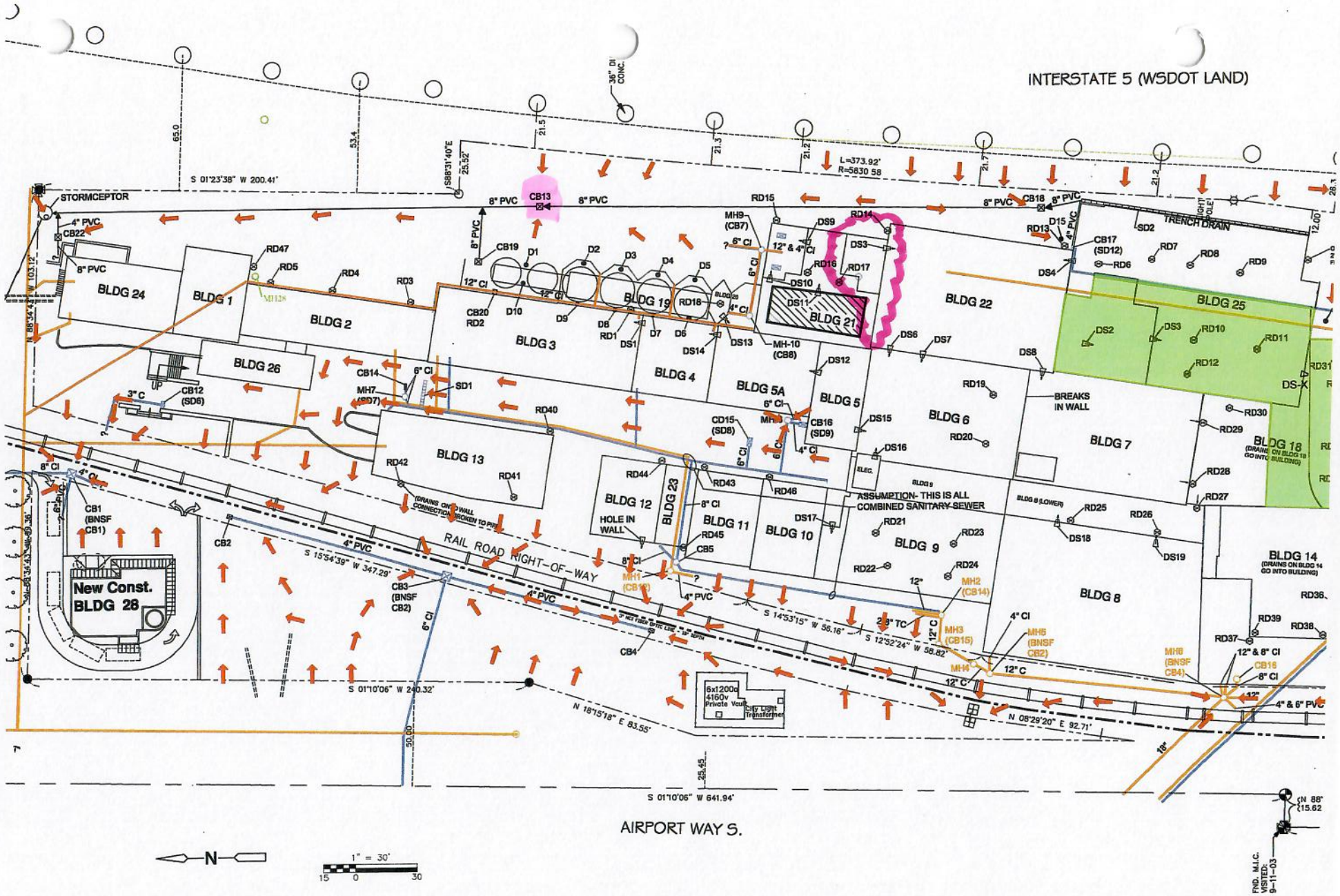
OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10′–0″ (REF)





P:\79179\68845\CDM-SITE 03/09/09 11:26 riehlepj XREFS: cdm-site-utility, Site Utilities, CDM-22x34bdr, building 100 BASE, SDS Street Improvements, Survey, tank farm fence (block), Tullys Drive

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	07/25/12	RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP
2	07/25/12	RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
3	07/25/12	RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
CROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st. Street, Suite 201, P.O. Box 3685
Bellevue, Washington 98005
Tel: (425) 453-8383
consulting • engineering • construction • operations

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN STUDY

Phase 3 Set-up 35

Location: Building 21 West Elevation (High)

Stories: Building 21 = 1

Material: Concrete

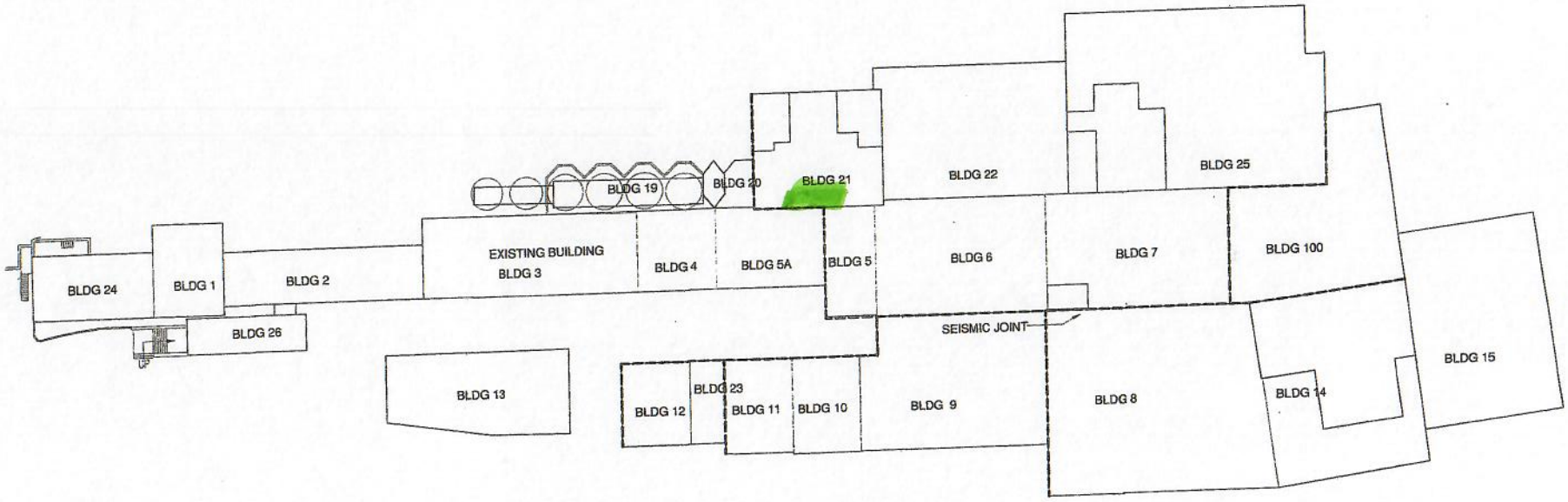
Square Feet: Building 21 = 900

Tenants: Residential

C/B Zone: Yellow

Roof Drain: No roof drain penetrations through parapets

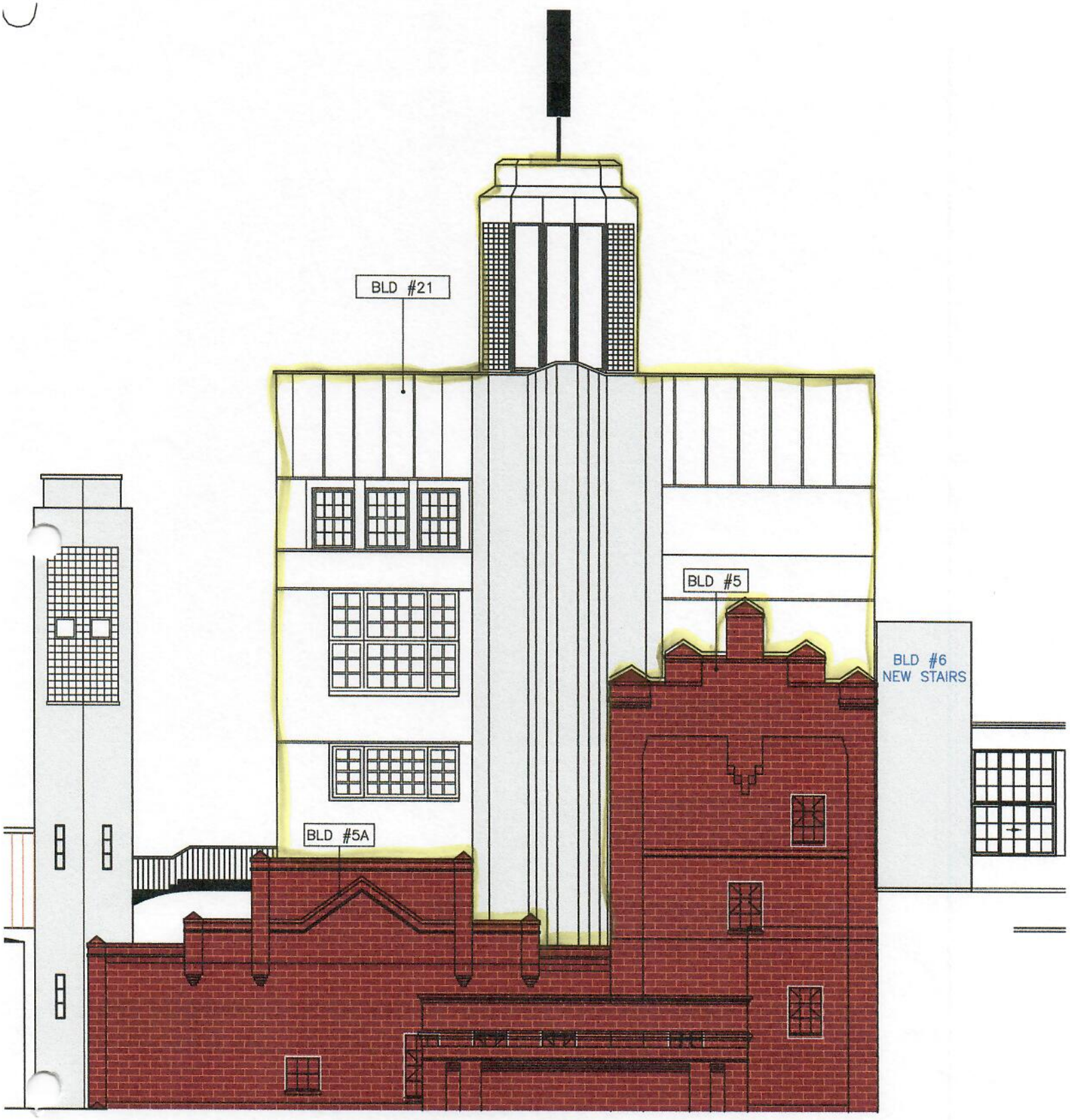
Roof Protection: N/A



BUILDING 21, WEST ELEVATION

HIGH PORTION

BLDG 21- WEST



PHASE THREE, SETUP 35

BUILDING 21, 800 LEVEL

WEST ELEVATION (HIGH)

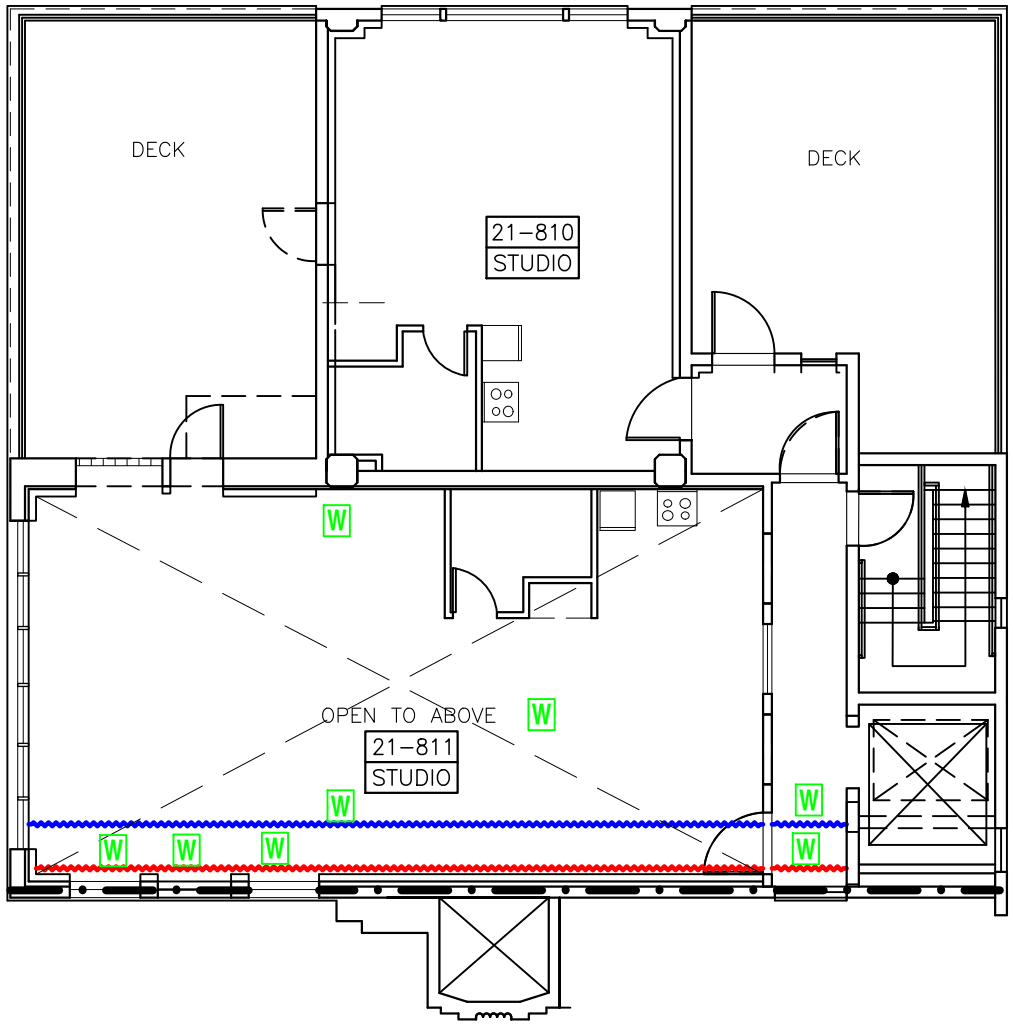
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

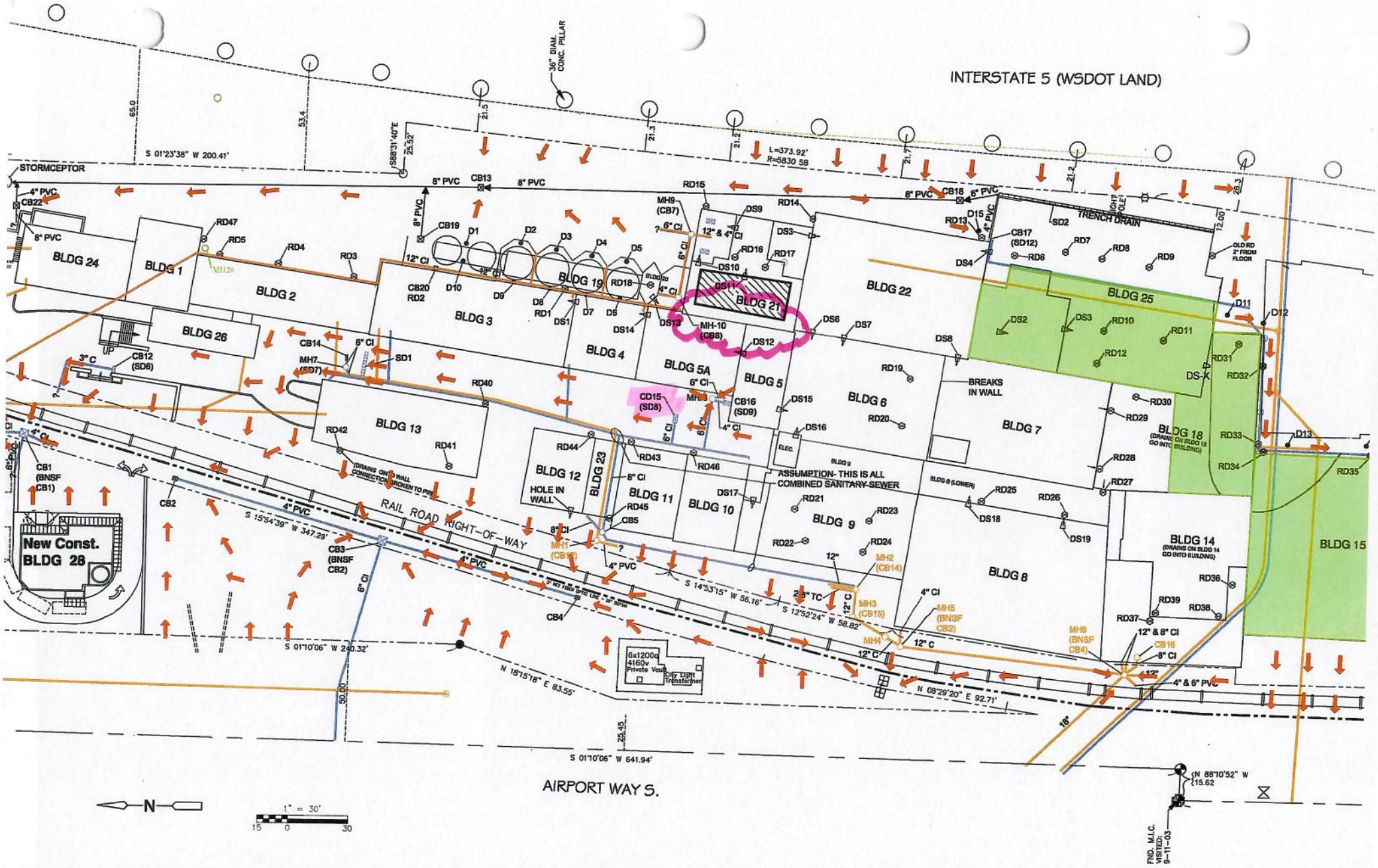
OCCUPANCY TYPE: RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)





RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP	DESIGNED BY: AEM	CDM	VERIFY SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON	
RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)	DRAWN BY: PJR	Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383			
RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)	SHEET CHK'D BY: PJM	consulting • engineering • construction • operations	THIS BAR IS ONE INCH LONG AT FULL SCALE	CATCH BASIN STUDY	
			CROSS CHK'D BY:				
DRWN	CHKD	REMARKS	APPROVED BY:				
			DATE: JANUARY 2009				

Phase 3 Set-up 36

Location: Building 5A Roof Parapets and Elevator Doghouse

Stories: Building 5A = 1

Material: Roof Parapets – Steel
Elevator Doghouse - Concrete

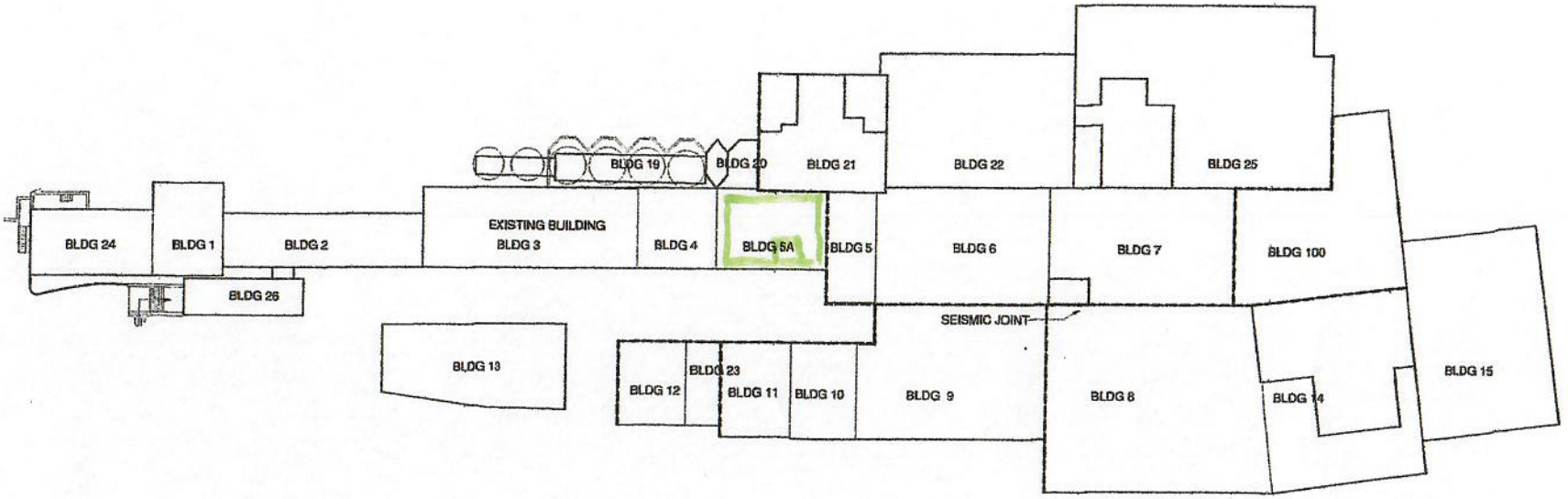
Square Feet: Building 5A Parapets = 178
Building 5A Elevator Room = 336

Tenants: Commercial

Catch Basin: CD-15

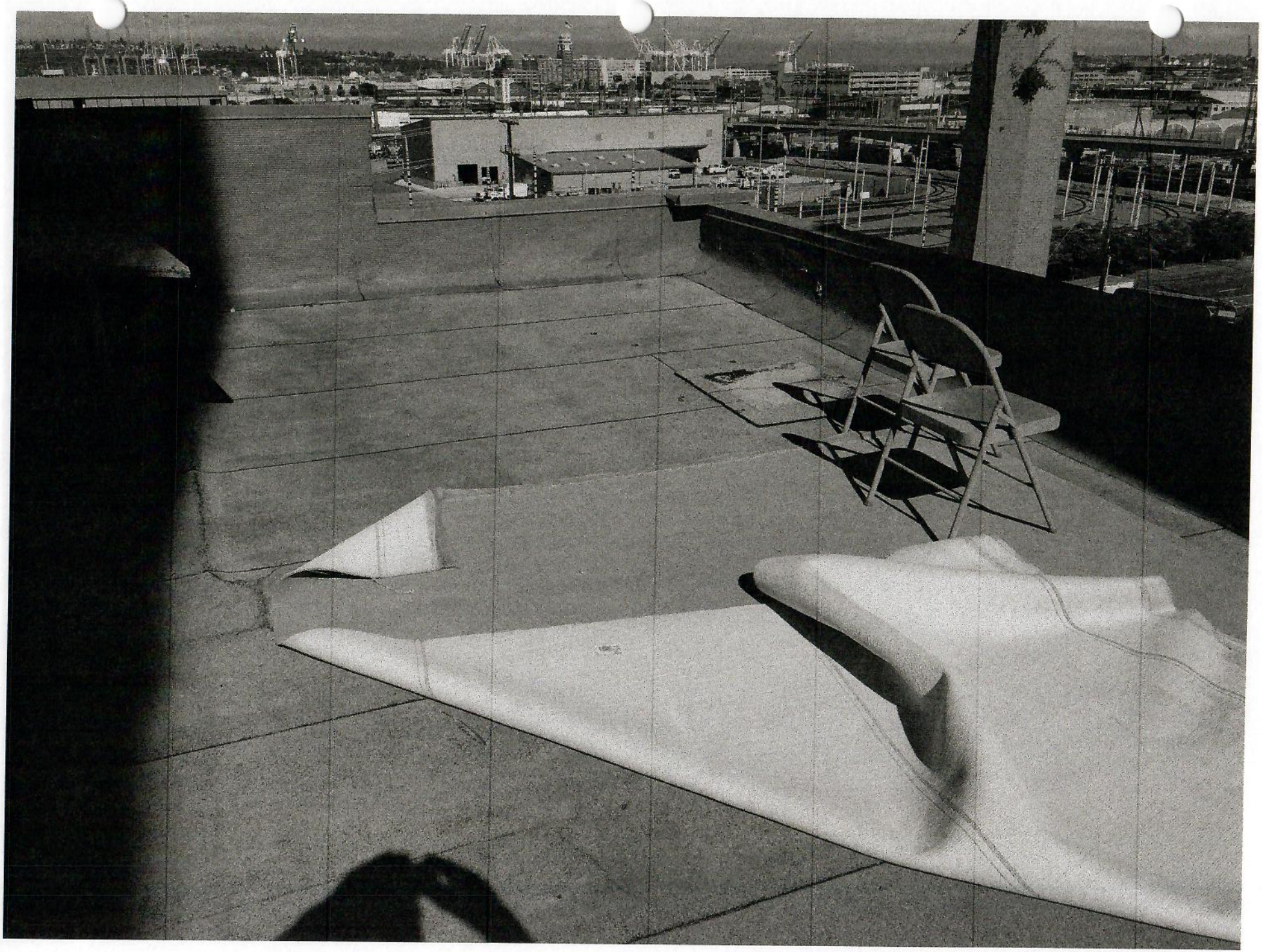
Roof Drain: Scupper to downspout to roof Bldg 4

Roof Protection: Plug and protect opening through parapet

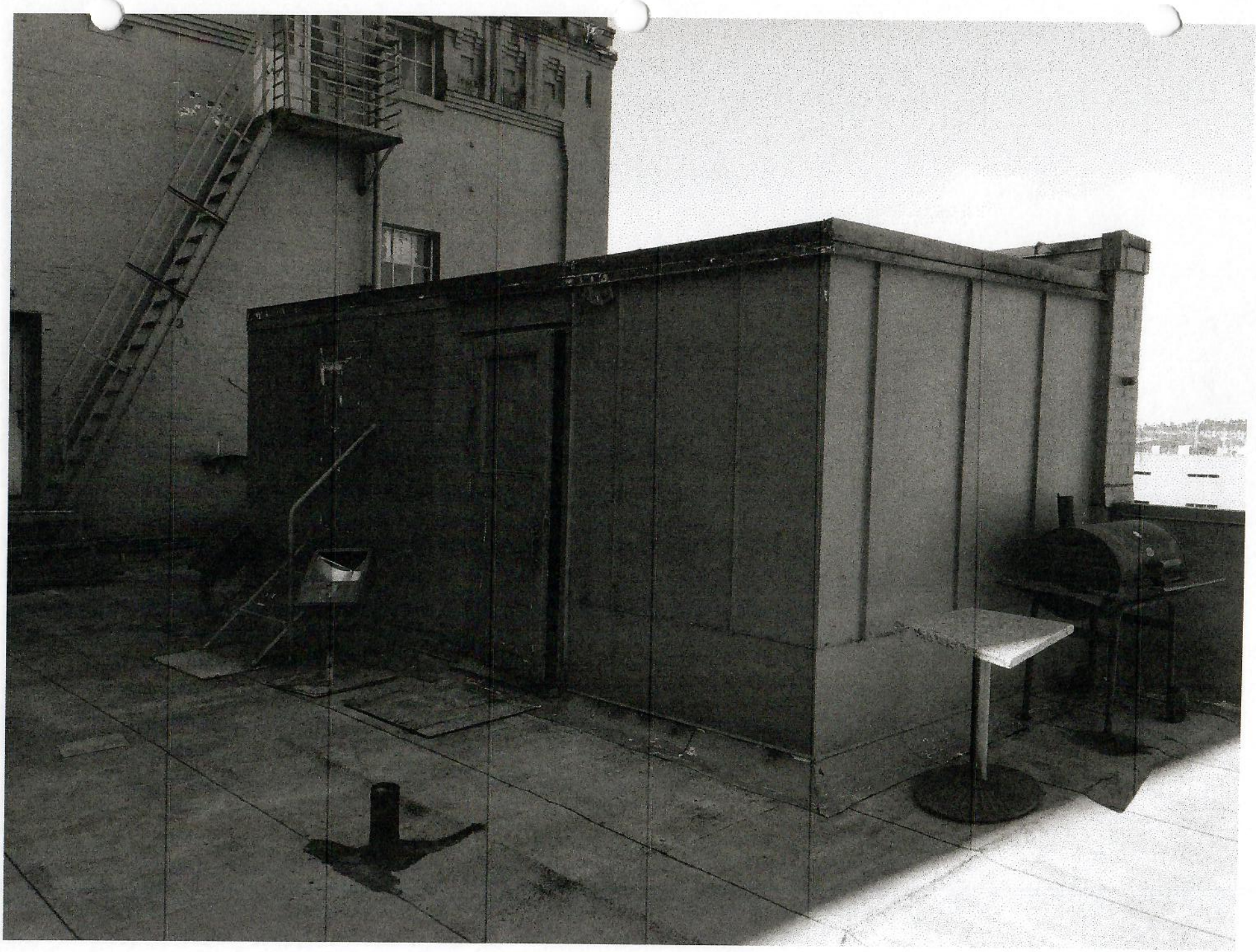


BUILDING 5A, ROOF, PARAPETS

BUILDING 5A, ROOF, DOGHOUSE



5A- ROOF PARAPET



5A - DOGHOUSE

PHASE THREE, SETUP 36

BUILDING 5A, ROOF LEVEL

ALL ELEVATIONS

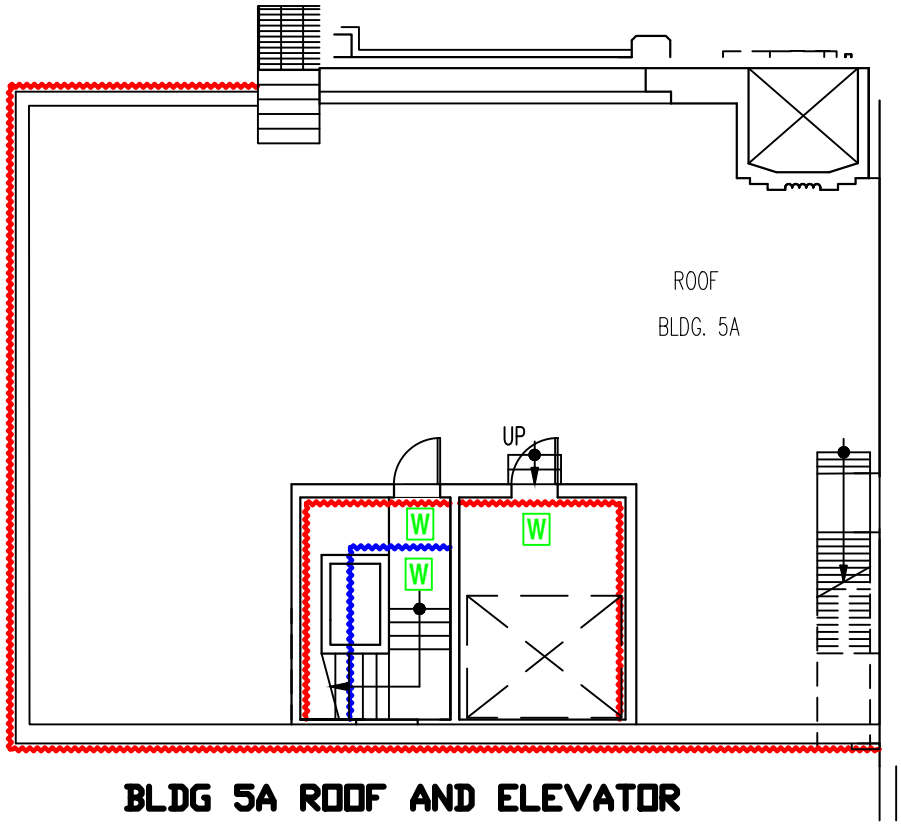
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

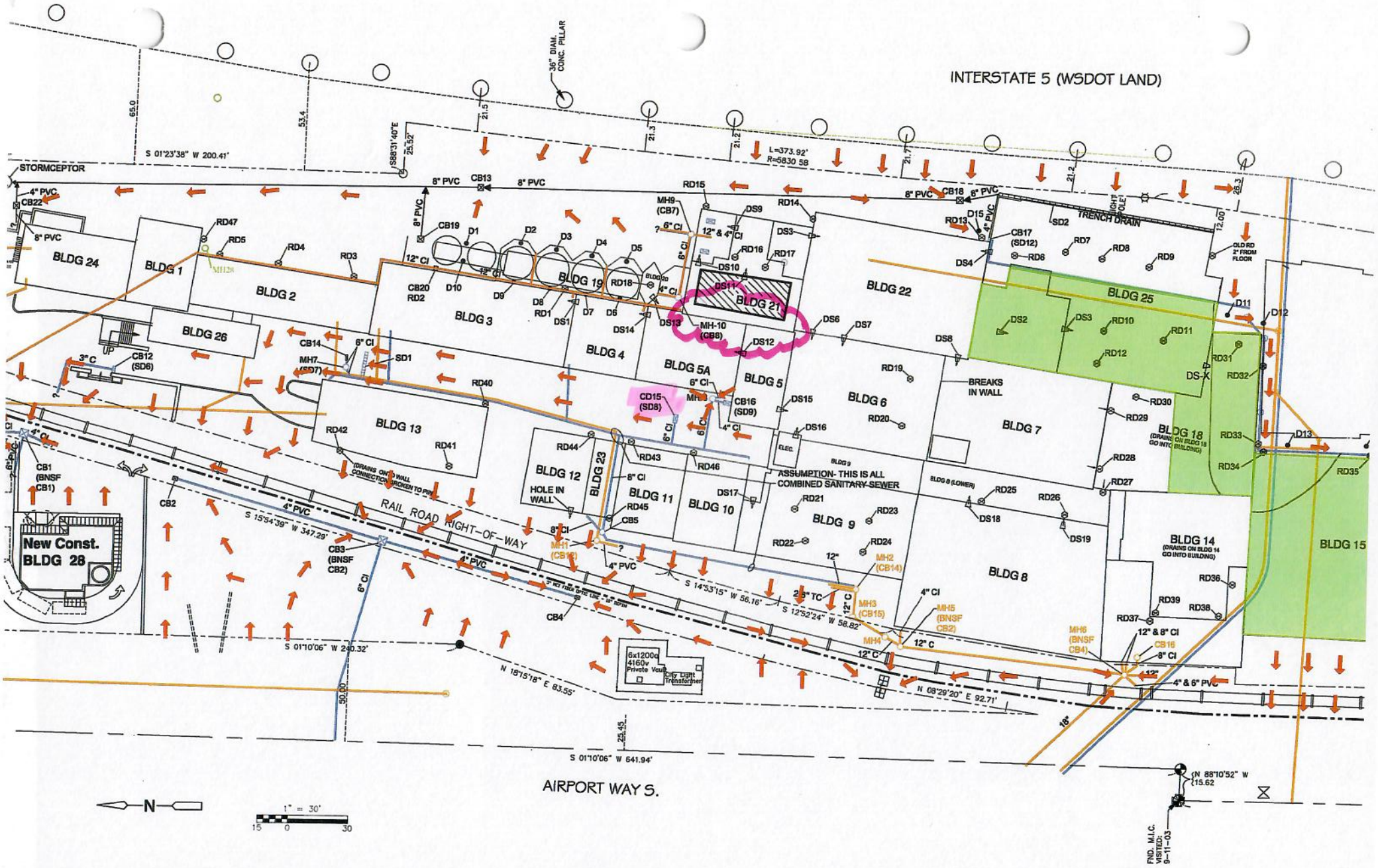
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



BLDG 5A ROOF AND ELEVATOR



RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP	DESIGNED BY: AEM	CDM	VERIFY SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON	
RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)	DRAWN BY: PJR	Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383			
RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)	SHEET CHK'D BY: PJM	consulting • engineering • construction • operations	THIS BAR IS ONE INCH LONG AT FULL SCALE	CATCH BASIN STUDY	
			CROSS CHK'D BY:				
DRWN	CHKD	REMARKS	APPROVED BY:				
			DATE: JANUARY 2009				

PHASE THREE, SETUP 36

BUILDING 5A, ROOF LEVEL

ALL ELEVATIONS

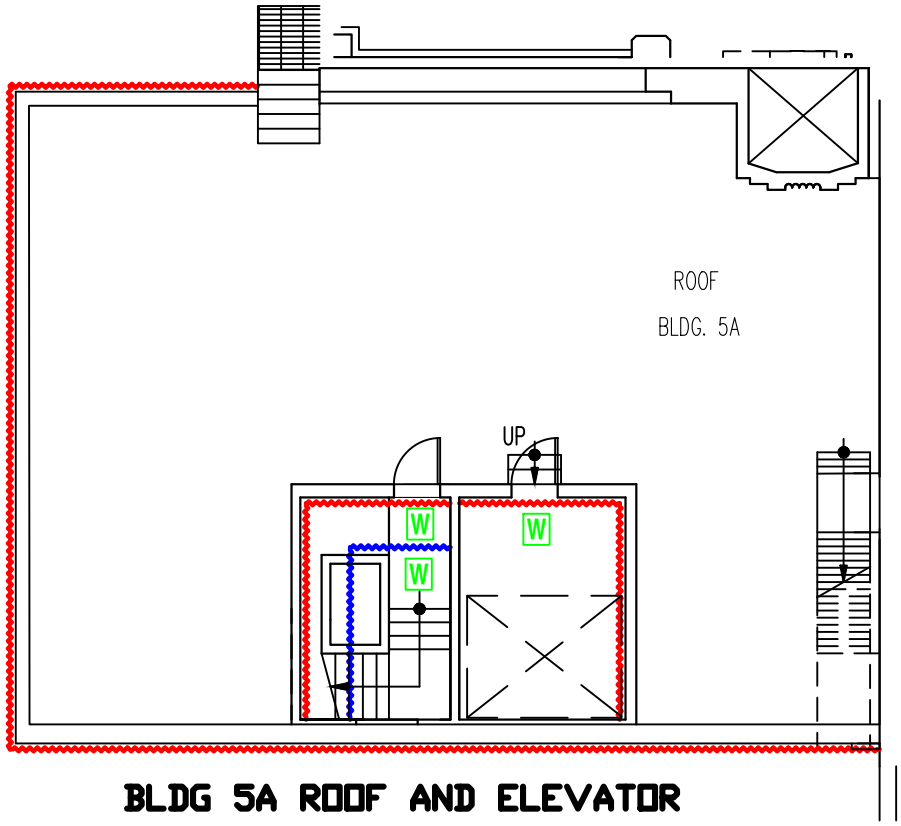
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

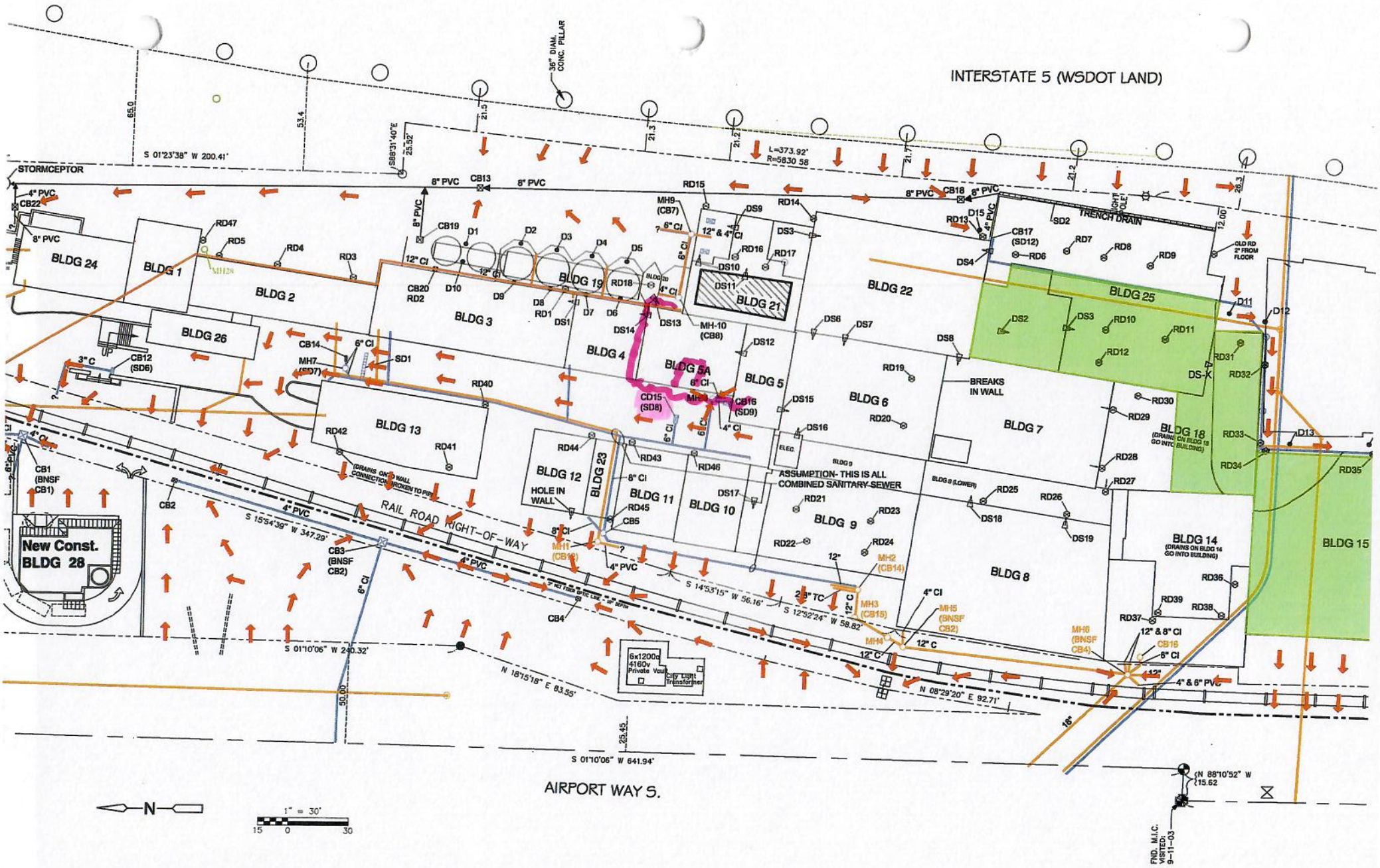
LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



BLDG 5A ROOF AND ELEVATOR

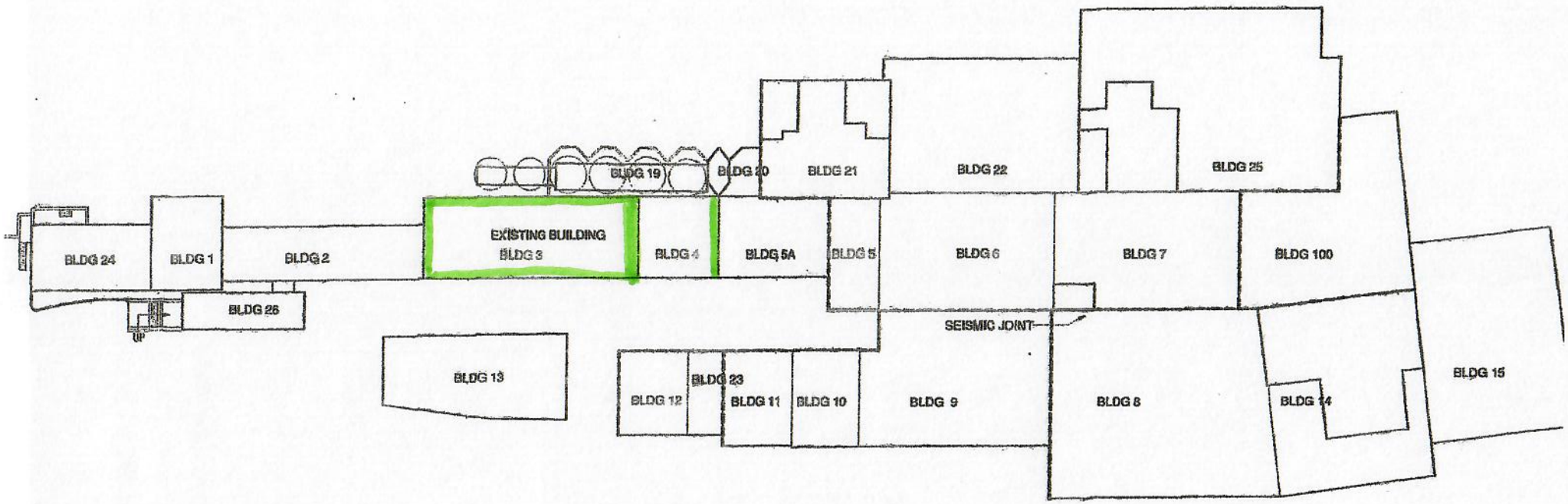


RC		RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP	DESIGNED BY: AEM	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON	
RC		ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)	DRAWN BY: PJR				
RC		ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)	SHEET CHK'D BY: PJM				
			CROSS CHK'D BY:				
DRWN	CHKD	REMARKS	APPROVED BY:			CATCH BASIN STUDY	
			DATE: JANUARY 2009				

Phase 3 Set-up 37

Location:	Building 3 Roof Parapets Building 4 North Elevation Building 5A North Elevation
Stories:	Building 3 - 1 Building 4 – 2 (One exposed) Building 5A – 5 (One exposed)
Material:	Building 3 – Steel Parapet Flashing Building 4 – Brick Building 5A – Brick
Square Feet:	Building 3 Parapets= 540 Building 4 N. Elevation = 800 Building 5A N. Elevation = 722
Tenants:	Commercial
C/B Zone:	Yellow
Roof Drain:	Bldg 4&5A - Scupper to downspout, to Roof below Bldg 3 – Scupper to downspout, tightlined to drain

Roof Protection: Bldg 4&5A-Reroute with flex pipe and filters to lower roofs Bldg 3 – Plug and protect opening through parapet

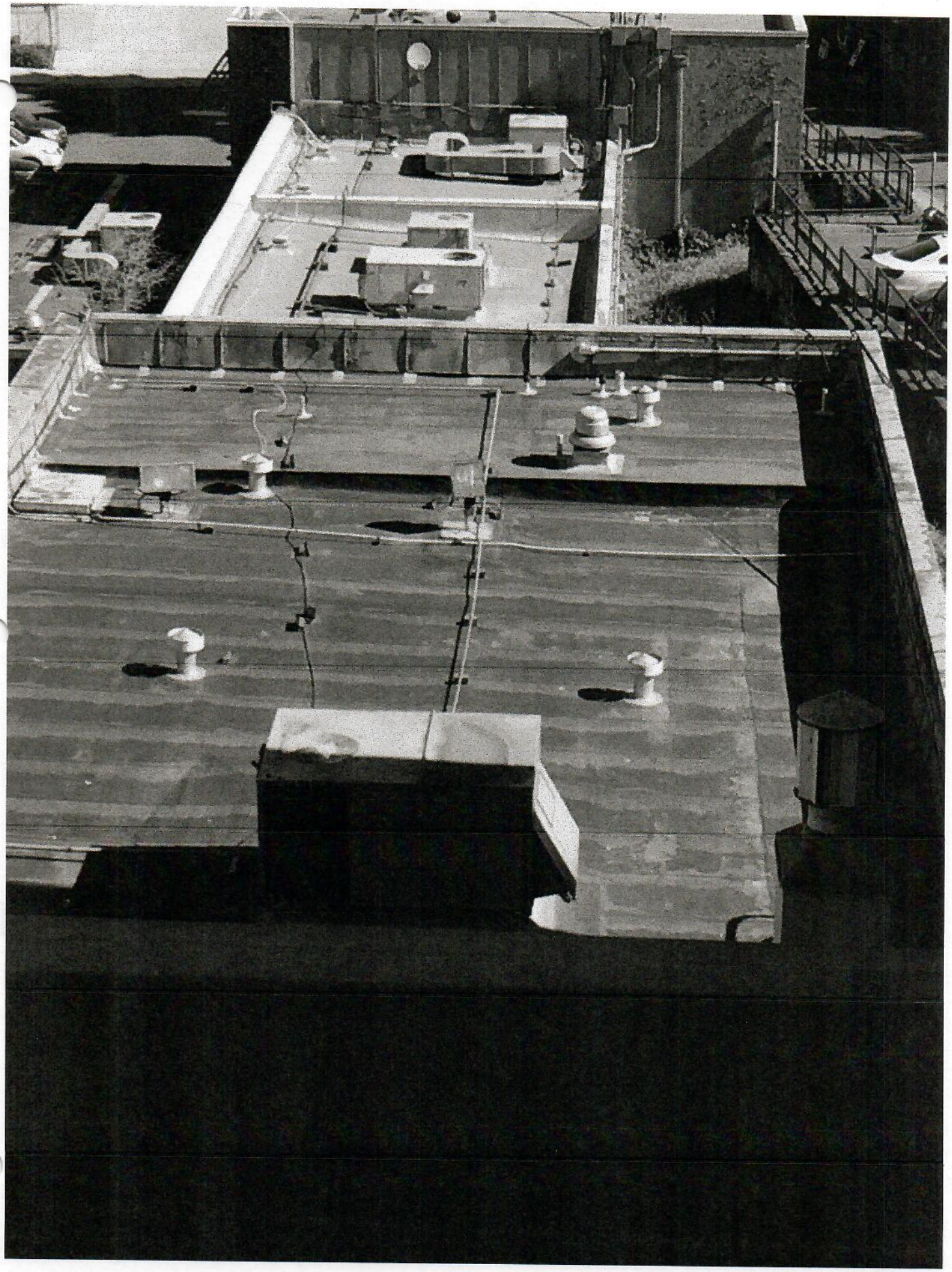


Building 3, Roof, Parapet

Building 4, North Elevation

Building 5A, North Elevation


BLD #5A
BLD #4
16'-7"
BLD #1
BLD #24



3 - ROOF - PARAPET

PHASE THREE, SETUP 37

BUILDING 5A, 500 LEVEL

NORTH ELEVATION

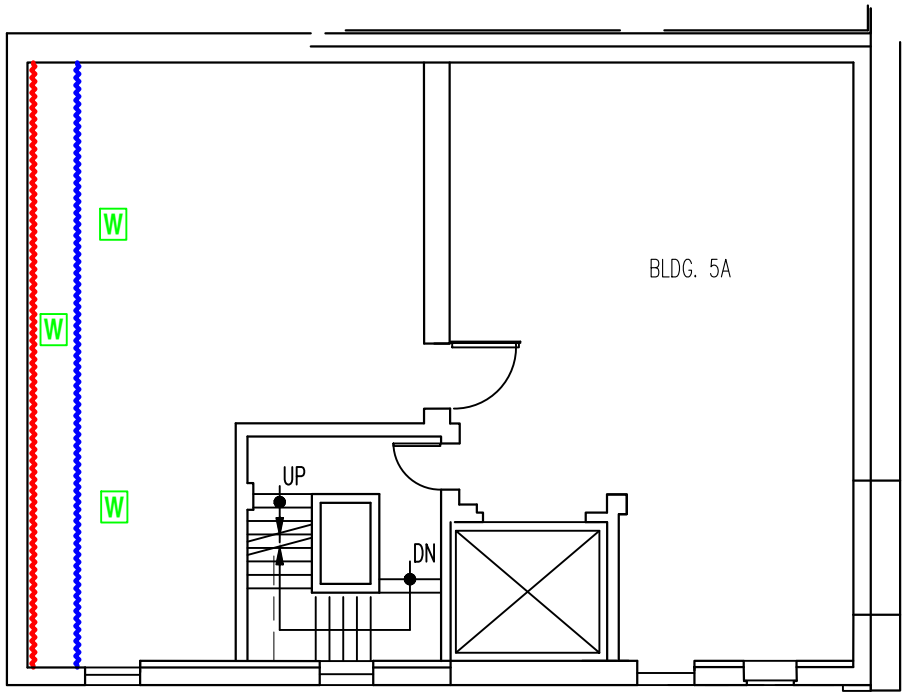
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 37

BUILDING 3, ROOF LEVEL

ALL ELEVATIONS

BUILDING 4, 400 LEVEL

ALL ELEVATIONS

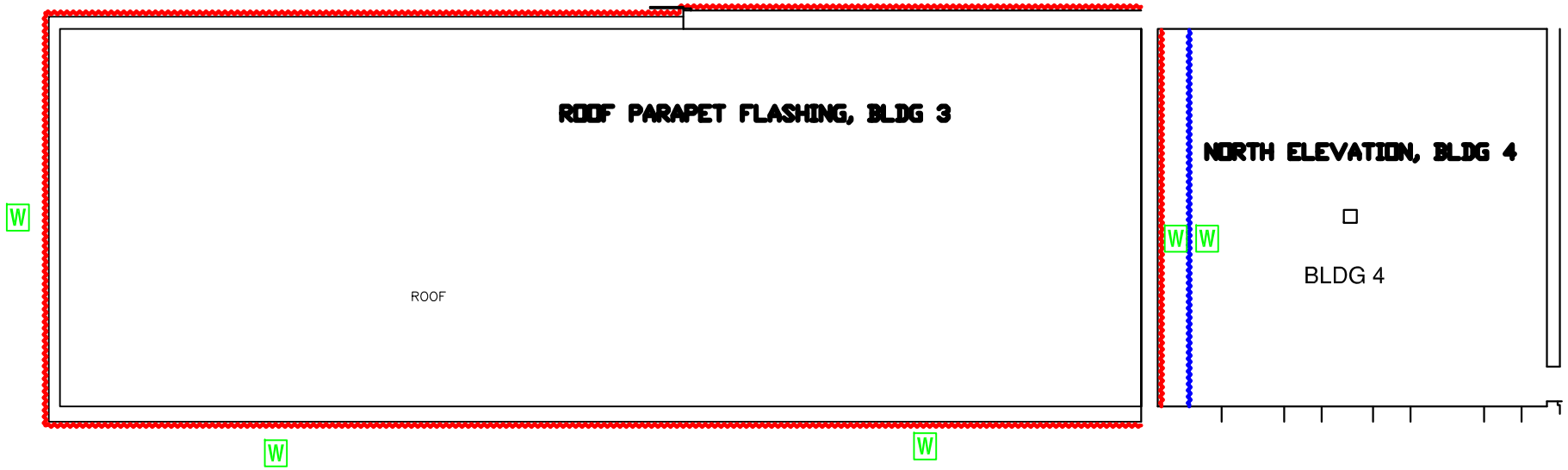
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

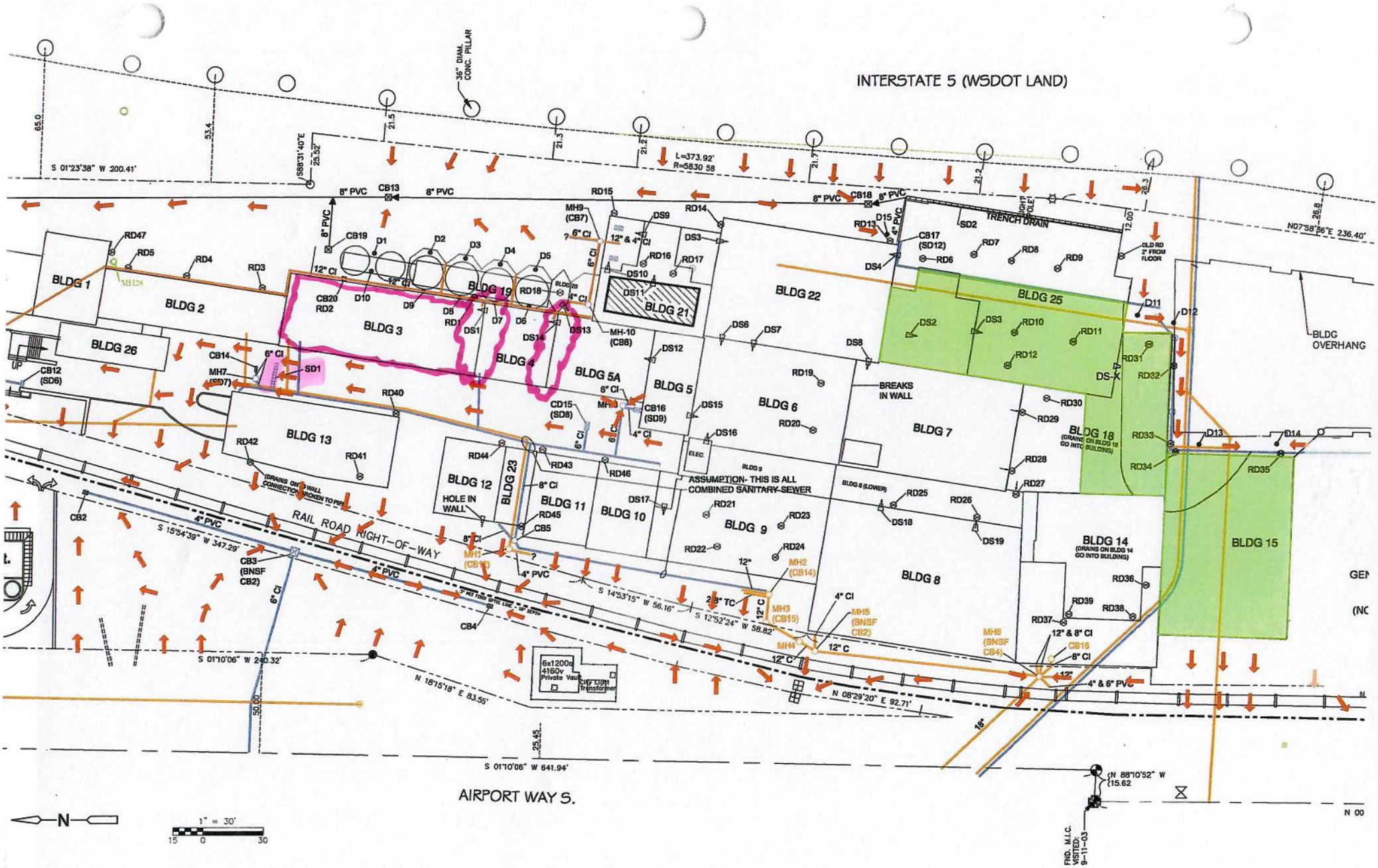
OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)





NIER COMMONS SURFACE WATER DRAINAGE FLOW MAP ING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14) ING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15) REMARKS	DESIGNED BY: AEM DRAWN BY: PJR SHEET CHK'D BY: PJM CROSS CHK'D BY: APPROVED BY: DATE: JANUARY 2009	CDM Camp Dresser & McKee Inc. 11811 N.E. 1st. Street, Suite 201, P.O. Box 3885 Bellevue, Washington 98005 Tel: (425) 453-8383 consulting • engineering • construction • operations	VERIFY SCALE THIS BAR IS ONE INCH LONG AT FULL SCALE	RAINIER COMMONS LLC 3100 AIRPORT WAY S SEATTLE, WASHINGTON CATCH BASIN STUDY	CATCH

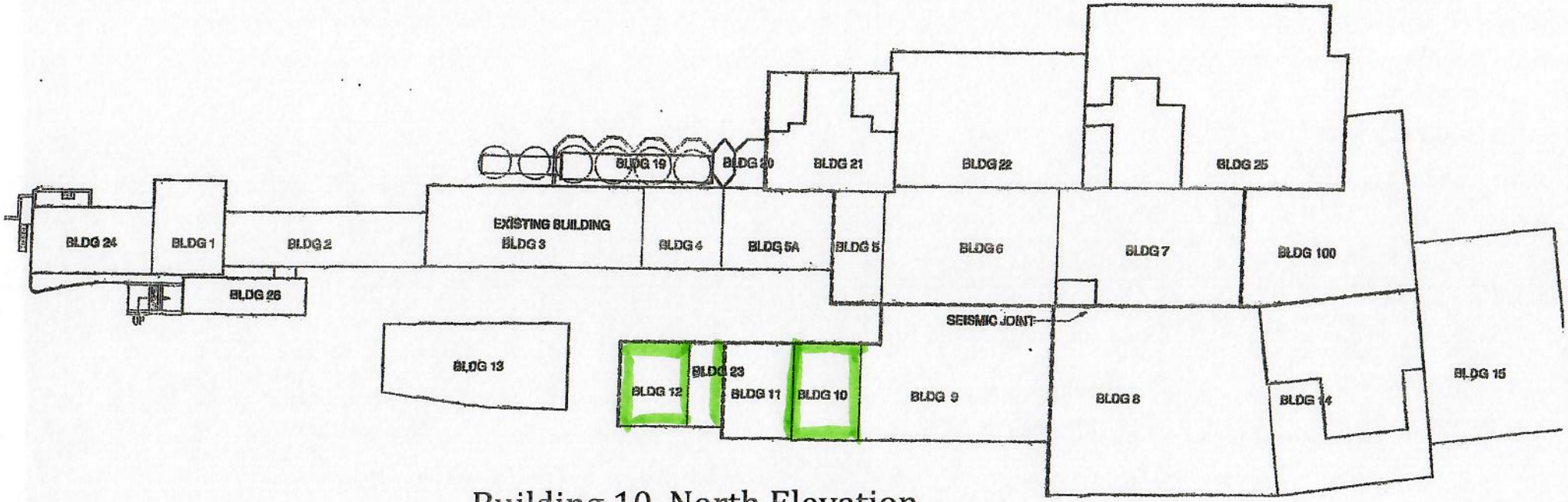
Phase 3 Set-up 38 (R-1)

Location:	Building 10 North Elevation Building 11 North Elevation Building 23 North Elevation Building 10 Roof Parapets Building 12 Roof Parapets
Stories:	Building 10 - 4 Building 11 – 2 Building 23 – 3 Building 12 - 1
Material:	Building 10 – Brick Building 11 – Brick Building 23 – Concrete Building 12 - Brick
Square Feet:	Building 10= 788 Building 10= 536 (Roof) Building 11 = 556 Building 23 = 344 Building 12 = 226
Tenants:	Commercial & Residential
Catch Basin:	Orange and Blue

Roof Drain:	Bldg 10 - Scupper to downspout, tightlined to drain system Bldg 11 - Scupper to downspout, tightlined to drain system Bldg 12 – Hole in parapet wall
Roof Protection:	Bldg 10-Reroute with flex pipe and filters to drain system Bldg 11-Reroute with flex pipe and filters to drain system Bldg 12 – Plug and protect opening through parapet

R-1 dated 12-10-2020 adds Building 10 information

R-1 12-10-2020



Building 10, North Elevation

Building 10, Roof and Parapets

Building 11, North Elevation

Building 23, North Elevation

Building 12, Roof, Parapets


BLD #10
BLD #11
BLD #12

Setup #38 – Building 10 Parapet and Steel Structure

Building 10 Roof View (Facing Southwest)

Roof Parapets consist of:

- North Elevation = 115 sq/ft
- South Elevation = 79 sq/ft
- East Elevation = 57 sq/ft
- West Elevation = 173 sq/ft

The steel structure is sealed and unused. The structure was originally built as an elevator control room (doghouse). The elevator has been vacated and removed. The interior elevator shaft has been demolished, with the resulting holes filled in with flooring at each building level. The structure consists of:

- North Elevation = 56 sq/ft
- East Elevation = 56 sq/ft

Note: The white/beige raceway running north/south on the roof was installed by AT&T, for the use as part of their "cell tower" installation. These raceways are not subject to paint abatement.

PHASE THREE, SETUP 38

BUILDING 11, 200 LEVEL

NORTH ELEVATION

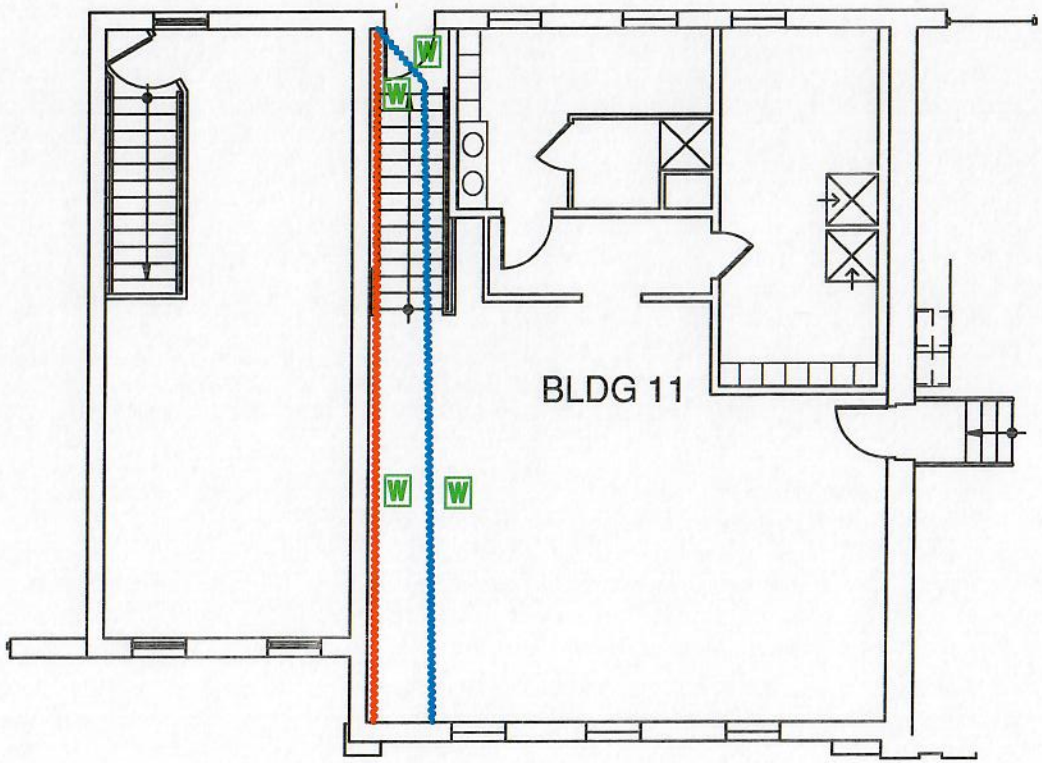
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 38

BUILDING 12, ROOF LEVEL

ALL ELEVATIONS

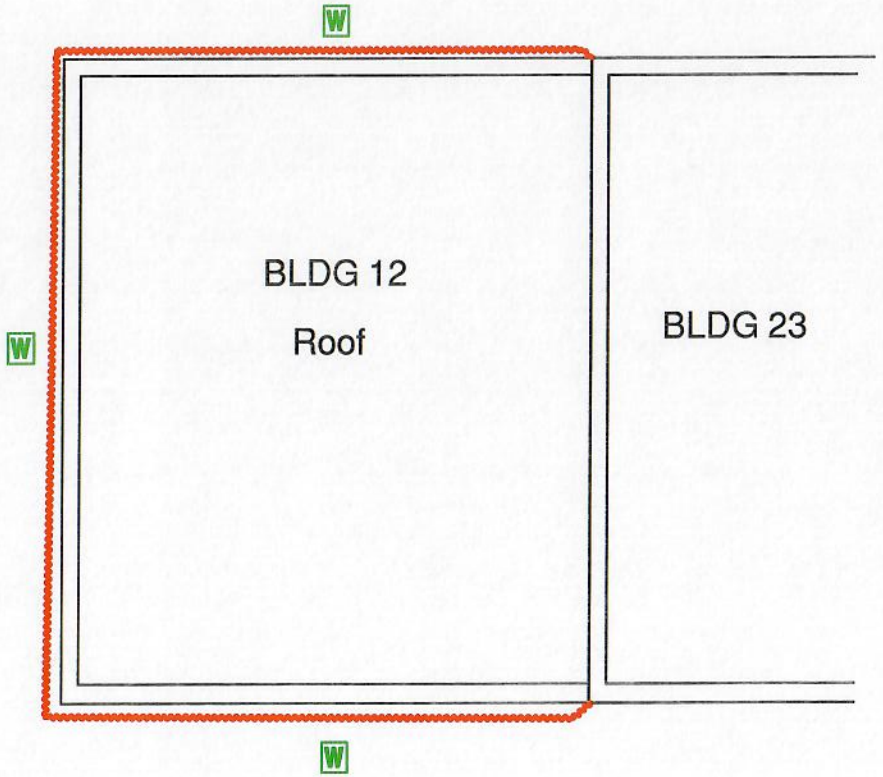
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND	
	PRIMARY CONTAINMENT
	SECONDARY CONTAINMENT
W	WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 38

BUILDING 23, 300 LEVEL

NORTH ELEVATION

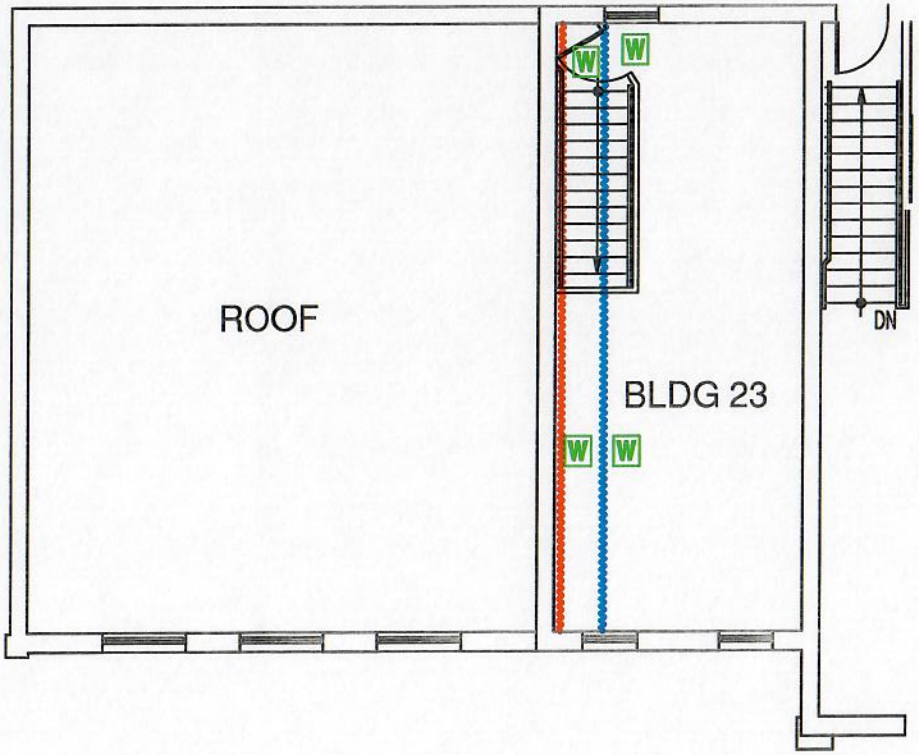
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: NON-RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)



PHASE THREE, SETUP 38

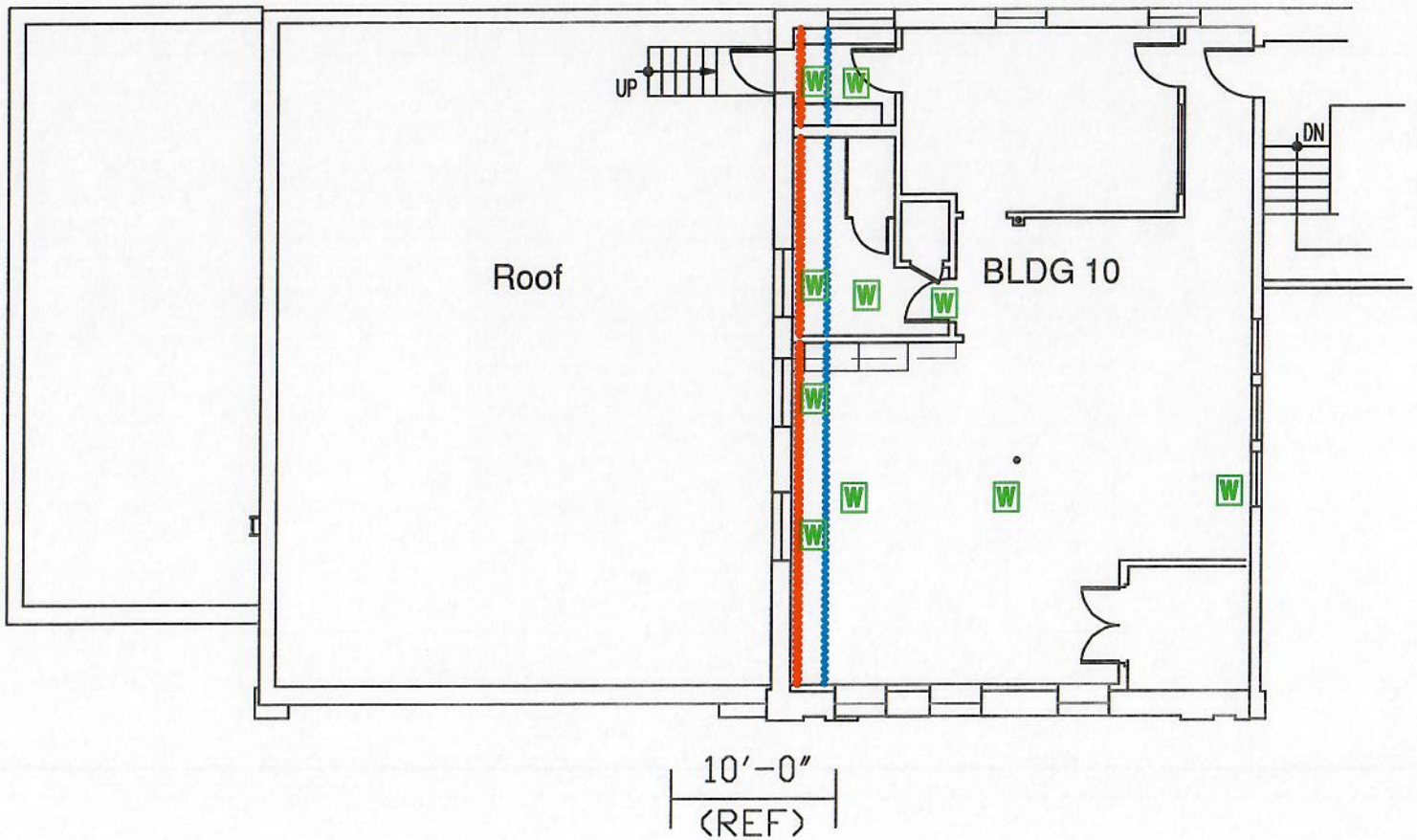
BUILDING 10, 400 LEVEL

NORTH ELEVATION

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

LEGEND

- PRIMARY CONTAINMENT
- SECONDARY CONTAINMENT
- W WIPE SAMPLE LOCATION



PHASE THREE, SETUP 38 R-1

BUILDING 10, ROOF LEVEL

ALL ELEVATIONS

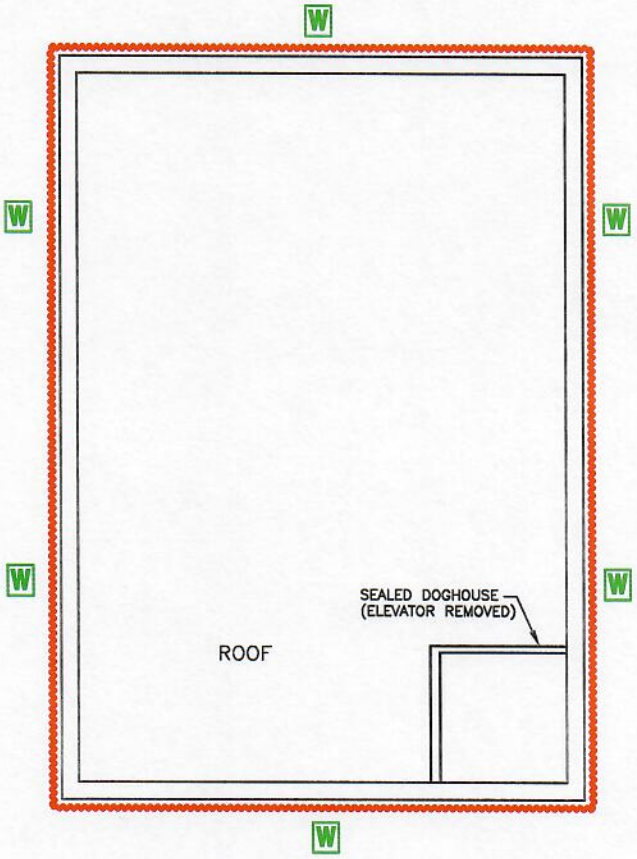
SECONDARY CONTAINMENT, WIPE SAMPLING LOCATIONS

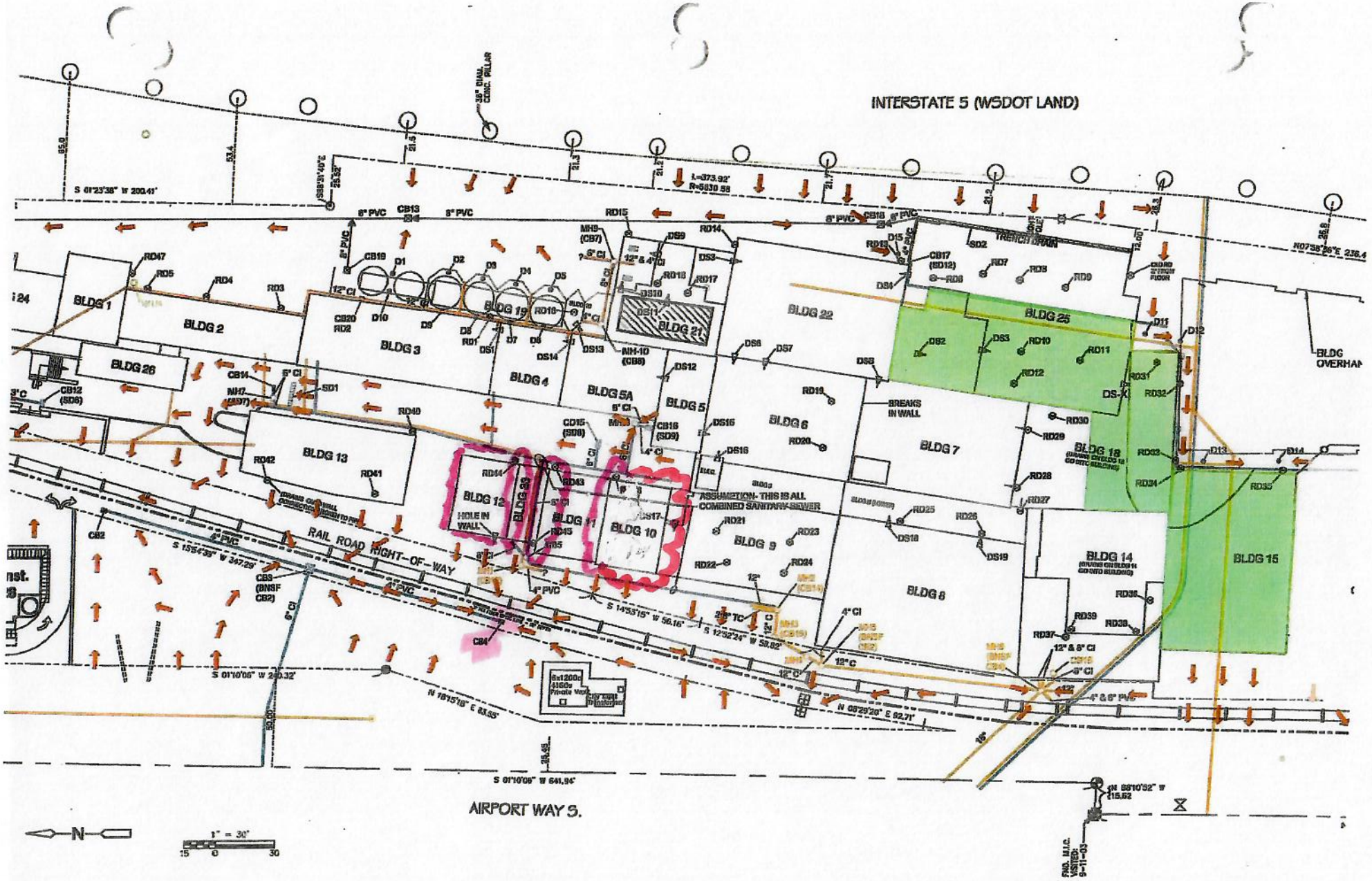
OCCUPANCY: NOT APPLICABLE

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
W WIPE SAMPLE LOCATION

N

10'-0" (REF)





RAINIER COMMONS SURFACE WATER DRAINAGE FLOW MAP
ADDING 6" DIA. DRAIN LOCATED SOUTH OF BLDG. 25 (D11-D14)
ADDING 6" DRAIN LOCATED NORTH OF BLDG. 25 (D15)

REMARKS

DESIGNED BY: AEM
DRAWN BY: PJR
SHEET CHK'D BY: PJM
GROSS CHK'D BY:
APPROVED BY:
DATE: JANUARY 2009

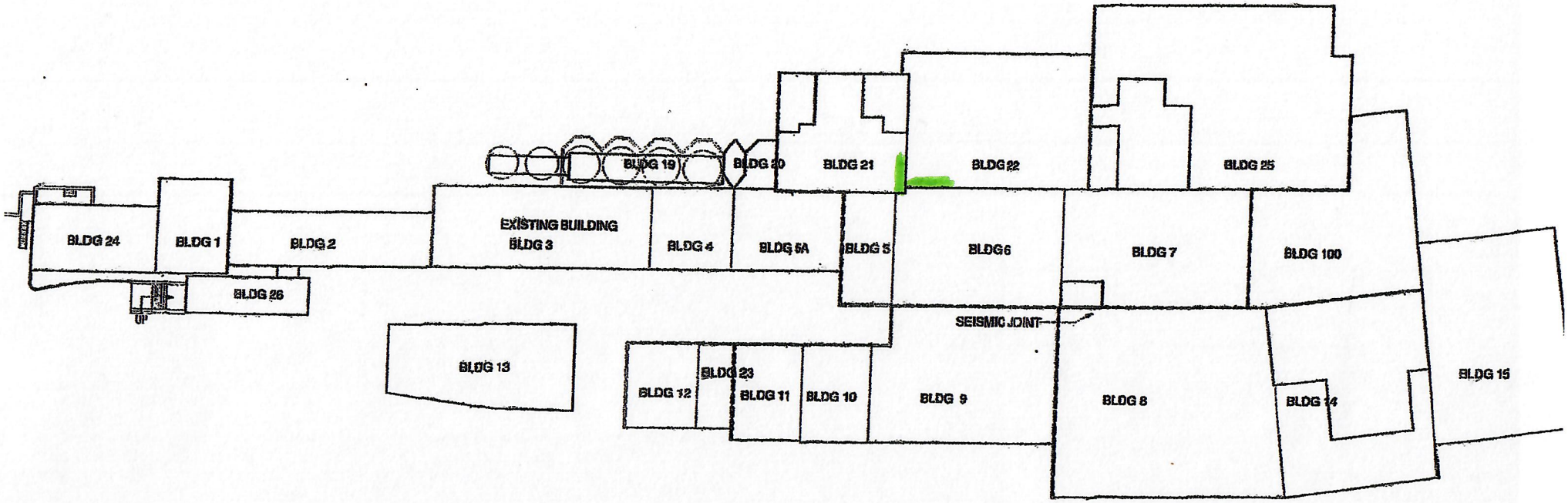
CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st Street, Suite 201, P.O. Box 3100
Bellevue, Washington 98005
Tel: (425) 453-0353
consulting • engineering • construction • operations

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN STUDY

CAT



Concrete Portions of the West Elevation, Building 22 and the South Elevation, Building 21, Enclosed by the Stairway located on the 6th and 7th Floor of Building 6

Phase 3 Set-up 39

Location:

This Set-Up involves the final, touch-up paint removal of an interior surface that originally was an exterior, exposed, painted surface. An exiting system (steel stairs) was added approximately 10 years ago, thereby enclosing a small portion of Buildings 5, 21 and 22 exterior façade.

This area, referred to as the *6th Floor Stairwell Demonstration Area* has already received an initial sandblasting. This Set-Up will target and remove the small amount of remaining paint.

All the brick and mortar areas were completely abated during the initial demonstration phase of the project. This area included the south elevation of Building 5-600 and 5-700. These areas were visually inspected for compliance to the RBDA, as well as being tested and cleared, using laboratory substrate testing methods. It was from the results of this demonstration project (authorized September 21, 2011) that the EPA concluded additional substrate

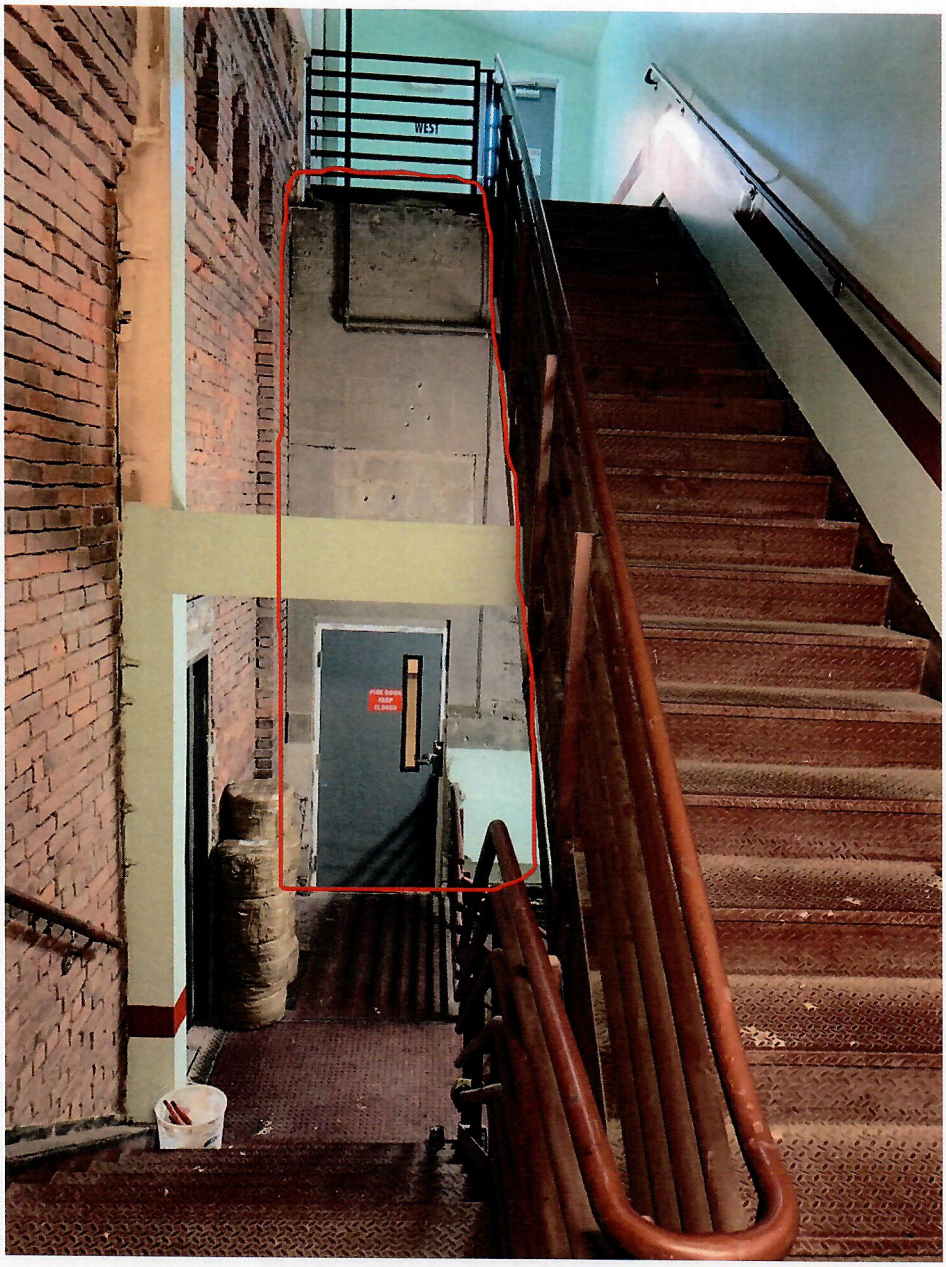
testing of brick and mortar components are no longer necessary.
The concrete areas were also abated, but not to as thorough a standard as the brick and mortar areas, during the demonstration phase (portions of Building 22-600 and 21-700). These limited concrete surfaces are the subject of the follow-up work of this Set-up.
Note: subsequent to the demonstration project, concrete and sandstone substrates were also cleared from additional substrate testing.

Stories:	Building 21 – Portions of floor 7 Building 22 – Portions of floor 6
Material:	Building 21 and 22 – Concrete
Square Feet:	Building 21 = 69 – Touch-up Building 22 = 122 – Touch-up
Tenants:	Residential
Catch Basin:	N/A, Interior Space
Roof Drain:	N/A, Interior Space
Roof Protection:	N/A, Interior Space

Interior Protection: (On the interior side opposite of the work to be performed)

Building 22 – Hallway corridor, providing access to residential units on the 6th floor. Standard protection

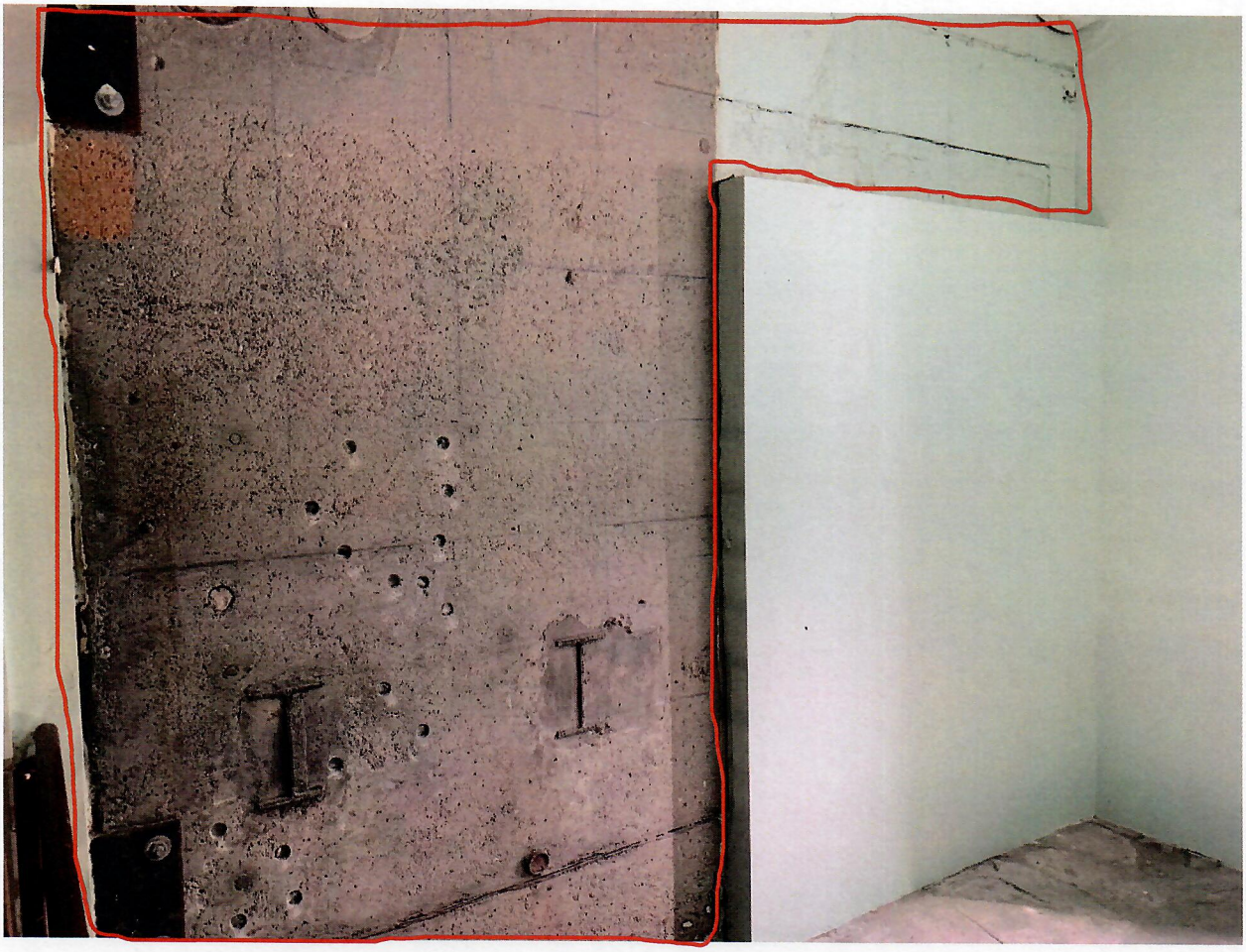
Building 21 – Elevator shaft. Wipe samples only



BUILDING 22, 6TH FLOOR, WEST ELEVATION. THE CONCRETE AREA, CIRCLED IN RED, WILL RECEIVE TOUCH-UP REMOVAL OF ANY REMAINING PAINT. A NEGATIVE PRESSURE ENCLOSURE (NPE) WILL BE ERECTED IN THE AREA SHOWN.

OPPOSITE THIS WALL, STANDARD INTERIOR PROTECTION (AND WIPE SAMPLING) WILL BE ESTABLISHED IN THE AFFECTED HALLWAY.

BUILDING 22, 6TH FLOOR, WEST ELEVATION. CLOSE-UP OF CONCRETE WALL INCLUDED IN SET-UP #39.



BUILDING 21, 7TH FLOOR, SOUTH ELEVATION. THE CONCRETE AREA, CIRCLED IN RED, WILL RECEIVE TOUCH-UP REMOVAL OF ANY REMAINING PAINT. A NEGATIVE PRESSURE ENCLOSURE (NPE) WILL BE ERECTED IN THE AREA SHOWN.

OPPOSITE THIS WALL, IS THE BUILDING'S ELEVATOR SHAFT. THE ELEVATOR CAR WILL BE WIPE SAMPLED PRIOR TO AND UPON COMPLETION OF ABATEMENT ACTIVITIES.

EXAMPLES OF CONCRETE AREAS TO RECEIVE TOUCH-UP REMOVAL OF ANY REMAINING PAINT

PHASE THREE, SETUP 39

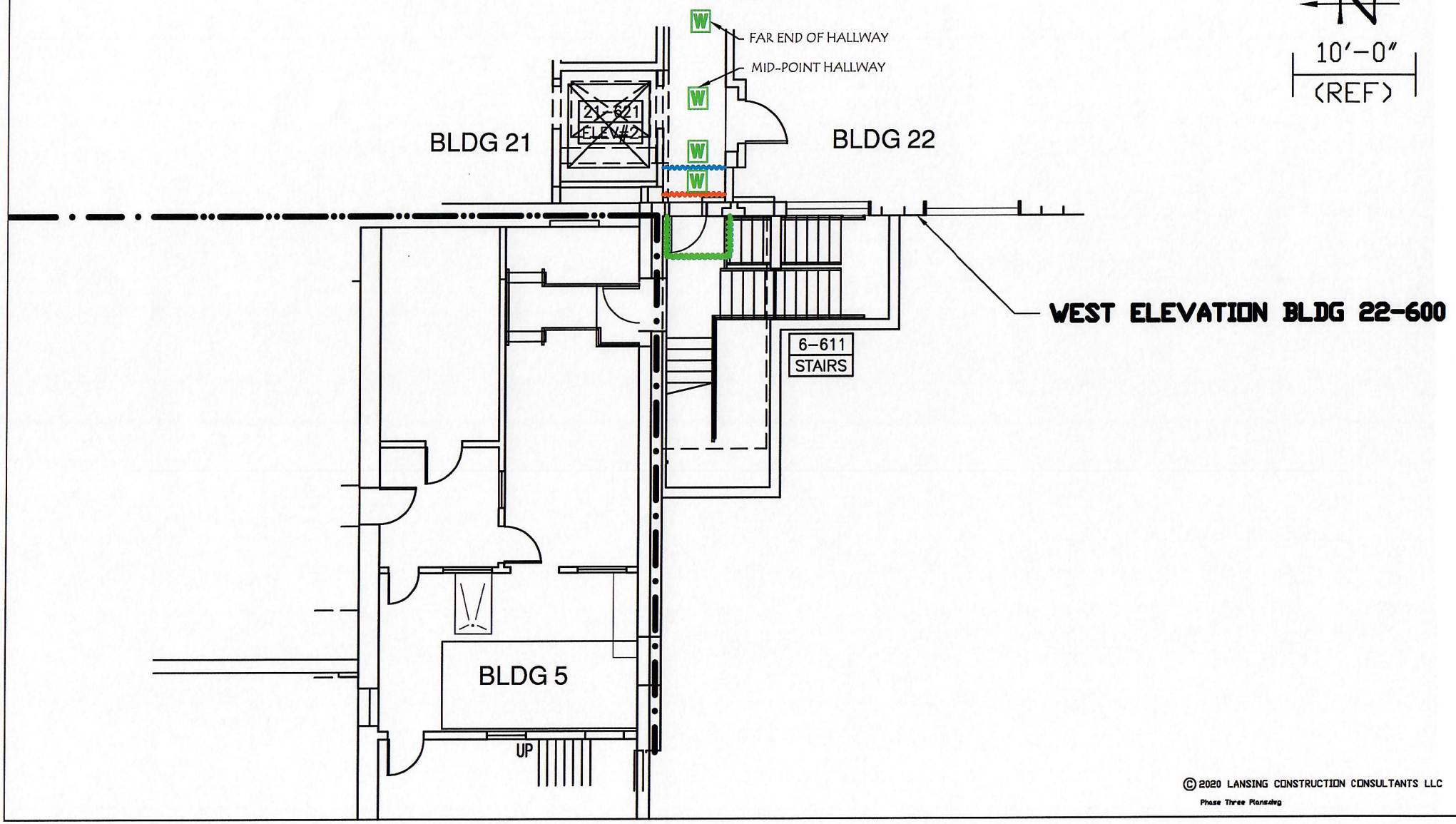
BUILDING 6 STAIRS, 600 LEVEL

WEST ELEVATION OF BLDG 22

INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: RESIDENTIAL

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
NPE
W WIPE SAMPLE LOCATION



Phase Three Plans.dwg

PHASE THREE, SETUP 39

BUILDING 6 STAIRS, 700 LEVEL

SOUTH ELEVATION OF BUILDING 21

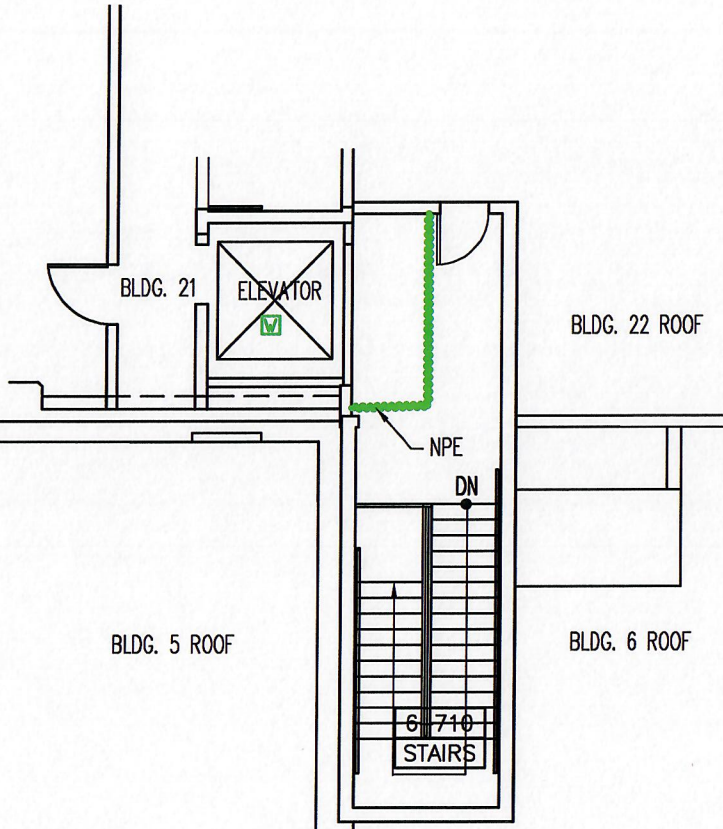
INTERIOR CONTAINMENT, WIPE SAMPLING LOCATIONS

OCCUPANCY TYPE: ELEVATOR SHAFT

LEGEND
PRIMARY CONTAINMENT
SECONDARY CONTAINMENT
NPE
W WIPE SAMPLE LOCATION

N

10'-0" (REF)

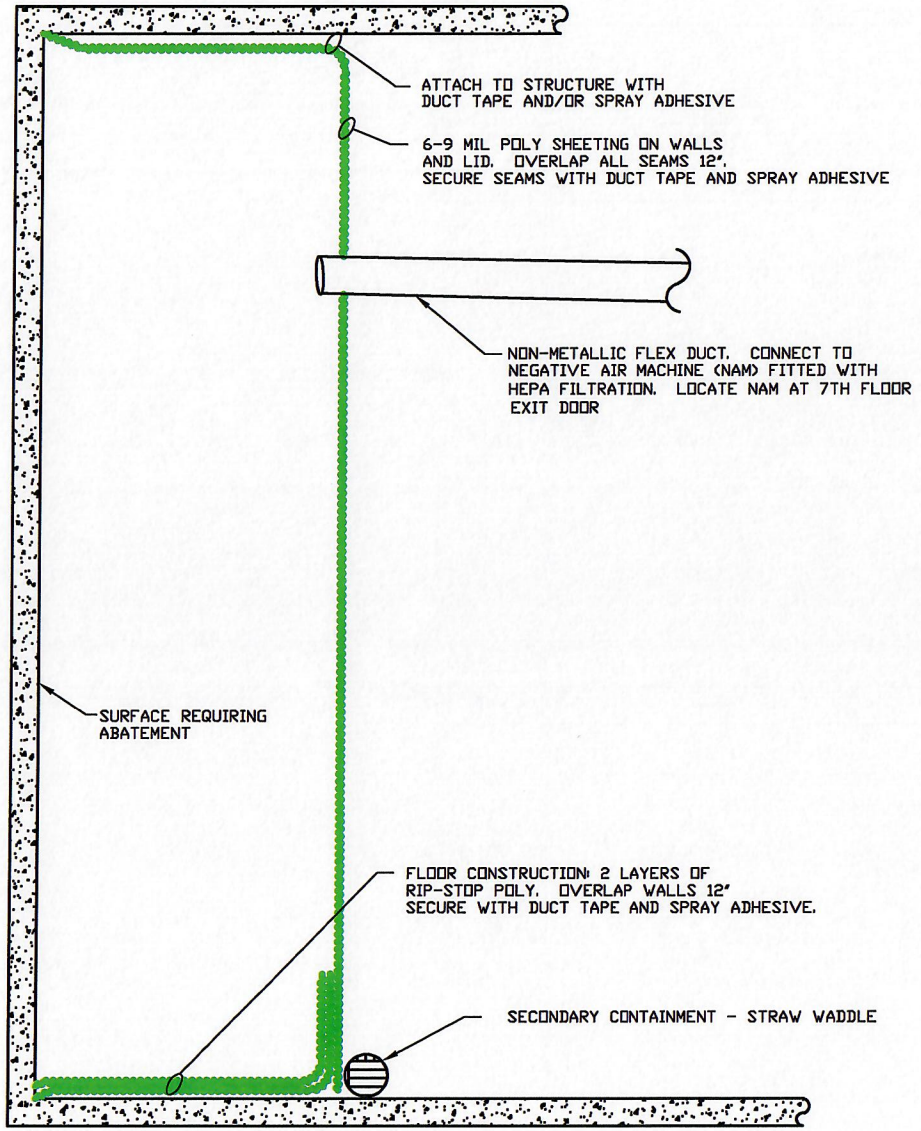


Phase Three Plans.dwg

PHASE THREE, SETUP 39

BUILDING 6 STAIRS

TYPICAL NEGATIVE PRESSURE ENCLOSURE (NPE) CONSTRUCTION



GENERAL WORK AND SAFETY PLAN

FOR

RAINIER COMMONS EXTERIOR PAINT REMOVAL

3100 AIRPORT WAY
SEATTLE, WA 98134

PREPARED BY:

PERFORMANCE ABATEMENT SERVICES
7415 W. BOSTIAN RD
WOODINVILLE, WA 98072

APRIL 2019

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND

The Rainier Commons facility, also known as the Old Rainier Brewery, is comprised of 24 buildings of various ages. The 4.6-acre site is located at 3100 Airport Way South in Seattle, WA 98134. The buildings, which vary in size and are mostly multi-floored, are composed of painted brick, concrete and sandstone exteriors.

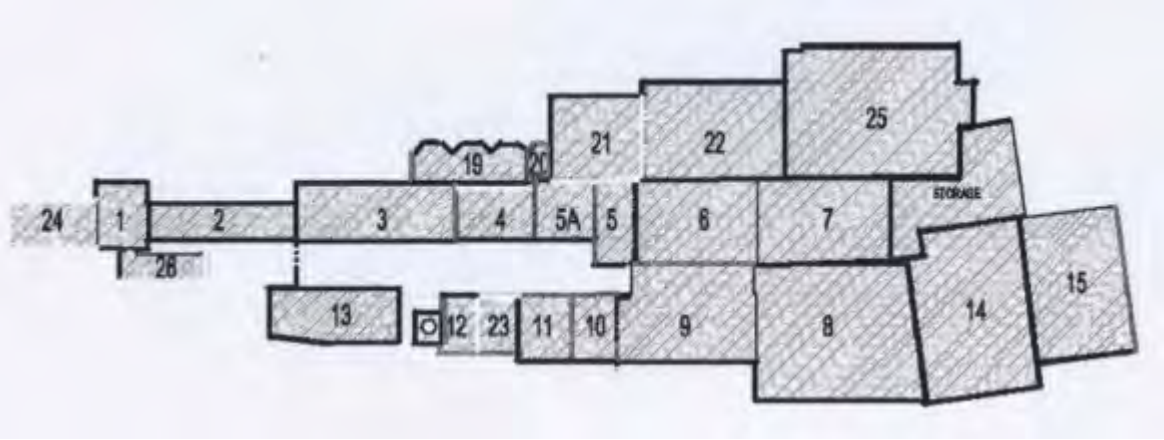
Exterior paint containing polychlorinated biphenyls above the regulated limit has been identified on the exterior surfaces of buildings throughout the facility. The purpose of this Work Plan is to outline the means and methods by which the PCB containing paint will be removed from the surfaces of the buildings in need of remediation.

2.0 GENERAL SCOPE OF WORK

The scope of work will include the removal and disposal of PCB containing paint on identified surfaces. The identified areas consist of brick and concreate substrates along with isolated areas of metal cladding, metal window frames, gutters, drainpipes and guard rails. Performance Abatement Services (PAS) will perform PCB paint removal within a negative pressure enclosure (NPE). All removal methods will follow applicable local, state and federal regulations, standard industry practices and specific requirements described in this work plan and the contract documents. All work carried out shall be consistent with EPA approval and subsequent modifications. All specific rules and regulatory requirements will be followed including but not limited to 40 CFR 761.62(c). All storage of waste generated during the work shall comply with storage regulations at 40 CFR 761.65(a)(1), 40 CFR 761.65 (b) or 40 CFR 761.65(c). All generated wastes shall be handled and disposed of in compliance with 40 CFR 761.62(a) of (b), and 40 CFR 761.61(a)(5)(iv) for liquid waste as applicable.

The work will be completed in phases depending on schedule by the Owner/General Contractor and the EPA.

Exterior PCB Abatement Areas:



3.0 SITE SECURITY

- **Fencing**: A construction barrier fence will be erected around the immediate work area.
- **Access control**: Signage will be used on construction barrier fencing denoting the "Construction Zone" and "Authorized Personnel Only." All ingress and egress points into the NPE work areas will be clearly demarcated with proper signage on the exterior side. The only entry or exit into the NPE work area will be through the decontamination unit(s).
- **Fire protection**: Each work area or area adjacent to the immediate work area will be equipped with a fire extinguisher.
- **Utilities protection**: PAS will employ proper "Lock-Out, Tag-Out" procedures to protect employees, tenants, and utilities during work practices. Water and power to be provided by owner for necessary work requirements.

4.0 SCAFFOLDING

The work areas will be enclosed using framed scaffolding systems. The scaffolding system will be composed of 6'-4' high x 3'-6" wide frames that are erected to provide 10' long bays with 2"x12" aluminum planks to create a fully walkable surface. Base pads will be used to prevent damage to the ground barrier (i.e. two layers of cardboard on bottom of scaffold feet). Verification of site conditions may alter actual scaffold set up.

Scaffolding workers will have proper training and certification. PAS, along with the scaffold subcontractor, will erect the scaffolding in compliance with WISHA and the manufacturer's recommendations. A certified scaffold erector/scaffold competent person will be used to supervise the construction of the scaffold system.

Tie points on the scaffold system will be used to anchor the scaffold to the existing structure at every other frame vertically and horizontally. The tie-ins can only be accomplished by penetrating the substrate on the existing structure or through window openings. The exact locations of the tie-ins will be identified by the supervisor during the erection process. It may be necessary to penetrate exterior surfaces contaminated with PCB paint. These penetrations will be conducted by certified personnel and will follow all necessary regulations and procedures.

The scaffolding supervisor will be required to inspect the scaffold system. The first inspection will be conducted immediately after scaffold has been completed. The scaffold erector will place a green tag (complete scaffold), yellow tag (caution-special requirements), or red tag (do not use). If the scaffold is going to be used during any shift, the scaffold shall be inspected prior to that shift beginning any work on the scaffold by the scaffold competent person. Scaffolds and scaffold components shall be inspected for visible defects by the scaffold user prior to initial use, before each work shift, and after any occurrence which could affect a scaffold's structural integrity. A scaffold inspection checklist will be used for documentation of the scaffold inspection.

5.0 NEGATIVE PRESSURE ENCLOSURE (NPE)

The NPE enclosures used on this project will consist of 1 layer of 6-mil or 9-mil FR shrink wrap poly. The NPE will also have a shrink wrap roof system to shed water. At least two layers of "rip-stop" poly sheeting will be utilized beneath the scaffold structure and will run up to an adjacent straw waddle. At least two layers of cardboard will be used on ground between the layers of poly sheeting. These practices will create a reservoir to trap water within the NPE, thus eliminating any contaminated water from escaping the work area.

Any windows, doors or other penetrations within the NPE will be protected on the exterior by at least one layer of 6-mil reinforced poly under a sheet of plywood. The interior of the windows will be protected by two layers of 6-mil reinforced poly. Critical barriers will also be used over any HVAC openings along with any other openings during remediation work.

Secondary containment on the interior walls just opposite/just interior to NPE areas will be used as protection from any unforeseen breach during the removal process. The entire surface area of the interior wall will be covered by a "curtain" of 6-mil poly. Duct tape will be used to secure the curtain to ceilings, walls and floors. Space between interior wall and curtain will be left for daily inspection during the removal process.

PAS will use OmniAire 2200 negative air machines (NAM's) to create a negative pressure environment within the NPE. Each NAM will be monitored by a manometer adjacent to the decontamination unit. Each NAM will be exhausted from the NPE to the outside environment and distributed throughout the work area to eliminate any dead air spots. At least 1 NAM plus a back up machine will be installed in each section of the scaffold enclosure, although actual number of units will need to be verified due to site conditions/set-up. The calculation used to determine number of NAM's in the work area(s) is as follows:

1. The total volumetric air flow requirement in $\frac{ft^3}{min}$ for the work area is determined by dividing this volume by the recommended air change rate (one change every 15 minutes):

$$Total\ \left(\frac{ft^3}{min}\right) = \frac{Volume\ of\ work\ area\ \left(in\frac{ft^3}{min}\right)}{15\ minutes}$$

2. The number of units needed for the application is determined by dividing the total $\frac{ft^3}{min}$ by the rated capacity of the exhaust unit:

$$\#\ of\ units\ needed = \frac{Total\ \left(\frac{ft^3}{min}\right)}{Capacity\ of\ unit\ \left(\frac{ft^3}{min}\right)}$$

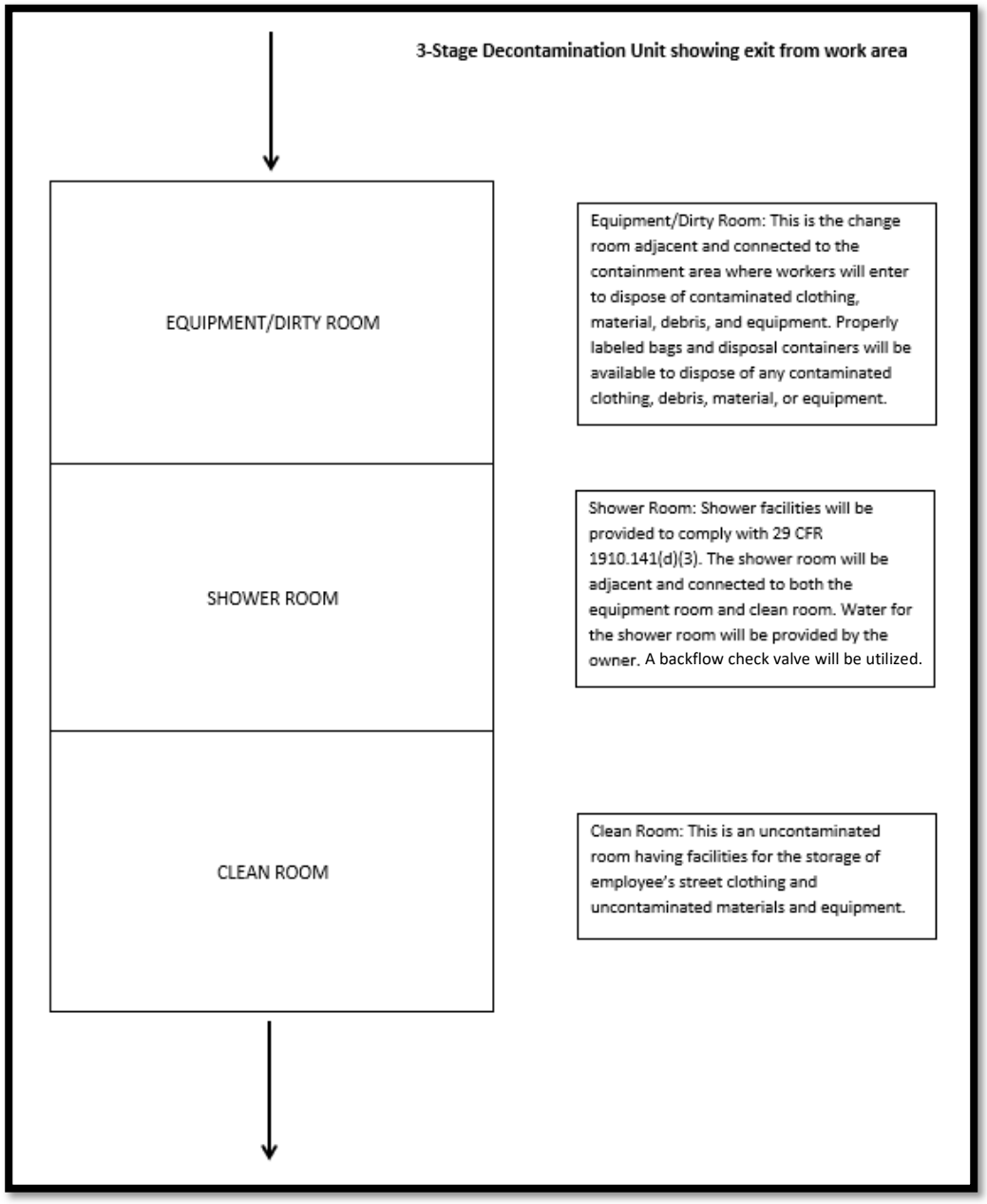
HEPA filters will be utilized on the NAM's and will be changed out once pressure monitoring devices alert that dust build up has been accumulated on the HEPA filters.

A three-stage decontamination unit will be utilized for entry and exit from the NPE. PAS will construct a three-stage decontamination unit using PVC or steel pipe frames wrapped in 6-mil or 9-mil poly sheeting. A pop-up aluminum shower unit will be used in the "shower room" equipped with a water

collection basin. Water used for showering will be collected and contained in EPA approved drums for additional testing. At no point shall water be discharged out of the work or shower area into the sanitary sewer or storm drain systems. *See figure 1.0 on following page for 3 stage decontamination unit diagram.*

A material load-in and load-out unit will be constructed in the same manner as the three-stage decontamination unit. This will be a separate unit connected to the "dirty room" of the three-stage decon. This will allow material and equipment into the NPE as well as decontaminate any material or equipment prior to leaving the NPE.

Figure 1.0



Employees will decontaminate themselves through use of the three-stage decontamination unit. Employees will keep their respirator and PPE on until the removal practices are completed and the work area has been cleaned. PPE, including respirator, clothing, footwear, etc. should be vacuumed thoroughly with a HEPA vacuum while in the "dirty room." Wet wipes will also be used to wipe down PPE, tools and equipment in the dirty room. Used wet wipes, disposable clothing, rags and any other contaminated materials shall be disposed of as PCB contaminated waste in approved EPA drums. Respirators can only be removed within the shower room after all other parts of the body have been washed clean. Equipment, waste bags/drums, and any material will be HEPA vacuumed and wiped down in the "dirty room" prior to being passed through to the adjacent load in/load out area. Any wipes or rags used to wipe down equipment will be disposed of as contaminated waste.

Proper signage will be posted on the exterior side of all entry/exit points to the NPE as required. Walk off mats will also be used at entry/exit points to and from the work areas. Mats will be changed out each day.

6.0 BLASTING PROCESS

As soon as the work areas are contained as described above, PAS will contact the owner for NPE set-up approval prior to abatement operations. Once approved, the PCB contaminated paint will be removed by sand blasting with a copper slag additive. Blasting will be used to remove the bulk paint from the exterior surfaces. Hand tools will then be used to scrape any remaining paint. Once all paint has been completely removed from the identified areas, PAS will brush down and use a HEPA vacuum to clean all surfaces.

A dust collector will be used during the blasting process. The dust collector will be equipped with a purge system that back blows the filters with a blast of compressed air. The dust then settles into a hopper which will be vacuumed with a sand retriever as needed. The debris will be placed into either steel drums or plastic wood crates and stored in the approved disposal area. Upon project completion, the filters are removed and disposed of through Waste Management. Disposal tickets will be made available. Pre and post wipe samples will also be taken from the dust collector to ensure proper cleaning prior to leaving job-site.

During removal process, PAS will use a 6-mil poly drop cloth on each respective level of scaffolding where work is being conducted. This will help catch any debris and keep lower layers from being over-contaminated. The drop cloth will be changed out periodically as waste builds up.

All PAS personnel will don the following PPE during removal/remediation activities:

- Full body disposable suit with hood and booties
- Full face supplied air pressure demand respirators
- Hard hats and safety vests as required by PAS safety protocols
- Cut resistant gloves
- Eye protection
- Protective footwear
- Hearing protection

While performing removal/remediation of the PCB paint, PAS will utilize ambient air (supplied air) breathing apparatuses. PAS will use multiple smaller 4-man systems (Air Systems International Blast-Air Breather Box) while conducting work inside the NPE.

PAS will perform exposure monitoring of 25% of crew performing PCB removal in accordance with NIOSH 5503 procedures using 13-mm, Glass Fiber Filter in a Swinnex Cassette in series with a 150-mg Florisil Tube for PCBs. *Exposure monitoring will be conducted to establish permissible exposure limit (PEL) data of airborne contaminants during removal. Exposure monitoring will be used to ensure workers remain under the action level for both the time weighted average (TWA) and the short-term exposure limit (STEL).*

Put on Safety Glasses before breaking glass. Break off both ends of the tube immediately before sampling.

Attach the sorbent tube to a personal sampling pump with the flexible tubing and/or tube holder. Make sure the tube is facing the correct way, which is for the air to be pulled in through the front and out the back of the tube. The tube should have a small arrow on it, which indicates the direction of flow. Attach the swinnex cassette to the inlet of the tube/tube holder using a short piece of tubing, making sure the outlet of the cassette is closest to the inlet of the tube/tube holder.

Calibrate the pump to run 0.2 liters of air before sampling. Calibration is performed using an ultra low-flow rotometer. Run the sample for approximately four hours and re-calibrate upon completion.

Once sampling is complete, the tube sample must have plastic caps placed on each end of the tube to ensure sample integrity. The filter should be removed from the swinnex cassette and transferred to the glass vial that has been provided. Return the swinnex cassette along with the sample vial and the tube to laboratory for analysis. Make sure the sample is appropriately labeled.

Samples should be stored on blue ice, or equivalent, and shipped overnight or delivered to the laboratory, and should be accompanied by a completed chain of custody. Ensure that the samples do not get wet by placing them in re-sealable baggies.

Submit at least one field blank with each set of samples. The field blank is treated exactly like a sample except that no air is drawn through the tube. Break off both ends of the tube immediately before sampling. Do not attach this tube/filter combination to a pump. Do not pull any air through the sampling media for this sample.

Test	**Analytical Method**	**Entity**	**Action Levels**
PCB	NIOSH 5503	DOSH/OSHA	1 mg/m^3 (42% CI) 8-hour TWA 3 mg/m^3 (42% CI) 15-minute STEL 0.5 mg/m^3 (54% CI) 8-hour TWA 1.5 mg/m^3 (54% CI) 15-minute STEL

7.0 ADDITIONAL METHODS FOR PCB PAINT REMOVAL

There are limited areas with metal substrates that will need to be stripped of PCB paint. PAS will use a chemical method to remove paint from any meal building components that will remain (i.e. flashings, window frames, man doors, etc.). PAS will utilize Fiberlock Piranha 4 paint remover for any removal of paint from metal substrates.

PAS may also coordinate with the owner to remove intact metal building components contaminated with PCB paint if remediation is not feasible. These components will be properly disposed of as PCB contaminated waste.

8.0 PERSONNEL CERTIFICATIONS

All PAS workers will be HAZWOPER certified. PAS Supervisor/Competent person will be first aid and CPR trained in addition to having their HAZWOPER cert. *Please refer to APPENDIX A for copies of PAS employee HAZWOPER certifications.*

9.0 HAZARDOUS WASTE DISPOSAL

PAS will remove blast media and any debris daily after each work shift. Debris will be placed in plastic bags while being staged prior to be placed in EPA approved drums for transport to the final disposal destination. It is PAS' intent for all PCB waste to remain dry, where possible. If PCB waste is wet, it will be collected and stored separately from the dry waste.

All PCB containing waste will be placed in EPA approved drums and staged in the designated area for further analytical determination by the owner or consultant. The waste storage area will contain a secondary containment barrier, such as a straw waddle wrapped with 6-mil poly sheeting, surrounding the designated area. Waste will be managed according to the requirements of 40 CFR 761.65(b). Non-liquid wastes such as PPE, plastic, poly, disposable suits and rags may be disposed of according to the requirements of 40 CFR 761.61(a)(5)(v).

Labels bearing the out of service date, project name, owner and abatement contractor will be present on all waste containers. PCB waste containers will be staged in a dry designated area for holding until appropriately characterized and designated for transport and disposal. Transporter and disposal facility information is as follows:

Transporter:	Waste Management 6211 234th St SE Woodinville, WA 98072
Disposal Facility:	Columbia Ridge Recycling and Landfill 18177 Cedar Springs Lane Arlington, OR 97812 800-685-8001

10.0 CLEARANCE PREPARATION

Once the bulk removal of the PCB paint is completed, PAS will perform final cleaning with hand tools to remove any visible material from the substrate. PAS will then brush down and HEPA vacuum all surfaces. Prior to final inspection by the owner, consultant and/or the EPA, PAS will clean the enclosure, scaffolding and planks using HEPA vacuums, brushes and wipes. Cleaning of the enclosure must happen prior to breakdown of the containment system. PAS will contact the owner when set-up is ready for final visual inspection and containment clearance inspection. NPE breakdown shall not occur prior to NVL clearance.

A lock-down agent will be used on the interior of the NPE to trap any dust or debris that was not collected by the cleaning/decontamination process. PAS will use Fiberlock Fiberset PM for lockdown.

11.0 NPE BREAKDOWN

The breakdown of the NPE will be coordinated to take place on dry days. Prior to any dismantling, a designated staging area will be established for containment and protection while the breakdown process is being performed. The staging area will consist of two layers of “rip-stop” poly sheeting laying over straw waddles which wrap around the perimeter. Every piece of the scaffold system will be lowered into the staging area for a final clean and inspection prior to being loaded onto trucks for transport.

After having a lock-down agent applied to the interior side of the poly, the shrink wrap poly will be cut into sections, rolled within itself and carefully lowered to the staging area for disposal.

Interior barriers will be HEPA vacuumed and carefully torn down for disposal.

12.0 SCHEDULE

The work hours are established as 7:00am to 3:30pm Monday through Friday. PAS will employ a crew size of six abatement personnel for this project.

Work flow will consist of set up, blasting (bulk removal), detail cleaning (hand tool removal), final clean and breakdown.

13.0 SITE-SPECIFIC SAFETY PLAN

Please refer to APPENDIX B.

14.0 EMERGENCY PROCEDURES

In case of fire, use fire extinguishers. Immediately notify the fire department (911) of all fires. Evacuate all personnel if the fire is not immediately extinguished. Exit routes have been placed with signs and directional arrows to indicate the appropriate exit path.

An electrical shock hazard exists whenever working with water around power sources. Lockout electrical system with physical lock prior to abatement; protect all temporary power connections to keep them dry. In case of severe shock, immediately contact emergency medical personnel (dial 911) and Fire Department. Turn off power and remove the source of electrical shock.

In case of physical injury due to accident, supply first aid treatment and notify emergency medical personnel. DO NOT MOVE someone who is severely injured. Evacuate workers not assisting the injured so that emergency medical personnel can use their respirators.

Notify Project Manager or General Foreman in case of any injuries.

Heat stress and dehydration can occur from working in containment with full personnel protection. If you have any of the signs of heat stress or dehydration, exit the work area through the decontamination unit and get medical help. These signs are: Feeling faint or dizzy, nausea, headache, cramps, or heat rash. See attached Heat stress procedures.

Emergency Contact Information:

Abatement Contractor:	*Performance Abatement Services, Inc.* 7415 W. Bostian Rd. Woodinville, WA 98072 425-806-8404
Project Manager:	*Kirk Baker* Kirk.baker@pcg.com 206-623-8750 (Office) 206-793-3357 (Cell)
Branch Safety Engineer:	*Dalton Bruil* Dalton.bruil@pcg.com 206-623-8750 (Office) 206-817-2830 (Cell)
PAS Superintendent:	*Erik Fulwiler* Erik.fulwiler@pcg.com 425-806-8404 (Office) 425-420-3669 (Cell)
Police Department:	***Dial 911***
Fire Department:	***Dial 911***
Hospital:	Virginia Mason Medical Center 1100 9th Avenue Seattle, WA 98101 206-223-6600

15.0 SPILL CONTROL PLAN

Please refer to APPENDIX C.

16.0 GENERAL HEALTH AND SAFETY PLAN (HASP)

Please refer to APPENDIX D.

17.0 CONTAINMENT DIAGRAM

Please refer to APPENDIX E.

18.0 SAFETY DATA SHEETS (SDS)

Please refer to APPENDIX F.

19.0 REFERENCES

NVL Rainier Commons Work Plan – July 25, 2013

APPENDIX A

Performance Abatement Services
7415 W. Bostian Rd.
Woodinville, WA 98072
P: 425.806.8404 F: 425.806.7404
pciseattlebids@pcg.com

CERTIFICATIONS

The following employees have attended the initial 40 Hour HAZWOPER training and/or refresher course within the last year and are currently certified:

Employee	**Expiration Date**
Jaime Gonzalez	3/14/2020
Ahmad Hassan	3/14/2020
Hector Perez	3/14/2020
Eduardo Serna	3/14/2020
John Adams	3/14/2020
Armando Hernandez	3/14/2020
Rigoberto Valdovinos	3/14/2020
Oscar Morales	3/14/2020
Javier Casio	3/14/2020
James Ortega	3/14/2020
Zenaido Rios	3/14/2020
James Duke	3/14/2020

APPENDIX B

SITE-SPECIFIC SAFETY PLAN

FOR

RAINIER COMMONS EXTERIOR PAINT REMOVAL

3100 AIRPORT WAY
SEATTLE, WA 98134

PREPARED BY:

PERFORMANCE ABATEMENT SERVICES
7415 W. BOSTIAN RD
WOODINVILLE, WA 98072

APRIL 2019

RESPIRATORY PROTECTION

The overall, general safety program that shall be adhered to on this project is the PAS Accident Prevention Plan (Appendix D) and all applicable provision contained therein, which also includes our Respiratory Protection Program (Section 7.E.6).

HEARING

The overall, general safety program that shall be adhered to on this project is the PAS Accident Prevention Plan (Appendix D) and all applicable provision contained therein, which also includes our Personal Protection and Life Saving Equipment procedures (Section 7.E).

FALL PROTECTION

The overall, general safety program that shall be adhered to on this project is the PAS Accident Prevention Plan (Appendix D) and all applicable provision contained therein, which also includes our Fall Protection Program (Section 7.M.1-14).

The PAS supervisor/competent person shall develop a site-specific fall protection plan on-site prior to commencing any work where fall hazards exist. Work from ladders and scaffolds shall be performed in accordance with procedures found in the PAS Accident Prevention Plan.

EYE PROTECTION

The overall, general safety program that shall be adhered to on this project is the PAS Accident Prevention Plan (Appendix D) and all applicable provision contained therein, which also includes our Eye and Face Protection procedures (Section 7.E.5).

MEDICAL FACILITIES

In case of Emergency, all PAS personnel are directed to dial 911 immediately. The nearest hospital will be the Virginia Mason Medical Center:

Virginia Mason Medical Center
1100 9th Avenue
Seattle, WA 98101
206-223-6600

APPENDIX C

SPILL CONTROL PLAN

FOR

RAINIER COMMONS EXTERIOR PAINT REMOVAL

3100 AIRPORT WAY
SEATTLE, WA 98134

PREPARED BY:

PERFORMANCE ABATEMENT SERVICES
7415 W. BOSTIAN RD
WOODINVILLE, WA 98072

APRIL 2019

POSSIBLE SOURCES

The main source of possible hazardous materials release will be PCB paint debris from the exterior of the buildings where work will take place. Other hazardous materials are not anticipated to be encountered throughout the project.

PRE-EXISTING CONTAMINANTS

PCB paint chips/debris may be found on the project site outside of the work area from previous phases of work or natural occurrence. If PAS employees come across any pre-existing PCB paint debris outside the work area, a HEPA vacuum will be used the debris will be properly packaged to await characterization and proper disposal.

PREVENTION METHODS

All PAS employees will undergo a jobsite orientation prior to commencement of any work on the project. The orientation will cover safety procedures including proper use of equipment, potential hazards, location of safety equipment, etc. PAS employees will be oriented on the containment procedures as well as what is expected if any hazardous materials are released from the work area.

PAS will make sure all valves on tanks, if any, are locked at all times. Furthermore, any large storage areas will be fenced off with restricted access.

Liquid containers will be stored on impervious surfaces and within containment with straw waddles or berms used for further mitigation of potential spillage. The containment will be covered with a tarp or poly sheeting. Efforts will be made to remove any hazardous materials from the site as quickly and safely as possible which should greatly reduce the risk of any release to the environment.

All storage containers on site will be clearly labelled with content name and associated hazards. SDS sheets corresponding to the stored material will be kept within the PAS construction office.

CONTAINMENT PROCEDURES

All PAS employees will be trained in 40-hour HAZWOPER, OSHA, and emergency response procedures. In the event of a spill (i.e. release of any PCB containing exterior paint debris outside of the work area) the project crew will follow the priorities listed below in responding to the incident:

1. Safety
2. Mitigation
3. Restoration
4. Property damage

In the unlikely event of a spill, importance will be placed on containing any released materials to prevent any potential further release into the soil or groundwater. *Any spill will be addressed as required by the Spill Cleanup Policy described in 40 CFR 761.120 - 135, pursuant to Condition 10 of the approved RBDA. Any required decontamination of affected areas will be treated in accordance with 40 CFR 761.79.*

The following mitigation measures will be employed to contain any spilled contaminants:

- Plastic tarps, straw-waddles, eco pans and other secondary containment measures will be used at the perimeter of the work area where liquid could potentially leak from containment. Absorbent materials (booms, pads, etc.) will be readily available when the potential for a spill is present. Storm drains will be covered with spill mats to prevent contaminants from entering the storm water drainage system.

EMERGENCY CONTACT LIST

Emergency Contact Information:

Abatement Contractor:	*Performance Abatement Services, Inc.* 7415 W. Bostian Rd. Woodinville, WA 98072 425-806-8404
Project Manager:	*Kirk Baker* Kirk.baker@pcg.com 206-623-8750 (Office) 206-793-3357 (Cell)
Branch Safety Engineer:	*Dalton Bruil* Dalton.bruil@pcg.com 206-623-8750 (Office) 206-817-2830 (Cell)
PAS Superintendent:	*Erik Fulwiler* Erik.culwiler@pcg.com 425-806-8404 (Office) 425-420-3669 (Cell)
Police Department:	***Dial 911***
Fire Department:	***Dial 911***
Hospital:	Virginia Mason Medical Center 1100 9th Avenue Seattle, WA 98101 206-223-6600
National Response Center	**800-424-8802**
WA Emergency Division – Ecology	**800-258-5990**

SPILL REPORTING

Please refer to Attachment 1 at the end of this document.

ATTACHMENT 1

ATTACHMENT 1

Spill or Incident Report Form

Site: _____ Primary Contractor: _____

Date: _____ Incident Date _____

Complete for any type of petroleum product or hazardous materials / waste spill or incident

Person Reporting Spill or Incident	
Name	Address
Organization	
Title	
Telephone	
. Fax	Signature

Type of Spill:			
Common Name of Spilled Substance			
Estimated Quantity Spilled			
Estimated Concentration			
Date of Spill			
Time Spill Started :	AM / PM	Time Spill Ended	AM / PM

SPILL TO LAND	SPILL TO WATER BODY
Name of site:	Name of water body:
Street address:	Location of discharge
City	Description of area from which spilled material may reach:
County:	

Spill or Incident Report Form

If no spill describe incident:

Actions Taken:

To contain spill or impact of incident:

To clean up spill or recover from incident:

To remove cleanup material:

To Prevent reoccurrence:

Person responsible for managing spill response:	
Name	Signature
Phone	Fax

Spill Notification List

Agency	Phone
Check to insure that 911 service is available in work area	911
Local Emergency Contacts	
• Fire Department:	
• Emergency Medical:	
• Community Evacuation:	
• Police Department	
• Local Public Works Department: Contact for storm drain and other utilities	
• Hospital: Local Emergency Treatment	
Spills to water • National Response Center • Washington Emergency Management Division	 800 424-8802 800 258-5990
Ecology **Southwest Region** **Northwest Region** **Central Region** **Eastern Region**	 **360-407-6300** **425-649-7000** **509-575-2490** **509-329-3400**
Emergency Spill Response Contractor	

Spill Reporting Information

Where is the spill?	
What spilled?	
How much spilled?	
How concentrated is the spilled material?	
Who spilled the material?	
Is anyone cleaning up the spill?	
Are there resource damages (e.g. dead fish or oiled birds)?	
Who is reporting the spill?	
Your contact information	

APPENDIX D

PAS
PERFORMANCE ABATEMENT SERVICES

SAFETY - PAS #1 Core Value

ACCIDENT PREVENTION PLAN

WORLD-CLASS CONSTRUCTION®

CORPORATE POLICY

SECTION ONE – GENERAL

SECTION TWO – HAZARD IDENTIFICATION/EVALUATION/CONTROL

SECTION THREE – ACCIDENT REPORTING, POSTINGS, AND RECORD KEEPING

SECTION FOUR – ACCIDENT INVESTIGATION

SECTION ELEVEN – OFF-THE-JOB SAFETY

SECTION TWELVE - MISCELLANEOUS

The Performance Abatement Services, Inc. Accident Prevention Plan was reviewed in June 2014, and necessary revisions as indicated in the List of Changes page were made.

corporate policy

policy no.	PCG-101
date	**October 18, 2012**
supersedes	August 1, 2010

Subject: **SAFETY**

BACKGROUND

The accident prevention programs of Performance Contracting Group, Inc. have been developed to eliminate or mitigate the potential of events that could produce injuries, or interrupt production, or damage equipment or materials, destroy assets, or escalate the cost of doing business.

Performance Contracting Group, Inc. has a high level of concern for the prevention of all accidents related to its operations. Establishment of a safe environment will contribute to the protection of, and the health and well being of, employees and others, and to the conservation of Corporate assets from losses caused by accidents.

The intent of this policy is to ensure that Performance Contracting Group, Inc. is in compliance with all Federal, State, and Local regulations.

POLICY

It is the policy of Performance Contracting Group, Inc. that the prevention of occupational injuries and illnesses will be given priority equal with productivity, quality, and related corporate efforts.

Consistent with accepted safety standards, Performance Contracting Group, Inc. will provide employees a safe place to work.

The maintenance of a safe working environment is the responsibility of every employee. Performance of management positions relative to safety shall be included in their "Standards of Performance" and weighted with other standards in evaluating their personal achievement.

RESPONSIBILITY

A. Executive Officers – Shall be responsible for assuring the full implementation of this policy and all corporate accident prevention programs.

B. Operations Vice Presidents – Shall be responsible for assuring that General Managers and Operations Managers have well organized accident prevention plans.

C. Division/Regional/General/Operations/Construction/Project Managers – Shall assume the direct responsibility for the implementation of the "Accident Prevention Plan".

D. Field Superintendents, General Foreman & Foreman – Shall enforce safety rules/regulations and procedures, conduct safety meetings, promptly investigate accidents, submit written reports as established in the Accident Prevention Plan Manual and perform safety inspection responsibilities.

E. Employees – Shall share in the responsibility for contributing to the establishment of an accident free environment by following established safety rules and operating procedures, reporting unsafe conditions and accidents, and conducting themselves in a way that enhances their personal safety and the safety of others.

Department Contact: **M. M. Matthews**

LIST OF CHANGES TO THE
PERFORMANCE ABATEMENT SERVICES, INC.
ACCIDENT PREVENTION PLAN

No.	*Date of Change*	*Description*
	9/03	Original revision
1	4/04	Section 4, Appendix 4-B, Employee Statement
2	5/04	Section 4, B. 1. a), Step-by-Step Use of Accident/Injury/Illness Investigation Form
		Section 4, Appendix 4-A, Accident/Injury/Illness Investigation Form
		Section 4, Appendix 4-B Employee Statement
3	11/08	Section 7, L, Appendix A, Equipment Loan and Indemnification Agreement Form
4	6/09	Section 4, Appendix 4-B Employee Statement updated
5	10/10	Section 1, F - Discipline, 3.a
		Section 1, Safety Violation Notice (Appendix 1-E)
		Section 2, D – Inspections, 2.a
		Section 2, Safety Inspection Checklist (Appendix 2-A)
		Section 4, 8 Post Accident Investigation Reviews
		Section 4, Accident /Injury/Illness/Investigation Form (Appendix 4-A-2)
		Section 7, A - General Safety Rules (Appendix 7A-A)
		Section 7, E.2 Hand and Foot Protection
		Section 7, E.3 Head Protection
		Section 7, L - Scaffolds
		Section 7, M – Fall Protection,2.b and 2.c
		Section 9 – Training and Motivation
6	10/12	Section 1, A, 4, b), (9)-(10) Requirements for all jobs
		Section 1, B, 1 & 4 Additional Requirements for Job Sites
		Section 1, Appendix 1-A Certification of Orientation
		Section 1, Appendix 1-D Job Site Orientation Checklist
		Section 2, D, 6 Branch Quick SHOT QAR
		Section 3, A, 1, c Accident Reporting
		Section 4, A,8, a) - c) Accident Investigation – Incident Reviews/Root Cause Analysis
		Section 4, Appendix 4D – Root Cause Analysis Incident Review Form
		Section 7, D, 1 Heat Stress Prevention
		Section 7, D – Appendix 7D-A Heat Stress Symptom Report
		Section 7, E, 2, a) & c) Hand and Foot Protection
		Section 7, L – Scaffolds
		Section 7, L – Appendix 7L-A Scaffolding Inspection Tags
		Section 7, L – Appendix 7L-B Safe Practices for Falling Object Protection form
		Section 7, L – Appendix 7L-C Scaffold Knowledge Test

LIST OF CHANGES TO THE
PERFORMANCE ABATEMENT SERVICES, INC.
ACCIDENT PREVENTION PLAN

		Section 7, M, 12 Fall Protection Plan
		Section 10, C Operation of Aerial Work Platforms
		Section 10 Appendix 10-A Truck Inspection Checklist
6	10/12	Section 10 Appendix 10-B Powered Industrial Truck Inspection Checklist(Gas/Propane)
		Section 10 Appendix 10-C Powered Industrial Truck Inspection Checklist(Electric/Battery)
		Section 10 Appendix 10-D Daily AWP Pre-Operation Checklist
		Section 10 Appendix 10-E Aerial Work Platform Operator Evaluation Form
		Section 10 Appendix 10-F Aerial Work Platform Spotter Evaluation Form
		Section 10 Appendix 10-G Passenger/Van Inspection Checklist
		Section 10 Appendix 10-H Powered Cart/Golf Cart Inspection Checklist
		Any references to Branch Manager changed to General Manager
7	5/13	Section 7, C, 1 Warehouse Safety
	5/13	Section 7, E, 1 Back Supports
	5/13	Section 1, F Discipline
	5/13	Section 1, Appendix 1-E Safety Violation Notice(Employee)
	5/13	Section 1, Appendix 1-E-1 Safety Violation Notice(Supervision)
8	10/13	Section 7, C, 1, I Warehouse Safety
	10/13	Section 7, L, 7L Scaffold Erector Classifications
	10/13	Section 7,L Appendix 7L-B Scaffold Erector Verification
	10/13	Section 7, L Appendix 7L-D Scaffold Knowledge Test
	10/13	Section 7, I, 4, e), (4) Powder Actuated Tools
	10/13	Section 7, J, 4 Required PPE/Procedures for Welding Operations
9	10/14	Section 1, 4, a) New Hire Orientation
	10/14	Section 1, 4, b) Job Site Orientation
	10/14	Section 1 Appendix 1-B Orientation Exam
	10/14	Section 1 Appendix 1-C Orientation Exam Key
	10/14	Section 1 Appendix 1-D Job Site Orientation Checklist
	10/14	Section 2 Hazard Identification/Evaluation/Control
	10/14	Section 2, D, 6 Branch Quick SHOT QAR
	10/14	Section 2 Appendix 2-C Quick SHOT “Management Review”
	10/14	Section 4, A, 1, b) Accident Investigation
	10/14	Section 4, Appendix 4-A Accident Investigation Report
	10/14	Section 4, Appendix 4-E Near Miss Report
	10/14	Section 7, D, 5 Hazard Communication Program/ Global Harmonization System

LIST OF CHANGES TO THE
PERFORMANCE ABATEMENT SERVICES, INC.
ACCIDENT PREVENTION PLAN

	10/14	Section 7, D Appendix 7D-F
	10/14	Section 7, D Appendix 7D-G
	10/14	Section 7, E, 6, h),(4),(c) Respiratory Protection
	10/14	Section 7, F Fire Protection/Fire Extinguishers
	10/14	Section 7, H Rigging Equipment for Materials Handling
	10/14	Section 7, J, 5 Compressed Gas Cylinders
	10/14	Section 7, N Qualified Signaler
	10/14	Section 7, P Excavation and Trenching
	10/14	Section 7, X, 2 Ladders
	10/14	Section 7, X Appendix 7X-A-1 Ladder Quiz
	10/14	Section 7, X Appendix 7X-A-2 Ladder Quiz Presenters copy
	10/14	Section L, 14 Rolling Towers/Mobile Scaffolds
	10/14	Section 9, G Competent Person Designation
	10/14	Section 9, Appendix 9C Com
	10/14	Section 9, H Behavior Based Observation
	10/14	Section 9, I Access to Employee Medical and Exposure Records Policy
	10/14	Section 9, Appendix 9-D Behavior Based Observation – Proactive/Reactive Data Sheet
	10/14	Section 9, Appendix 9E-1 Authorization Letter for the Release of Employee Medical Records
	10/14	Section 9, Appendix 9E-2 Access to Medical/Exposure Records Notice

SECTION ONE
GENERAL

Requirements for all operations as a minimum standard to comply with OSHA Safety and Health Regulations for construction:

A. Requirements for All Performance Abatement Services, Inc. Jobs

1. Plan and execute work in compliance with the PAS branch accident prevention plans.

2. Designated individuals shall have written safety responsibilities in their performance standards.

3. Each job site shall designate a person responsible for implementing job site safety.

4. Establish an orientation program for all personnel. There are two kinds of orientation, new hire orientation and job site orientation. Though different in scope, both are of equal importance; to set the tone for the new hires and to inform personnel at job sites about particular items they need to have knowledge to be able to perform their jobs safely.

   a) New Hire Orientation. New hire orientation shall be conducted for all new hires and any rehire who has been gone from our employment for six (6) months or more. Documentation must be maintained for all orientation sessions utilizing the Certification of Orientation form (Appendix 1-A). This assures PAS that an employee has been made aware of our safety regulations and policies governing each person's work ethics. Each line item must be completed, and the form should be placed in the employee's file. The orientation program shall include, but is not limited to, the following items:

      (1) Appendix D of 1910.134. A copy of Appendix D of 29 CFR 1910.134 (Appendix 7E-B) must be reviewed and distributed to each employee.

      (2) Orientation *Safety Video*. Every employee must view the company's in-house orientation *Safety Video*.

(3) *Safety Handbook*
   (a) Every employee is to be given a copy of the company *Safety Handbook*. In addition, review the Stop Work Authority Policy during the New Hire orientation.
   (b) The employee must complete the acknowledgement page, remove it from the handbook, and give it to site management. The acknowledgement page must be signed by the person conducting the orientation and then filed in the employee's personnel file.
   (c) Instruct the employee to take the *Safety Handbook* with them to the job site.

(4) Orientation Exam
   (a) In order to establish an employee's level of comprehension regarding PAS safety regulations, PAS has implemented an Orientation Exam (Appendix 1-B). The Orientation Exam will test each new hire on their understanding of the PAS safety regulations.
   (b) The examination consists of 10 true/false and multiple-choice questions. At least seven of the 10 questions must be answered correctly to pass the test.
   (c) If an employee does not achieve a passing score, they will be required to review the orientation material and retake the examination.
   (d) Correct answers are provided in the Orientation Exam Key (Appendix 1-C).

(6) Personal Protective Equipment
   (a) Each employee is to be issued the required personal protective equipment. As a minimum, each employee will receive:
      - Hardhat
      - Safety glasses
      - Back support

(5) Hazard Communication/MSDS
   (a) The Hazard Communication program elements are reviewed.
      - SDS 16 section Format
      - SDS Labeling
      - SDS pictogram

NOTE: Material Safety Data Sheets must be reviewed on a monthly basis in our Tool Box Safety Meetings, and the product reviewed must be noted on the documentation. (See Section Nine – Training and Motivation.)

(6) Letter to All Employees. A copy of the letter to all employees regarding the "Voluntary Health & Safety Partnership Program for Fiberglass, Rock, and Slag Wool Fiber Products" must be reviewed and distributed to each employee.

(7) "Recommended Work Practices." A copy of the "Recommended Work Practices" regarding the installation and/or removal of synthetic vitreous fibers (SVF) products must be reviewed and distributed to each employee.

(8) Substance Abuse Prevention Program. A copy of the corporation's Substance Abuse Prevention Program must be reviewed and distributed to each employee.

b) Job Site Orientation. Establish a job site orientation for all personnel. Job site orientation shall be conducted at the start of every job for all employees and for all newly assigned personnel when they arrive at the job site. Documentation must be maintained for all orientation sessions utilizing the Job Site Orientation Checklist (Appendix 1-D). This assures PAS that an employee has been made aware of the specific job site procedures unique to that job. Each line item must be covered and the form should be placed in the job site documentation files. The job site orientation shall include, but is not limited to, the following items:

(1) *Safety Handbook*. The *Safety Handbook* must be verbally reviewed.

(2) Job Site Safety Rules and Site Specific Rules
(a) If job site safety rules differ from the company's general safety rules, these rules must be given to each employee. A copy of the rules should also be posted on the job site.
(b) If there are other site specific rules, these rules must also be given to each employee. A copy of the rules should also be posted on the job site.

(c) Review tool box meeting procedures, start and end of work shift times, break times, and meal times.
(d) Provide telephone numbers for contact and to call in.

(3) Safety Data Sheets. Show the location of the SDS's.

(4) Postings. Review all job site postings, such as OSHA (federal or state), etc.

(5) Specific job site emergency procedures must be reviewed, and a copy of the Job Site Emergency Procedures form (Appendix 8-A) must be completed and posted.
(a) Fire
i) Fire Department telephone number
ii) Fire extinguisher locations
iii) Job site emergency notification procedure and evacuation routes
iv) Head count location (after an evacuation)
(b) Serious Injury
i) Telephone number, address, and directions for emergency medical service, both hospital and clinic
ii) Names of first-aid trained personnel
iii) Specific procedures if on-site medical personnel are available
(c) Natural disaster - specific to regions of the country
i) Tornadoes
ii) Earthquakes
iii) Other

(6) Injury reporting. Employees must report any work-related injury or illness to their supervisor immediately.

(7) Disciplinary Procedures. Review the job site disciplinary procedures.

(8) Personal Protective Equipment
(a) Each employee is to be issued the required personal protective equipment. As a minimum, each employee will receive:
i) Hardhat
ii) Safety glasses
iii) Back support

(b) They are to be trained in the following:
  i) How to properly adjust and don the equipment
  ii) How to inspect it to determine if it is defective and if it should be removed from service

(c) Equipment that will be provided as required by job conditions:
  i) Safety harness and lanyard
  ii) Respirator
  iii) Gloves
  iv) Hearing protection
  v) Coveralls
  vi) Rubber boots
  vii) Other equipment specifically identified on an MSDS/SDS

(9) Fall Protection Policy. On all jobs review the Site Fall Protection Plan, to include:
(a) Harness and lanyard locations and storage requirements
(b) Inspect harness and lanyards before each use.

(10) Certifications and Training. There are many specialized areas that require documented training before an employee can safely perform certain tasks. Review with the employee what qualifications they possess and train, or have them trained, if additional qualifications are required. The areas for certification shall include, but are not limited to, the following:
(a) Scaffold User (See Section Seven L – Scaffolds.)
(b) Scissor Lift (See Section Ten – Vehicular Safety.)
(c) Aerial Boom Lift (See Section Ten – Vehicular Safety.)
(d) Powered Industrial Truck (forklift). The operator must be trained, evaluated, and issued a license. (See Section Ten – Vehicular Safety.)
(e) Powder Actuated Tool. The operator card must be issued by an authorized instructor. (See Section Seven I – Tools – Hand and Power.)
(f) Laser. The operator card must be issued by an authorized instructor. (See Section Seven D – Occupational Health and Environmental Controls.)

(11) Job Site Tour. The final part of orientation shall include a familiarization tour of the job site, to include, but not limited to the following areas:
(a) Special hazards and/or conditions

(b) Prohibited areas
(c) Assembly point
(d) Entrances, exits, and evacuation routes
(e) Stairs and elevators
(f) Fire extinguishers
(g) First-aid kits
(h) Sanitation – water, toilets, and eating and drinking areas
(i) Smoking areas
(j) Other items

5. Substance Abuse Testing

   a) If the branch and/or job site has implemented a substance abuse testing program, the program must be reviewed with the employees at orientation.

   b) The testing should be implemented per the program direction.

6. Disciplinary Procedures. See Discipline in this section for complete detailed procedures.

7. Accident Investigations

   a) Employees must report any work-related injury or illness to their supervisor immediately.

   b) Prepare a written PAS Accident/Injury/Illness Investigation Form (Appendix 4-A) for any accident that causes property damage or any injury or illness regardless of whether or not off-site medical treatment is required or necessary.

   c) This information is to be forwarded immediately to the corporate claims manager.

   d) For all injuries occurring on jobs covered by Owner Controlled Insurance Programs (OCIP), Contractor Controlled Insurance Programs (CCIP), or Project Controlled Insurance Programs (PCIP), contact the corporate claims manager for direction.

   NOTE: Specific customers may require a written accident investigation report to be prepared for all first-aid cases as well as near misses.

8. Perform ongoing inspections of worksites and warehouses as required and warn workers immediately of hazards. Take action to eliminate the hazard. Documentation must be maintained. (See Section Two – Hazard Identification/Evaluation/Control.)

9. Conduct safety meetings weekly on all jobs. Stress two-way communication between supervisors and workers to maintain a high level of safety awareness. Documentation must be maintained. (See Section Nine – Training and Motivation.)

10. Complete a Site Fall Protection Plan on all jobs. Employees need to be able to recognize fall hazards and need to be trained in how to minimize these hazards. (See Section Seven M – Fall Protection and Appendix 7M-A)

11. Each job must have a safety documentation box or equivalent.

12. A copy of the OSHA Job Safety and Health Poster shall be displayed at each job site. (Copy in the foreman's safety box.)

13. Copies of other required federal, state, or local posters must be displayed.

B. Additional Requirements for Job Sites

1. All of the preceding information is required.

2. Safety meetings shall be conducted on a weekly basis at a designated day and time. A preferred time is prior to starting work each Monday. Documentation of the meetings must be maintained. (See sample forms in Section Nine, Appendices 9-A and 9-B.)

3. Requirement that safety inspections be completed at the start of a job and at least weekly thereafter for as long as a work crew is being maintained at the job. (See sample form in Section Two, Appendix 2-A.)

4. A written fall protection plan is required on all jobs. The Site Fall Protection Plan checklist (Appendix 7M-A) is to be used to satisfy this requirement.

C. Requirements for PAS Contracting Offices

1. Designate a person responsible for office safety.

2. Prepare a list of safety rules for the general office area and other areas under or accessible to contract personnel. This information should be posted and communicated to all employees and visitors, as appropriate.

3. Indoctrinate all personnel with emergency procedures for severe injury, fire, and natural disaster. The indoctrination should also include proper use of fire extinguishers and other firefighting equipment. Develop and post a copy of the building footprint to designate exit routes. Complete and post a copy of the Job Site Emergency Procedures form (Appendix 8-A).

4. Office contract secretaries/administrators shall be responsible for health and safety issues. They shall conduct surveys and training as may be necessary.

5. Emergency telephone numbers should be posted at each telephone location.

6. Provide an approved first-aid kit for office use.

7. A copy of the OSHA Job Safety and Health Poster shall be displayed, and the OSHA Form 300A shall be posted in accordance with federal regulations.

   NOTE: The 300A Summary Page must be posted from February 1 to April 30 of the year following the year covered by the form.

8. A copy of all other required federal, state, and local posters shall be displayed.

D. Requirements for Fabrication Shops (Permanent and Non-Permanent)

1. Include all the aforementioned, where appropriate.

2. Implement safety regulations to include plans for the safe use and maintenance of each piece of equipment utilized in the Fab Shop operation and the proper handling and storage of all materials.

E. Requirements When Acting As the General or Prime Contractor

1. Cost item must be included in bid that realistically reflects the PAS safety policy, project conditions, owner and regulatory agency requirements, and insurance and bonding costs.

2. Designate in writing specific project personnel who will be responsible for total job safety.

3. Conduct Pre-Job Safety Meeting. A pre-job safety meeting should be held with company/owner representatives to review requirements of the job and to gain a full understanding of all job safety requirements.

4. Establish a job accident prevention plan to include the following, as appropriate:

   a) Proper type, use, maintenance, and storage of personal protective equipment

   b) Equipment maintenance procedures and proper documentation of same

   c) Job layout, material storage, proper placement of job office, shops, trailers, etc.

   d) First-aid and medical service to be in accordance with OSHA Standard 29 CFR 1926.50(c) and must include plan for evacuation of seriously injured

   e) Establish a written emergency plan for fire, natural disaster, and serious injury - All employees shall be informed of emergency procedures.

   f) Sanitation - fresh water, sewage, and trash disposal

   g) Engineering review for safety factors in job built facilities, as appropriate

h) Job site traffic controls

i) Public protection, such as signs, barricades, flagmen, temporary lighting, temporary walkways, overhead protection, and security

j) Evaluation of property exposures - Locate and investigate all underground and overhead utility exposure. Arrange for proper protection.

k) For jobs that have exposure to adjacent property from blasting, underpinning, pile driving, demolition work, etc., a joint meeting between key personnel and the safety engineer from our insurance agency should be held to decide if a survey of adjoining properties should be made prior to the start of work. If required, these conditions and arrangements should be made for seismograph service so that the proper controls can be established.

l) Protection of property, equipment, and materials from fire, vandalism, and severe weather conditions

5. All subcontractors are required to adhere to the “General Conditions of the Subcontract,” Paragraph 19, Laws and Regulations – Safety.

   “Subcontractor and its employees and representatives shall at all times comply with all applicable laws, ordinances, statues, rules and regulations, including without limitation, those relating to equal employment opportunity and safety. Subcontractors shall procure and pay for all permits and inspections (other than the inspections performed by Contractor) required for Work. The subcontractor shall take all proper safety precautions for the safety of all employees, invitees and the public on the premises of the Work and shall comply with all laws and regulations; including building codes to prevent occurrences to the premises of the Work."

F. Discipline

While discipline should never be thought of as a substitute for an effective safety program, it is a vital support beam in the structure of any safety program. The purpose of this discipline is to improve or correct the employee's behavior to assure more safety-oriented conduct.

1. Purpose. While the majority of disciplinary actions are intended to be positive we recognize that safety on the jobsite is essential. An unsafe employee places not only themselves at risk, but also places the safety of all who are working with or in the same area at risk. Positive or corrective actions include direct supervision, verbal and written reprimands, or suspensions. The preceding are considered to be positive because they are intended to remind the employee of the importance of following safety policy and to return him/her to the workplace as a more productive, cooperative, and safety employee. Of course if the employee refuses to adapt to our safety policy the ultimate disciplinary action is discharge.

2. Authority. Keep in mind the principle involved in any of our operations. Is that all legitimate orders issued by supervision must be carried out. Examples of categories of violations are:

   a) Refusal to wear personal protective equipment

   b) Refusal to follow a specific safety procedure

   c) Refusal to obey safety rules

3. Procedure - Discipline must be administered equitably and consistently. A logical progression of discipline would begin with a supervisor's warning and increase in severity until finally discharge. A system of progressive discipline is important to ensure fairness and provide a clear record of progressive discipline for multiple and/or egregious safety violations.

   a) A Four Step Process for all employees (except supervision) within one year time period
      (1) Verbal warning and coaching (documented on Safety Violation Notice)
      (2) Written warning and the rest of the day off without pay and the following day without pay. Employee shall receive retraining and

testing on the Safety Violation he/she was written up for upon return. (documented on Safety Violation Notice)
(3) Three day suspension without pay. Employee shall receive retraining and testing on the Safety Violation he/she was written up for upon return. (documented on Safety Violation Notice)
(4) Termination (documented on Safety Violation Notice)

b) If supervision violates a safety rule, warnings are issued by General Manager, Branch superintendent, or Corporate Safety Department staff.

c) Supervision who violate safety rules will have a Three Step Process within one year time period
(1) Written warning with the rest of the day and the following day off without pay (documented on Safety Violation Notice)
(2) Three day suspension without pay and demotion (documented on Safety Violation Notice)
(3) Termination (documented on Safety Violation Notice)

d) Warnings issued to an employee by General Manager, Branch Superintendent, or Corporate Safety Department staff will result in their supervisor receiving a written verbal warning (no time off). If a supervisor receives three verbal warnings as a result of their employees' violations, the supervisor will be demoted.

e) Willful violation of any safety rule, where the violation could result in serious injury to the employee committing the violation or any other employee, will result in immediate termination of employee. If the supervisor of the employee committing the willful violation of the rule was aware of the employee's actions they will also be terminated.

f) Safety Violation Notice form (Appendix 1- E) shall be used to document disciplinary action for employees.

g) Safety Violation Notice form (Appendix 1-E-1) shall be used to document disciplinary action for supervision.

4. Investigation. In the investigation of a safety violation, it is extremely important to determine whether the violations were the result of negligence, willful disregard of safety rules, or the result of a misunderstanding or lack of knowledge on the employee's part. It is also

important to review the employee's safety training as to what training he/she received since being hired by the PAS and to confirm that they have received training on the topic about which they are being disciplined. If the investigation reveals that the employee has never been made aware of the safety rule he/she is accused of violating he/she shall receive training and testing on that rule in lieu of the Safety Violation Notice.

5. Follow Up. Branch management should review disciplinary data at least quarterly to detect trends and determine if current training methods are adequate.

6. Summary. Discipline is no substitute for a good, solid safety program. However, when appropriate, it can be effective and necessary tool to demonstrate to employees that we take safety seriously and that we will not treat violations of our safety rules and program lightly.

CERTIFICATION OF ORIENTATION

Having completed PAS's new employee orientation program, I certify that I,

_____
Print Name

Initials

____ Received Appendix D of 29 CFR 1910.134.

____ Watched the orientation *Safety Video*.

____ Had a verbal review of the *Safety Handbook.*

____ Had a review of the Stop Work Authority Policy.

____ Received the *Safety Handbook* and will take it to the job site.

____ Completed and signed the *Safety Handbook* Acknowledgement form
(Place in employee safety file)

____ Completed and passed the Orientation Exam (place in employee safety file)
(Review any questions that were incorrect before signing this document)

____ Have been briefed and provided with Personal Protective Equipment:

- ____ Hard Hat
- ____ Back Support
- ____ Appropriate eye protection. (If employee wears prescription eye glasses that are not "safety" (Z87 approved) glasses, provide goggles or safety glasses that fit over prescription glasses. If glasses are "safety" glasses, provide side shields.

____ Received MSDS/SDS briefing on the specific products that might be used at job site
A more complete training will be done during my Job Site Orientation.

____ GHS review on the following:

- SDS 16 section Format
- SDS Labeling
- SDS pictogram

____ Understand that I must report any work-related injury to my supervisor **immediately.**

____ Have been briefed on Disciplinary Procedures.

____ Received a copy of the branch Safety Incentive program.

____ Received a copy of the letter to all employees regarding the "Voluntary Health & Safety Partnership Program for Fiberglass, Rock and Slag Wool Fiber Products."

____ Received and have been briefed on the "Recommended Work Practices" regarding the installation and/or removal of SVF products.

____ Received a copy of the corporation's Substance Abuse Prevention Program as well as a copy of drug testing policy language from my local union's collective bargaining agreement (if applicable).

I acknowledge that my employer, PAS, has the right to enforce the company work rules for my protection and the protection of my fellow workers, and I accept the fact that adherence to the company's work rules is a condition of my employment.

_____ _____
Signature Date

_____ _____
Instructor's Name & Signature Date

NAME: _____

DATE: _____

SCORE: _____

ORIENTATION EXAM

Prior to assignment, each new hire must demonstrate awareness and understanding of the work rules and safety regulations governing employment at PAS.

EXAMINATION

All questions are based on information discussed in the new hire orientation presentation.

1. Hardhats must be worn on all PAS jobs.
   ☐ True ☐ False

2. PAS requires that all on-the-job injuries must be reported:
   ☐ A. Before receiving your next paycheck.
   ☐ B. To your doctor or spouse.
   ☐ C. To your supervisor immediately.
   ☐ D. As soon as you get home.
   ☐ E. None of the above.

3. Emergency procedures posted at each PAS job site will contain:
   ☐ A. Emergency phone numbers.
   ☐ B. Evacuation route in case of emergency.
   ☐ C. Assembly point outside the building in the event of emergency.
   ☐ D. Instructions in case of a very serious accident.
   ☐ E. Instructions in case of a fire.
   ☐ F. All of the above.

4. Safety is my responsibility?
   ☐ True ☐ False

5. You must always be aware of the safest route out of the building.
   ☐ True ☐ False

6. Red tag on equipment means that the equipment has been inspected and found to be safe to use.
   ☐ True ☐ False

7. Product Material Safety Data Sheets will be provided to me upon request.
   ☐ True ☐ False

8. Good housekeeping is not mandatory on every job.
   ☐ True ☐ False

9. Proper lifting techniques are:
   ☐ A. Establish good footing before attempting to lift.
   ☐ B. Keep your back straight.
   ☐ C. Bend your knees.
   ☐ D. Lift with your legs.
   ☐ E. All of the above.

10. Sexual harassment on the job site will not be tolerated.
    ☐ True ☐ False

NAME: _____

DATE: _____

SCORE: _____

ORIENTATION EXAM KEY

Prior to assignment, each new hire must demonstrate awareness and understanding of the work rules and safety regulations governing employment at PAS.

EXAMINATION KEY

All questions are based on information discussed in the new-hire orientation presentation.

1. Hardhats must be worn on all PAS jobs.
   - ☒ True ☐ False

2. PAS requires that all on-the-job injuries must be reported:
   - ☐ A. Before receiving your next paycheck.
   - ☐ B. To your doctor or spouse.
   - ☒ C. To your supervisor immediately.
   - ☐ D. As soon as you get home.
   - ☐ E. None of the above.

3. Emergency procedures posted at each PAS job site will contain:
   - ☐ A. Emergency phone numbers.
   - ☐ B. Evacuation route in case of emergency.
   - ☐ C. Assembly point outside the building in the event of emergency.
   - ☐ D. Instructions in case of a very serious accident.
   - ☐ E. Instructions in case of a fire.
   - ☒ F. All of the above.

5. Safety is my responsibility?
   - ☒ True ☐ False

5. You must always be aware of the safest route out of the building.
   - ☒ True ☐ False

6. Red tag on equipment means that the equipment has been inspected and found to be safe to use.
   - ☐ True ☒ False

7. Product Material Safety Data Sheets will be provided to me upon request.
   - ☒ True ☐ False

8. Good housekeeping is not mandatory on every job.
   - ☐ True ☒ False

9. Proper lifting techniques are:
   - ☐ A. Establish good footing before attempting to lift.
   - ☐ B. Keep your back straight.
   - ☐ C. Bend your knees.
   - ☐ D. Lift with your legs.
   - ☒ E. All of the above.

10. Sexual harassment on the job site will not be tolerated.
    - ☒ True ☐ False

JOB SITE ORIENTATION CHECKLIST

Job Name & No. _____

Initials

_____ Review *Safety Handbook*

_____ Job site safety rules and other site specific rules
- Times – tool box safety meeting, start, quit, break, and meal
- Number to call in

_____ MSDS/GHS binder
- Review SDS's 16 Format
- Labeling Quick Card
- Pictogram Card
- Location of MSDS/SDS for my review

_____ Postings – OSHA, etc.

_____ Emergency procedures (review Job Site Emergency Procedures form)
- Reporting a fire
- Fire extinguishers
- Assembly point
- Medical treatment – hospital & clinic number, address, and directions
- First-aid trained personnel
- Natural disasters

_____ Injury reporting procedures

_____ Review Heat Stress/Illness Prevention Policy

_____ Disciplinary procedures

_____ Personal protective equipment

_____ Fall protection policy (review Site Fall Protection Plan)
- Harnesses and lanyards location and storage
- Inspect your harness and lanyard before you put it on

Certifications and training

_____Scaffold User training? (If not, train the employee)

_____Scissor Lift training? (If not, train the employee if applicable)

_____Aerial (Boom/Man/JLG) Lift training? (If not, train the employee, if applicable)

_____Powered Industrial Truck (forklift) training?

_____Powder Actuated Tool training? (If not, arrange for training, if applicable)

_____Laser training? (If not, arrange for training, if applicable)

_____ Job site tour
- Special hazards/conditions
- Prohibited areas
- Assembly point
- Entrances, exits, and evacuation routes
- Stairs and elevators
- Fire extinguishers
- First-aid kits
- Sanitation – water, toilets, and eating & drinking areas
- Smoking areas
- (other) _____

_____	_____	_____
Employee name (print)	Employee signature	Date
_____	_____	_____
Foreman name (print)	Foreman signature	Date

SAFETY VIOLATION NOTICE
(EMPLOYEES)

TO: _____ upon
Employee's Name

your employment with Performance Contracting Group, Inc. you were informed as to the company policy regarding safety rules and regulations. The violation you are being cited for and coached on is as follows:

_____

_____

You are being cited on _____ at _____
Date Job Site

This shall serve as warning for your offense:

- ☐ **First:** Verbal warning and coaching
- ☐ **Second:** Written warning and the rest of the day off and the following day without pay. Employee shall receive retraining and testing on Safety Rule/Procedure/Program he/she was written up for upon return.
- ☐ **Third:** Written warning and three day suspension without pay. Employee shall receive retraining and testing on Safety Rule/Procedure/ Program he/she was written up for upon return
- ☐ **Fourth:** Termination

Reminder this is your _____Safety Violation Notice
1st, 2nd, 3rd, 4th

If you have any questions regarding this communication, contact the local General manager.

_____
Supervisor Signature

_____
Employee Signature

Retraining was conducted on _____ in regards to the Safety Violation noted above.
Date

SAFETY VIOLATION NOTICE
(SUPERVISION)

TO: _____ upon
Supervisor Name

your employment with Performance Contracting Group, Inc. you were informed as to the company policy regarding safety rules and regulations. The violation you are being cited for and coached on is as follows:

_____

_____

You are being cited on _____ at _____
Date Job Site

This shall serve as warning for your offense:

- ☐ **First:** Written warning with the rest of the day and following day off without pay
- ☐ **Second:** Three day suspension without pay and demotion
- ☐ **Third:** Termination

Reminder this is your _____Safety Violation Notice
1st, 2nd, 3rd,

- ☐ **Verbal Warning:** Received due to Safety Violation Warning being issued by General Manager, Branch Superintendent, and/or Corporate Safety Representative to an employee under your supervision.

Reminder this is your _____Verbal Warning
1st, 2nd, 3rd,

If you have any questions regarding this communication, contact the local General Manager.

_____
General Mgr./Branch Supt./Corp. Safety

_____
Supervisor Signature

SECTION TWO
HAZARD IDENTIFICATION/EVALUATION/CONTROL

A. Hazard Identification

Any workplace or job site can be separated into categories which have common hazards associated with them. There are six such categories that can be applied, forming the basis to assure that hazards are identified by the process of self-inspection. The six categories are:

1. Workplace Hazards. Includes such things as floors or other working surfaces, housekeeping, floor and wall openings, entrances and exits, sanitation, illumination, fire, ventilation, and others.

2. Machine and Equipment Hazards. Includes such things as machine guarding, operational techniques, special safety devises, inspection and maintenance, mounting, anchoring, grounding, and other protection.

3. Material Hazards

    a) Materials that are utilized, processed, or applied on the job that yield dangerous vapors, fumes, mists, dusts, or are ignitable and/or explosive, must have standards established for their safe storage and use.

    b) Included in this category would be the use of compressed gases for burning and the storage and use of toxic solvents, coatings, adhesives, mastics, etc.

4. Employee Hazards. Includes such things as the type of personal protective equipment and devices that must be furnished, special training requirements to operate specific equipment, and the medical and first-aid services required.
   Note: Performance Abatement Services, Inc. prohibits employees from working alone where there is no contact with other employees and/or contractors. Exception: while driving vehicles/trucks

5. Power Source Hazards. Electrical, pneumatic, hydraulic, steam, explosive-actuated, and other sources of power must have standards applicable to their safe use and application.

6. Operation Hazards. Standards should be established covering all special processes, such as welding, cutting, abrasive blasting, high work, use of ladders and scaffolds, lift trucks, AWP, etc.

B. Hazard Evaluation

1. Field Inspection Report. PAS has a Safety Inspection Checklist (Appendix 2-A) designed for identification and correction of hazards observed in the field operations.

2. Common Hazards

   a) For most job site hazards, the potential danger is readily apparent. For example, an opening in a floor that is not boarded over or suitably barricaded will probably cause injury to any worker falling through it; or in the case of scaffolding platforms not protected by guardrails, a worker who falls off for whatever reason is likely to be injured.

   b) All six categories listed previously should be examined for hazards and hazard potential.

3. Special Hazards. Some job site hazards are not as apparent and may require expert evaluation by a technician to determine the hazard potential. Examples would be working in enclosed spaces such as tanks and vessels, working with toxic materials, the proper erection and operation of a lifting hoist, the inspection of cables and safety mechanisms on sky-climbers, working in open trenches, demolition work, excavation, and other construction work adjacent to existing properties, etc.

4. Hazards identified shall be classified/prioritized and addressed based on the risk associated with the task. The use of the Hazard Identification checklist will be used for this purpose and to analysis severity and probability.

5. All PAS employees will be trained in the hazard identification process including the use and care of proper PPE.

C. Hazard Control

When a situation that endangers the safety and health of employees occurs, the employer must immediately take steps to eliminate it. One or more of the following three methods of control must be applied.

1. Engineering Controls

    a) It is always preferable and more reliable to protect by mechanical means than protection dependent upon human behavior. Examples of this type of protection would be to equip a table or band saw with a dust collector, or if working with materials that give off dangerous vapors, to exhaust the vapors mechanically or substitute a non-hazardous chemical.

    b) These methods are more reliable than dependence being placed on a respirator to protect the worker.

    c) This type of control also includes such things as barricading openings in floors and walls, shoring in trenches, guards on various types of tools and equipment, etc.

2. Administrative Controls

    a) In the case of exposure to air contaminants, temperatures, and noise, work assignments on a rotation basis and/or limiting the amount of time an employee will work at an operation can be used so that permissible levels of exposure will not be exceeded.
        (1) As a matter of practicality, on most construction projects, this method is extremely difficult to administer and likely to be impossible to document in the event of future injury claims based on these exposures.
        (2) If administrative controls are established, consideration should also be given to the use of personal protective equipment.

    b) The ultimate administrative control would be to stop work in an area or a situation where conditions are such that the safety of your workers cannot be assured.

c) Stop Work Authority
   (1) All PAS Employees will receive training on the PAS Stop Work Authority during New Hire Orientation (before initial assignment)
   (2) The training will be documented including the employee name, date of training and subject matter.
   (3) No work will resume until all stop work issues and concerns have been adequately addressed and reviewed by site Foreman.
   (4) PAS Employees are responsible to initiate a Stop Work when warranted and management (Site Foreman) is responsible to create a Safety Culture where Stop Work Authority is exercised freely.
   (5) When an unsafe/at-risk condition is identified the Stop Work will be initiated, coordinated through the site supervision, initiated in a positive manner. Notify all affected personnel and supervision of the Stop Work issue, correct the issue, and resume work when safe to do so.
   (6) PAS Site Supervision will document all Stop Work Interventions for the Lessons Learned and corrective measures to be put into place. All Stop Work interventions will be reviewed during the next Site Safety Meeting.
   (7) PAS Site Supervision will review Stop Work reports in order to measure participation, determine quality of interventions and follow-up.
   (8) PAS Site Supervision will trend common issues, identify opportunities for improvement, and facilitate sharing of the Lessons Learned.
   (9) The outcome of any Stop Work Intervention is that the identified safety concern(s) have been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be adequately resolved in a timely manner at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

3. Personal Protective Equipment

   a) When the hazard cannot be eliminated through engineering or administrative controls, the use of personal protective equipment is mandatory.
      (1) Included is protection for the eyes, ears, face, head, and extremities.

(2) It deals with equipment such as hard hats, safety glasses, goggles and face shields, welding helmets, ear muffs and plugs, protective clothing, respiratory devices, protective shields and barriers, safety belts, harnesses, life lines, self-contained breathing devices, etc.

b) OSHA regulations require that protective equipment shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact.

c) Each PAS branch must establish a clear-cut policy on use of personal protective equipment, and it should be made a part of the job site work rules.
(1) It must be consistent with prevailing regulations as to availability, proper use, inspection, care, and maintenance of the equipment.
(2) Since the law makes the employer responsible for employee owned equipment, such equipment must receive the same attention as company owned equipment to assure its adequacy.
(3) The use of employee owned safety equipment should be discouraged.

d) Employees must be trained in the proper use, care, and limitations of the equipment prior to actually working under a hazardous condition requiring its use. Responsibility shall be assigned to supervisors to enforce the use of personal protective equipment, and a rigid policy for employee compliance must be maintained.

6. Equipment Purchasing

a) Purchase orders for tools, equipment, and personal protective equipment should include a statement requiring that all items must meet the OSHA standards.

b) Standards for tools and equipment commonly used in construction work are found in Part 1926 – Occupational Safety and Health Standards for Construction. This section of the regulations, as well as other OSHA regulations, forms, etc., may be obtained from local or regional offices of the U.S. Department of Labor - OSHA.

D. Inspections

1. Technical Inspections

   a) PAS's insurance agency and insurance company's engineering representatives will give assistance in job hazard analysis to determine the accident potential of job procedures, equipment, tools, and materials. This will help determine how hazardous acts can be eliminated, what unsafe materials should be replaced, and recommend special equipment necessary to do a job safely.

   b) Civil engineering specialists are available who have expertise in all phases of building construction and can advise and evaluate potentials for personal injury and property damage.

   c) When encountering technical problems or conditions that your personnel are not trained to handle, contact the Safety Department to arrange for assistance from PAS's insurance agent and/or insurance company's engineering representatives.

2. Periodic Inspections

   a) Documented periodic inspections are required at the start-up of each job.
      (1) They are required weekly thereafter.
      (2) When there is a change in conditions.
      (3) When there is a change in hazards.
      (4) Some jobs are of sufficient scope and hazard to justify increasing this schedule to a daily requirement.
      (5) Warehouse locations should be inspected at least once a week and documented.

   b) Personnel Performing Inspections
      (1) The job site foreman or a designated job site safety mechanic will normally conduct the scheduled weekly inspection.
      (2) They must be able to recognize hazards, document existing discrepancies on the PAS Safety Inspection Checklist form (Appendix 2-A), and in the case of an assigned safety mechanic, turn in the inspection form to the job foreman.

(3) The person responsible for making the inspections should be familiar with required OSHA regulations and PAS safety standards.

c) It is the duty of the job foreman to ensure proper corrective action is taken on the inspection discrepancies. Identifying the problem, what corrective actions were taken, who was the person responsible for making the corrections, and what date the corrections were made all need to be documented on the Safety Inspection Checklist (Appendix 2-A).

d) Once the Safety Inspection Checklist has been completed, it needs to go to the next person in the chain of command above the person who conducted the inspection, for review. After the review has been completed, the Safety Inspection Checklist is to be filed.

3. Unscheduled Inspections. All levels of supervision and management should be involved in conducting job site safety inspections. Appropriate personnel include corporate regional safety representatives, general managers, project managers, project engineers, labor superintendents, and general foreman.

4. Continuous Inspections. Job foremen are generally the most important inspectors any organization has because they spend practically all of their time on the job. Job foremen:

a) Are in constant contact with employees and thoroughly familiar with the work to be done

b) Should be on the alert at all times to discover and correct unsafe conditions and practices

c) Should encourage employees to maintain a high degree of safety awareness

d) Should immediately correct hazardous conditions or report those that they are not authorized to correct

5. Corporate Safety Compliance and Quality Assessment

   a) Each year selected PAS branch locations will be inspected to determine the adequacy and effectiveness of the safety program.

   b) The compliance and quality assessment will follow a pattern of examination of all branch records and documentation pertaining to safety, followed by inspection visits to job sites to ascertain compliance with the safety program. The quality of the compliance portion will also be assessed. The items that will be reviewed (as a minimum) are listed in Appendix 2-B.

6. Branch Quick SHOT QAR (Safety Habits Observed Together).

   The purpose of the Quick SHOT (Safety Habits Observed Together) is to take a comprehensive look into your current safety culture to evaluate where you are and where you want to be. Unlike the formal QAR, Quality Assessment Review, it is for internal use only and to be used as a guide to assist you in further development and direction. The report is sent to your Regional Safety Manager for him to identify with you and to assist you in your improvement plans. The Quick SHOT will be documented on Appendix 2-C.

   Below is a guide to assist you in questions you may have regarding the Quick SHOT.

   a) Who is the team?

      Quick SHOT team should consist of General Manager and or Operations Manager, and Superintendent at a minimum. There will be participation from your Regional Safety Manager to help aid with focus and direction.

   b) What is the duration?

      Quick SHOT's should be a two day process, at a minimum, for which one day is dedicated to field observations and habits the other dedicated to documentation, systems, and controls. The goal is a quality review by internal figures that can provide insight into

where you are and what you may need to focus on to be where you want. These observations should be documented on the Quick SHOT form for consistency and identification. The documentation review should give you an understanding for where your field may be and areas for which improvement could be developed.

Sample Items/questions to look for in the field:

- How are our employees going about their work? Are they doing the right thing with the right tools?
- What is the effectiveness of our policies in the field? Do the employees know our policies?
- What does our jobsite look like? Immediate work area? Break area?
- What does our onsite documentation look like? What does our job box look like? What shape are our tools in? How are they stored?

Sample Items/questions to look for at the office:

- What documentation do we have from the field? How complete is the documentation? What is the quality? Did we just meet the requirements or go through the motions?
- Where is the documentation located? Is it organized? Filed? What is our system?
- Where are we internally with safety? Responsibilities?

c) How often should we conduct?

Quick SHOT's should be conducted as regularly as possible and not less than once a quarter. This will give the branch milestones, continuity and direction is being accomplished. Your Regional Safety Manager will assist as they visit your branch.

d) What is the overall goal?

The key item to remember when conducting your assessment is to be open with yourself and where you are and where you want to be. This program was developed to ensure what we say we are doing is being implemented and accomplished on a regular basis and to allow for continual improvement. A sample template and an example of a completed Quick Shot can be found in OBIS under Corporate Information -> Safety -> Quick SHOT. The template contains information for which must be covered; however this is yours feel free to make it your own and address the items for which are most important to your business unit.

SAFETY INSPECTION CHECKLIST

Branch: _____

Job No.: **Job Name**: **Date:**

Area of Inspection	Item that needs attention should be identified with correction(s)	Responsible Party (PAS/Other)	Corrected by: Date	Initial
HOUSEKEEPING/SANITATION				
Our Work Area				
Overall Job Site				
Adequate Sanitation Facilities				
Drinking Water				
FIRE PROTECTION				
Extinguishers (fully charged)				
Fire Hazards (materials/liquids)				
HAND TOOLS				
General Condition				
Proper Tool for the Job				
POWER TOOLS				
General Condition				
Grounded				
Guards in Place				
ELECTRICAL				
Condition of Electrical Tools				
GFCI's in Use				
Extension Cords in Good Condition				
Extension Cord Placement				
Extension Cord Not in Water				
LADDERS				
General Conditions				
Proper Use				
Straight Ladders Tied Off				
Safety Feet in good condition				
POWDER-ACTUATED TOOLS				
Face Shields and Ear Plugs in Use				
Operator Licensed				
Warning Signs Posted				
Loads Stored & Disposed of Properly				
PERSONAL PROTECTIVE EQUIPMENT				
Hard Hats				
Eye Protection				
Hearing Protection				
Back Supports				
Fall Protection				
Respirators				
Protective Clothing				
Gloves				

Branch: **Job No:** **Job Name:**

Area of Inspection	Item that needs attention should be identified with correction(s)	Responsible Party (PAS/Other)	Corrected by: Date	Initial
VEHICLES				
General Condition				
Forklift Licenses				
FIRST AID				
First Aid Kits Available/Stocked				
FLOORS, STAIRS, WALKWAYS				
Guardrails				
Floor Openings Covered				
Floor Coverings Secured				
Floor Coverings Marked				
Adequate Lighting				
Stair Pans Filled				
Walkways Clear				
AWP				
All Guardrail Gates/Chains Closed				
Body Harness and Lanyard				
All Operators Trained				
Operated on Level Footing				
WELDING				
Protective Equipment is Being Used				
Fire Extinguishers Immediate Vicinity of Fire Watch (if needed)				
MATERIAL HANDLING HORIZONTAL				
Materials Properly Stacked				
Material Handling Equipment in Good Condition				
Proper Handling and Lifting Practices				
Excessive Material Not in the Way				
MATERIAL HANDLING VERTICAL				
Supervised by a Competent Person				
Is the Swing Zone Clear				
Slings in Good Condition				
OTHER CONCERNS				

Inspected by: _____ **Date**:_____

Name

Reviewed by: _____ **Date**:_____

Supervisor's Name

Corporate Safety Compliance and Quality Assessment

The items that will be reviewed (as a minimum) during corporate safety compliance and quality assessments are as follows:

- *Accident Prevention Plan*
- OSHA Log sheets
- Employee orientation
- Job site orientation
- Job site fall protection plans
- Personal protective equipment
- Safety meetings
- Emergency procedures
- Accident investigations
- Safety inspections
- Foreman safety documentation box
- Competent persons list
- Hazard communication
- Emergency medical treatment
- Safety posters
- Foreman safety training
- Lift trucks, pool vehicles
- Claims administration
- Substance Abuse Prevention program
- Office/warehouse safety conditions
- Job site(s) safety conditions
- Safety incentive program

QUICK SHOT – Safety Habits Observed Together
"Management Review"

Date:
Branch:
Quick SHOT Team Members:

	General	QAR Rating	Action Plan	Responsible Person	Date for Completion	Priority
1	**Foremen Monthly Training:** Conducted by Superintendent; General Mgr. attends periodically; Competent Person training is up to date;					
2	**Job Site Pre-Task Plan:** Completed with 3 step process daily on job site; Reviewed by foreman prior to starting task; employees signed off; employees following PTP;					
3	**Job Site Conditions:** All required posting is complete; Safety Box up to date; Employees using proper PPE for job task; observe employees performing job task;					
4	**Weekly Safety Meetings/Inspections:** Conducted by PAS Supervision; Safety Meeting topic pertains to job site; Inspections have hazards noted with corrective action; both are of high quality					
5	**Branch Safety Management Performance Standards:** ***General Manager/Operation Manager:*** Conducted/participated in a minimum of four Foremen Monthly Training sessions and conducted six documented job site safety inspections. ***Superintendent:*** Conducted/participated in Foremen Monthly Training sessions and a minimum of one document job site safety inspection monthly. ***Estimator:*** Conducted a minimum of one Tool Box Safety meeting and one documented Safety Inspection per month. ***Project Manager/Project Engr.***: Conducted a minimum of one Tool Box Safety Meeting and documented Safety Inspection per month					
	Quality Assessment Score					

Impact #: 1=No risk of causing employee injury; 2=Minimal risk causing employee injury; 3=Slight risk to cause injury to employee; 4=Likely risk of causing employee injury; 5=High risk of causing injury

SECTION THREE
ACCIDENT REPORTING, POSTINGS, AND RECORDKEEPING

A. Accident Reporting

1. Cases That Require Reporting.

    a. All accidents involving work-related injuries or illnesses to an employee, regardless of whether or not off-site medical treatment is required or necessary, shall be reported to Corporate Workers' Compensation and the regional Corporate Safety representative utilizing the Accident Notification Form (Appendix 3-A). (See the *Claims Manual* for claims reporting.)

    b. The Branch General Manager shall report the incident to their immediate supervisor as soon as possible.

    c. The Accident Notification Form shall be completed by the end of the work shift or no later than 24 hours after the accident.

    d. All injury accidents must be reported to Corporate Workers' Compensation and the regional Corporate Safety representative as soon as possible, but no later than the end of the shift from the time of receiving notification, discovery, or medical treatment.
        (1) The Accident Notification form assists in gathering the necessary information the claims manager will use in constructing the First Report of Injury or Illness.
        (2) If possible, fax the Accident Notification form, Employee Statement, and any Witness Statement(s).

    e. It is helpful to have as much information as possible before reporting an accident to the claims manager in Lenexa, but <u>do not</u> delay in reporting an accident if the information is incomplete.

B. Corporate Notification for Major Accidents or Death

All major accidents must be reported in accordance with the Emergency Notification Procedure (Section 13 Required postings - of the Foreman's Safety Box).

C. OSHA Notification of Fatal or Catastrophic Events

The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) requires that within eight (8) hours of an accident which results in a fatality or the hospitalization of three (3) or more employees, the employer must orally report the incident to the nearest OSHA area office or by using OSHA's toll-free hotline (1-800-321-6742).

This requirement also applies to each fatality or hospitalization of three (3) or more employees that occurs within 30 days after the work-related accident.

The notification must include the following:

- Name of the establishment
- Location and time of the incident
- Number of fatalities
- Number of hospitalized employees
- A company contact person
- A company telephone number
- A brief description of the incident

NOTE: Corporate notification **MUST** be made **PRIOR** to notification to OSHA. In those states where OSHA has been taken over by state control, reporting procedures may vary from above. Check with your regional safety specialist regarding those specific state OSHA procedures.

California Rules:
The nearest OSHA office must be notified for:

- All fatalities
- Any injury or illness which requires inpatient hospitalization of one or more employees for over 24 hours for more than observation.
- Any injury resulting in loss of a body member (example: losing a finger)
- All events of a more severe nature

Washington/Oregon Rules:
The nearest OSHA office must be notified for:

- Fatalities or possible fatal injury
- Injury requiring in-patient hospitalization of one or more employee(s) for more than observation.

D. Recordkeeping Legal Requirements

Each PAS branch is required to maintain a log of all recordable occupational injuries and illnesses. OSHA Form 300 is used for that purpose (included in Appendix 3-B).

NOTE: Some states have specific legal requirements beyond the scope of the Form 300. Information on current requirements should be obtained by contacting the appropriate federal and state authorities.

E. Key Points Regarding Recordkeeping

Appendix 3-B includes OSHA's forms for recording work-related injuries and illnesses.

1. Form 300, Log of Work-Related Injuries and Illnesses. This form must be used to classify work-related injuries and illnesses and to note the extent and severity of each case.

2. Form 300A, Summary of Work-Related Injuries and Illnesses. This is a separate form that must be used to show the totals for each year in each category.

   (Both Form 300 and Form 300A must be kept on file for five (5) years following the year to which they pertain.)

3. Poster (Federal and State). The federal Job Safety and Health Protection poster, as well as any state posters concerning protection and obligations of employees under OSHA, must be posted. This should be done in a reasonable number of places where all employees will be exposed to it.

4. Form 300A, Summary Posting. The 300A shall be posted at all current job sites during the following time frame. February 1 of the year following the year covered by the form and keep it posted until April 30 of that year.

5. Form 301, Injury and Illness Incident Report. Each recordable listed on the OSHA 300 log must be supported by a completed OSHA Form 301 or an equivalent. The equivalent would be a First Report of Injury or Illness form.

6. Annual OSHA Injury and Illness Survey. This is a survey form mailed directly to our various locations. This form must be completed. If you receive this form, immediately send it to the Manager, Corporate Safety.

7. Records Review. The government representatives that are authorized to review and obtain copies of records are:

   a) A representative of the Secretary of Labor conducting an inspection or investigation under the Act

   b) A representative of the Secretary of Health and Human Services

   c) A representative of a state agency responsible for administering a state plan

8. Location of Records

   a) A separate OSHA 300 Log must be kept at every establishment.

   b) One OSHA 300 log for all short-term establishments may be kept at a central location (short-term establishments that will exist for less than a year).

9. Establishment

   a) An establishment is a single physical location where business is conducted or where services or industrial operations are performed.

   b) For activities where employees do not work at a single physical location, such as construction, transportation, communications, electric, gas and sanitary services, and similar operations, the establishment is represented by main or branch offices, terminals, stations, etc., that either supervise such activities or are the base from which personnel carry out these activities.

10. Form 300 Log Entries. The Log of Work-Related Injuries and Illnesses are used to classify work-related injuries and illnesses and to note the extent and severity of each case. The following work-related injuries and illnesses must be recorded:

    a) Death

    b) Loss of consciousness

    c) Days away from work

    d) Restricted work activity or job transfer

    e) Medical treatment beyond first aid

    Logs and summaries must be maintained for five (5) years following the year to which they pertain. If there is a change in the extent or outcome of an injury or illness which effects an entry on the log or summary, the original entry should be lined out, deleted, and corrected (white-out may be used to make corrections).

11. Completing Form 300

    a) Establishment Name. Enter the name of your branch or job site as required by definition of establishment.

    b) City and State. Enter the city and state of the establishment.

    c) Column “A.” Enter a case number. This is an arbitrary number but it should be consistent with the case number on your First Report of Injury or Illness form.

    d) Column “B.” Enter the employee’s name.

    e) Column “C.” Enter the employee’s job title.

    f) Column “D.” Enter the date of injury or onset of illness.

    g) Column “E.” Enter the location where the incident occurred.

h) Column “F.” Enter a description of the injury or illness, parts of the body affected, and object/substance that directly injured or made the person ill.

For columns G through J, enter an X in only one box for each case based on the most serious condition of the injury.

i) Column “G.” Enter an “X” if the injury or illness resulted in death.

j) Column “H.” Enter an “X” if the injury or illness resulted in days away from work.

k) Column “I.” Enter an “X” if the injury or illness resulted in job transfer or in restricted duty.

l) Column “J.” Enter an “X” for all other recordable cases.

m) Column “K.” Enter the number of days away from work.

n) Column “L.” Enter the number of days on job transfer or restriction.

o) Column “M.” Enter an “X” in one of the six (6) sub columns for an injury or type of illness.

12. Completing Form 300A. The 300A form is the Summary that is required to be posted. The information on this form is simply the totals from the columns on the 300 Log form. The establishment information is self-explanatory. This form is to be signed by a company executive. A company executive for purposes of signing this form would be the highest ranking company official working at the establishment. For the majority of our locations, this would be the General manger.

13. Determining Lost Workdays. When an injury or illness involves one or more days away from work, we must record the injury or illness on the OSHA 300 Log with an “X” in the space for cases involving days away and an entry of the number of calendar days Away From Work in column K.

The first day counted will begin on the day after the injury occurred or the illness began. We will be required to count the number of calendar days the employee was unable to work as a result of the injury or illness, regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days, or other days off

are included in the total number of days recorded if the employee would not have been able to work on those days because of the work-related injury or illness.

There is a "cap" of 180 total calendar days. Therefore, we are not required to track the number of calendar days away from work if the injury or illness resulted in more than 180 calendar days away from work and/or days of job transfer or restriction. Simply entering 180 in the appropriate line is adequate.

Example: John Doe is injured on Wednesday, 02/21/02, and his doctor required him to stay off work until the following Wednesday, 02/28/02. So, the employee is injured on 02/21 (we don't count the day of the injury) and returns 02/28. The lost day count to be entered on the OSHA Form 300 is six (6) days.

14. Determining Restricted Days. Restricted work occurs when, as the result of a work-related injury or illness:

    a) We keep the employee from performing one or more of the routine functions of their job or from working a full workday that they would have otherwise have been scheduled to work (excluding the day of the injury)

    b) A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of their job or not work the full workday that they would otherwise have been scheduled to work (excluding the day of the injury)

    For recordkeeping purposes, an employee's routine functions are those work activities the employee regularly performs at least once a week.

    The counting of days for job transfer or restriction is the same as for days away from work. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. We must, however, count at least one day of restricted work or job transfer for such cases.

15. Medical Treatment. Medical treatment means the management and care of a patient to combat disease or disorder. Medical treatment does not include:

    a) Visits to a physician or other licensed health care professional solely for observation or counseling

    b) The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes, e.g., eye drops to dilate the pupils

    c) First aid

16. First Aid. For purposes of this standard, first aid means the following:

    a) Using a non-prescription medication at non-prescription strength (for medications available in both prescription and non-prescription form) - A recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes.

    b) Administering tetanus immunizations (Other immunizations, such as hepatitis B vaccine or rabies vaccine are considered medical treatment.)

    c) Cleaning, flushing, or soaking wounds on the surface of the skin

    d) Using wound coverings such as Band-Aids™, gauze pads, etc., or using butterfly bandages or Steri-Strips™ (Other wound closing devices such as sutures, staples, etc., are considered medical treatment.)

    e) Using hot or cold therapy

    f) Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (Devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes.)

    g) Using temporary immobilization devices while transporting an accident victim, e.g., splints, slings, neck collars, back boards, etc.

h) Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister

i) Using eye patches

j) Removing foreign bodies from the eye using only irrigation or a cotton swab

k) Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means

l) Using finger guards

m) Using massages (Physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes.)

n) Drinking fluids for relief of heat stress

17. Illnesses

a) Skin Diseases or Disorders. Skin diseases or disorders are illnesses involving the workers' skin that are caused by work exposure to chemicals, plants, or other substances.

Examples: contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; friction blisters, chrome ulcers; inflammation of the skin

b) Respiratory Conditions. Respiratory conditions are illnesses associated with breathing hazardous biological agents, chemicals, dust, gases vapors, or fumes at work.

Examples: silicosis, asbestosis, pheumonities, pharyngitis, rhinitis or acute congestion, farmers lung, beryllium disease, tuberculosis, occupational asthma, reactive airways dysfunction syndrome (RADS), chronic obstructive pulmonary disease (COPD), hypersensitivity pneumonitis, toxic inhalation injury, such as metal fume fever, chronic obstructive bronchitis, and other pheumonoconioses

c) Poisoning. Poisoning includes disorders evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or absorption of toxic substances into the body.

   Examples: poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen, sulfide, or other gases; poisoning by benzene, benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays, such as parathion or lead arsenate; poisoning by other chemicals, such as formaldehyde

d) Noise Induced Hearing Loss. Noise induced hearing loss is defined for recordkeeping purposes as a change in hearing threshold relative to the baseline audiogram of an average of 10dB or more in either ear at 2000, 3000, and 4000 hertz.

e) All Other Illnesses. All other occupational illnesses

   Examples: heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; blood borne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; hisotplasmosis; coccidioidomycosis

18. Not Recordable

You are not required to record injuries or illnesses if:

a) At the time of the injury or illnesses, the employee was present in the work environment as a member of the general public rather than as an employee

b) The injury or illness involves signs or symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside the work environment

c) The injury or illness results solely from voluntary participation in a wellness program or in a medical fitness or recreational activity such as blood donation, physical examination, flu shot, exercise class, racquetball, or baseball

d) The injury or illness is solely the result of an employee eating, drinking, or preparing food or drink for personal consumption (whether brought on the employer's premises or brought in) - For example, if the employee is injured by choking on a sandwich while in the employer's establishment, the case would not be considered work-related

   NOTE: If the employee is made ill by ingesting food contaminated by workplace contaminants (such as lead), or gets food poisoning from food supplied by the employer, the case would be considered work-related.

e) The injury or illness is solely the result of an employee doing personal tasks at the establishment outside the employee's assigned working hours

f) The injury or illness is caused by a motor vehicle accident and occurs on a company parking lot or company access road while the employee is commuting to or from work

g) The injury or illness is solely the result of personal grooming, self-medication for a non-work-related condition, or is intentionally self-inflicted

h) The illness is the common cold or flu

   NOTE: Contagious diseases such as tuberculosis, brucellosis, hepatitis A, or plague are considered work-related if the employee is infected at work.

i) The illness is a mental illness - Mental illness will not be considered work-related unless the employee voluntarily provides the employer with an opinion from a physician or other licensed health care professional with appropriate training and experience stating the employee has a mental illness that is work-related.

ACCIDENT NOTIFICATION REPORT

(Completed by foreman by end of shift)

BRANCH, JOB, AND PROJECT INFORMATION

Branch name:	Branch code:
Job name:	Job number:
Job address:	
Job site contact:	Contact number:
Location where injury occurred: (e.g., 2nd floor, SE corner of building, etc.)	
OCIP/CCIP/PCIP? ☐ Yes ☐ No	

INJURED EMPLOYEE INFORMATION

Last name:	First name:	M.I.:
Address:		
Home phone number:	Best contact phone number:	
Date of birth:	Social Security number:	
Sex: M / F Marital status: S / M	Occupation/Trade:	
Employees' superintendent:	Phone:	
Employees' general foreman:	Phone:	
Employees' foreman:	Phone:	
Date of hire:	State of hire:	Wage rate: $

ACCIDENT INFORMATION

Type of accident: ☐ Injury ☐ Illness ☐ 3rd party ☐ Property damage		
Date of injury:	Time employee began work:	AM / PM
Time of injury: AM / PM	Date notified:	Time notified: AM / PM
Who was notified:		
Type of injury: (e.g., reaction to foreign substance, puncture, laceration, contusion (bruise), fracture, amputation, strain/sprain, burn, etc.)		
Part of body injured: ☐ Left ☐ Right ☐ N/A (e.g., head, face, eye, ear, mouth, back, trunk, arm, wrist, hand, finger, knee, leg, ankle, etc.)		
Safety equipment employee was using: ☐ Hard hat ☐ Safety glasses ☐ Back support ☐ Gloves ☐ Face shield ☐ Harness ☐ Other(s) (specify)		
What activity was employee doing at the time of accident?		
What happened to cause injury/illness?		
Witness 1:	Phone:	
Address:		
Witness 2:	Phone:	
Address:		

MEDICAL TREATMENT INFORMATION (check all that apply)

☐ No medical treatment, for the file only	
☐ On site 1st aid only	Date of treatment:
☐ On site clinic	
☐ Off-site clinic and clinic name:	Phone: ( )
☐ Hospital and hospital name:	Phone: ( )
☐ Post accident drug test	
☐ Treatment refused	
☐ Other (please explain)	
Work status: ☐ Full duty ☐ Modified duty ☐ Off work	

DOCUMENTED BY:

Name:	Date:

OSHA Forms for Recording Work-Related Injuries and Illnesses

Click on the following link to open this document:

OSHA Forms for Recording Work-Related Injuries and Illnesses

SECTION FOUR
ACCIDENT INVESTIGATION

A. Accident Investigation Requirements

1. What Should Be Investigated and When Should It be Investigated

   a) All reported work-related injuries and illnesses must be investigated and documented on the Accident Investigation Form (Appendix 4-A) regardless of whether or not off-site medical treatment is required or necessary. Any incidents in which an Accident Notification Report was completed needs an Accident Investigation completed.

   b) Investigations should also include near-miss incidents that might have caused a fatality or serious injury, such as almost falling through a floor opening or a breaking of a hoisting sling or a scaffold rope. These near-miss incidents are equally important from the safety standpoint. Near-miss incidents will be documented on the Near-Miss Report (Appendix 4-E)

   c) Accidents that cause damage to property or equipment should also be investigated.

   d) Each investigation shall be made in a timely fashion.
      (1) A delay in investigating may permit important evidence to be destroyed or removed, intentionally or unintentionally.
      (2) With delays, any useful information witnesses can provide becomes more perishable.
      (3) The publicity value in the safety education of employees and supervisors is greatly increased by promptness.

   e) Any epidemic of minor injuries demands study. Dust particles in the eye or a scratch from handling metal may be a very simple case. The immediate cause is obvious, and the loss of time may only be a few minutes. If cases of this or any other type occur frequently, a study should be made to determine the underlying causes and corrective measures to be taken.

2. Why Accidents Must Be Investigated

   a) Each year needless accidents result in injuries, loss of countless hours of work, reduced profitability, and a waste of valuable assets.

   b) The adverse impact on professional pride, morale, and physical well-being is unacceptable.

   c) An effective safety program involves all levels to consistently reduce the number of accidents.
      (1) The reduction will be accomplished by ensuring the prompt identification, elimination, control, and correction of hazards.
      (2) When identification and elimination efforts fail, accidents will be investigated and causes reported to prevent recurrence.

   d) For every serious injury or accident, it is estimated that there are approximately:
      (1) 10 minor injuries
      (2) 30 minor property damage events
      (3) Over 100 near-accidents

      These figures clearly illustrate the necessity to direct investigative efforts toward all accidents. The analysis of frequency or potential of accidents and identification of causes are essential to systematic control of accident losses.

   e) Comprehensive and accurate investigations are essential to the success of the safety program.
      (1) An investigation requires answers to questions of who, what, where, when, why, and how.
      (2) The more complete the information, the easier it will be for the individual responsible for safety to design effective accident preventive measures. For example, knowing that 40 percent of the branch accidents involve ladders is not as useful as knowing that 80 percent of the ladder accidents involve broken rungs.

   f) People unintentionally cause the majority of accidents.
      (1) The purpose of the entire investigation effort is to find out why the accident occurred.
      (2) Too frequently investigators describe the cause of an accident as “poor judgment,” “carelessness,” or “forgetfulness.”

(3) Proper corrective action can best be developed from specific causes.
(4) Maximum investigative efforts must be directed at the underlying human factors.
(5) Causes ranging from the physical and psychological condition of the person involved to the adequacy of his/her training and experience must be pursued.
(6) The man-machine interface must be considered along with the effect of environmental factors.

g) The purpose of conducting an investigation is to determine the basic causes and to formulate corrective action to prevent similar type injuries occurring time and time again. This will result in:
(1) Reduced costs resulting from workers' compensation and loss of manpower
(2) Reduced legal ramifications
(3) The moral thing to do and just good business

h) An investigation report is basically the investigator's analysis and account of an accident based on factual information gathered by a thorough and conscientious examination of all factors involved.

i) The investigation is best conducted at the lowest level of supervision, and the information gathered can be used very effectively in your employee safety training program.

3. Fact Finding. For purposes of accident prevention, investigations must be fact finding, not fault finding; otherwise, they may do more harm than good.

4. Conducting an Accident Investigation

a) Immediate Actions Following an Accident
(1) Assist Injured Employee
(a) When an employee is injured, take every action to get immediate attention.
(b) If the employee can move freely, the supervisor should assist the injured employee to the on-site dispensary, hospital emergency room, or medical clinic.
(c) If in doubt about moving the injured, always keep the employee lying down, warm, and comfortable – then get medical aid.

(d) A person having first-aid training should give immediate assistance while others get professional medical help.

(2) Seal Off Area

(a) If necessary, seal off an area until satisfied that a hazardous situation or hazardous piece of equipment has been corrected or secured.

(b) Seal off by locking out, barricading, placing a guard on duty, etc., to protect an area.

b) Who Investigates – Management Function and Responsibility

(1) A supervisor or manager has a personal interest in and responsibility for all assigned areas.

(2) It's the supervisors' area, and they make the decisions. Supervisors have contact with the people and knowledge of people and events.

(3) Information is more readily available to the supervisor.

(4) The supervisor and manager are in a position to correct hazardous conditions and reduce safety deficiencies.

c) When to Investigate

(1) Part of the success of an accident investigation depends on the initial immediate response to the accident.

(2) If possible, the injured employee and all witnesses should be interviewed as soon as possible following the accident while details are fresh in their minds.

(3) All accidents shall be investigated no later than the end of the work shift.

5. How to Investigate an Accident

a) Interview Injured Employee. If possible, get all pertinent details from the injured employee as to how and why the accident occurred.

(1) When an employee presents himself as having been involved in an on-the-job injury, provide the employee with the Employee Statement form (Appendix 4-B) to complete in their own words. If the employee cannot complete the form, whoever completes the form should also complete the bottom portion of the form.

(2) The top section of the form should be completed by the employee, as well as signed and dated.

(3) If the employee declines medical treatment, the bottom section of the form entitled Performance Contracting Group of Companies Medical Treatment Waiver, should be signed and dated as well.
(4) The Employee Statement form should then be forwarded with the Accident Notification form as soon as possible to the Claims Department and the Branch Regional Safety Representative.

b) Determine Witnesses
(1) Canvass the scene of the accident asking all employees if they observed what happened.
(2) Put them at ease.
(3) Let them know that you are only trying to find out what happened so steps can be taken to keep the accident from happening again.

c) Interview Witnesses
(1) Ask the witness (es) what they observed.
(2) How did the accident occur?
(3) What equipment was being used?
(4) Take their written statements by having them complete a Witness Statement form. Have this form sent with the Accident Notification form as soon as possible to the Claims Department and the Branch Regional Safety Representative.

d) Determine How the Accident Occurred. This determination can be made by interviewing the injured employee, witnesses, and examining the area or the equipment.
(1) Inspect the area – draw your own conclusions.
(2) Look beyond the obvious.
(3) Determine direct causes.
(4) Determine underlying causes.

e) Correct the Problem if Possible. Many times the immediate supervisor is in a position to take immediate action in rectifying problems which can cause a recurrence of an accident. This is definitely so with problems of a minimal nature. However, a supervisor is often able to obtain the assistance of others in correcting more serious and complex problems through his prior working relationships.

f) Record the Facts and Start Filling Out the Form.
(1) Record on a pad of paper all details or information obtained from interviewing the injured employee and the witnesses.

(2) Include personal observations, then commence completing the accident report form (Appendix 4-A).

6. What to Look for in an Investigation. The causes of all injuries can be divided into two categories: unsafe conditions and unsafe behavior.

   a) The following are the eight categories in which unsafe conditions may be grouped:
      (1) Inadequate mechanical guarding
      (2) Defective condition of equipment (i.e., rough, sharp, slippery, decayed, corroded, frayed, inferior composition, cracked), as ladders, floors, stairs, piping, and so forth
      (3) Unsafe design or construction
      (4) Hazardous process, operation, or arrangement (i.e., unsafe piling, stacking, storage, congested aisle space, crowding, overloading, and so on)
      (5) Inadequate or incorrect illumination
      (6) Inadequate or incorrect ventilation
      (7) Unsafe dress or apparel (loose clothing, absence of or defective gloves, aprons, shoes, respirators where use is required)
      (8) Weather conditions

   b) The following are eight classifications of unsafe behavior which have resulted in injury:
      (1) Working unsafely (i.e., improper lifting, hazardous placement, incorrect mixing of material, performing maintenance or repairs on moving machinery, working under suspended loads, failure to take heed of warnings, taking unsafe position, and so on)
      (2) Performing operations for which supervisory permission has not been granted
      (3) Removing safety devices or altering their operation so that they are ineffective
      (4) Operating at unsafe speeds
      (5) Use of unsafe or improper equipment (i.e., using a chisel with “mushroomed” head)
      (6) Using equipment unsafely
      (7) Horseplay, teasing, abusing, and so forth
      (8) Failure to use safe attire or personal protective devices

7. Look Beyond the Obvious

   a) Don't be satisfied with what appears to be the obvious.

   b) Dig deep to find the underlying reasons(s) for the accident.

   c) Look beyond employee carelessness.

   d) Do more than instruct the employee to be more careful. Try to find the problem - then solve it.

   e) Don't be satisfied until you are sure it won't happen again.

   f) Don't settle for the easy solution.

8. Incident Reviews/Root Cause Analysis

   a) Within 24 hours of any accident that requires an investigation, the General Manager will meet with the superintendent/general foreman and the foreman of the injured employee, the injured employee, and the Branch Regional Safety Representative. (For remote sites managed from a branch, this review can be conducted via the telephone.)

   b) For all other circumstances, it is preferred that this meeting takes place in the branch/project manager's office.
      (1) At this meeting, the injured employee will explain what happened to cause the incident.
      (2) The foreman will be responsible to explain the facts related to the accident and what steps have been taken to prevent a recurrence.
      (3) Document the findings of the Incident review, along with the root cause, and the corrective actions on the Incident Review/Root Cause Analysis Report (Appendix 4-D).
      (4) This process will send a message to our first line supervisors that they are indeed responsible and are being held accountable for job safety and at the same time keep the branch/project management in the loop of all accidents.

   c) The Safety Department will follow up with management.
      (1) This review will be used to discuss the accident and the corrective action(s), and will allow for input from the Safety Department.

(2) The Branch Regional Safety Representative will review the Incident Review/Root Cause Analysis with the Branch General Manager during their Branch Monthly Safety Talk to ensure that the Corrective Action(s) Completion Dates are being met and documentation is on file for verification.
(3) This will also assist the Safety Department in determining the specific training needs on a branch-by-branch basis.

NOTE: If the incident is an OSHA Recordable the Branch Regional Manager/Division Manager shall be involved in the review.

B. Step-by-Step Use of Accident/Injury/Illness Investigation Form, Parts I – V (Print when completing form.)

1. Initial Information

   a) Date & Type of Accident: Enter Date of Accident and check Type.

   b) Date Initiated: Enter Date Investigation began.

   c) Branch Name: Enter Name of Branch.

   d) Affected Employee: Enter Name of Employee involved in Accident.

2. Part I – Jobsite Specifics – Branch Superintendent.

   a) Owner: Enter Owner of the Jobsite.

   b) General Contractor: Enter General Contractor for the Jobsite.

   c) Customer: Enter Customer (could be the same as Owner or GC.

   d) Product Line: Enter Type of work being performed.

   e) Building Type: Enter Type of Building (i.e., 2-story, school, hospital, etc.).

   f) Job Hazard Analysis: Check Yes or No if one was performed.

   g) Pre-Task Planning: Check Yes or No if one was performed.

h) Weather Conditions: Enter conditions (i.e., rain, cold, sunny, etc.).

i) Exact location of accident on site: Enter location of accident (i.e., 2nd floor, northeast side, parking lot, etc.).

j) Shift Schedule: Check appropriate work week and hours.

3. Part II – Narrative – Branch Superintendent

a) Describe accident in detail.

b) Type of Injury: Enter Type of Injury (i.e., sprain, laceration, etc.).

c) Part of Body Affected: Enter Part of Body (i.e., knee, back, etc.) and check appropriate box for side of body.

d) Diagnosis: Enter Diagnosis, if known.

4. Part III – Contributing Factors – Branch Superintendent

This section is to determine any of the following conditions that contributed to the accident. Example: If employee was not following a work practice/instruction/sequence then a check would go in the Yes box. Explain what work practice/instruction/sequence the employee was not following. Every accident has at least one Contributing Factor. In most cases, there is more than one. Check all those that apply and explain in detail.

5. Part IV – Preventive Actions/Recommendations -- Branch Superintendent

This section is to be completed listing the Preventive Actions/Recommendations that will be initiated to prevent this accident from occurring in the future. There shall be a Preventive Action/Recommendation for each Contributing Factor listed in Section III. Enter the Person Responsible for Completion of this Preventive Action/Recommendation and the Target Completion Date.

6. Part V – Manager's Review

a) Are you satisfied with Parts I – IV: Check Yes or No. If No, return to Branch Superintendent for more detail.

b) Have you identified any additional reasons why the accident occurred? Enter any additional reasons you feel might have contributed to this accident.

c) Corrective Actions you are taking? Enter any actions you are taking to keep this accident from occurring in the future.

NOTE: Establish some type of a follow-up system to ensure that all corrective actions, recommendations, and comments have been implemented.

ACCIDENT INVESTIGATION REPORT

Date: _____ & Type of Accident: ☐ Injury ☐ Illness ☐ Third Party ☐ Property Damage

Date Initiated: Branch Name: Affected Employee:

PART I – JOB SITE SPECIFICS

Owner:

General Contractor:

Customer:

Product line:

Building type:

Job Hazard Analysis: Yes / No Pre-Task Planning: Yes / No

Weather conditions:

Exact location of accident on site:

Shift schedule: ☐ 5/8's ☐ 4/10's ☐ 5/10's ☐ 7/12's ☐ Other

PART II – NARRATIVE

Describe in detail what the affected employee was doing at the time of accident (Who, What, Where, When, Why):

Type of Injury: Part of body affected: ☐Left ☐Right ☐N/A

Diagnosis (from the medical provider):

PART III – CONTRIBUTING FACTORS

Did any of the following conditions contribute to the accident? (Check Yes / No – If Yes, explain)

Training/Communication ☐ Yes ☐ No

Human Elements/Ergonomics ☐ Yes ☐ No

Work Practice/Instructions/Sequence ☐ Yes ☐ No

Rules and Procedures ☐ Yes ☐ No

Tools/Equipment ☐ Yes ☐ No

Personal Protective Equipment ☐ Yes ☐ No

Material/Product ☐ Yes ☐ No

Affected Employee: _____

PART III – CONTRUBUTING FACTORS (continued)

Environment ☐ Yes ☐ No

Other ☐ Yes ☐ No

PART IV – PREVENTIVE ACTIONS / RECOMMENDATIONS

Preventive Actions/Recommendations	Person Responsible for Completion	Target Completion Date
1		
2		
3		
4		
5		

Investigated by: Title: Date:

PART V – MANAGER REVIEW

Are you satisfied with your review of Parts I-V that the accident has been thoroughly investigated?
☐ Yes ☐ No (if No, return for a more detailed report)

As a result of your review, have you identified any additional reasons why the accident occurred?
☐ Yes ☐ No If Yes, list the reasons:

Corrective actions(s) **you** are taking?

Name of Manager: Date:

EMPLOYEE STATEMENT

HOW I GOT HURT

Employee Name: _____ Best Contact Phone: _____

Employee Address: _____
Number & Street City State Zip

Employee Social Security No.: _____ Date of Birth: _____

Date of Accident: _____ Time of Accident: _____ If no accident, date of onset of pain/illness: _____

Where accident happened: _____
Site City State

Who was first notified: _____ Date Notified:_____

Part of body injured: _____ Occupation: _____

What happened and how did it happen? [Please attach additional page(s), if necessary.]

_____

_____

_____

☐ I want medical treatment right now.

☐ I do not want medical treatment right now, but I understand that if I decide I need treatment later, I will notify my supervisor first.

Employee's Signature: _____ Date: _____

Authorization for Release of Medical Information:
I hereby authorize any and all providers of medical or surgical treatment deemed necessary in regard to my reported occupational injury or illness to release any medical information acquired in the course of my treatment to Performance Contracting, their claims administrators, or their agents.

Employee's Signature: _____ Date: _____

If injured employee is unable to fill out this form, the preparer shall complete the following:

As told to me by _____ Signed: _____
injured employee's name signature of preparer

Reason why injured worker could not complete form:_____

WITNESS STATEMENT

(Completed by witness by end of shift)

WITNESS INFORMATION	
Today's date:	Time completed:
Your name:	Date of birth:
Signature:	
Your contact number:	
Address:	
Employer:	Title/Position:
Name of injured party:	

OBSERVATIONS
1. Did you **actually see** the injured party get hurt? ☐ Yes ☐ No
2. Did you recall the injured party getting hurt? ☐ Yes ☐ No:
3. When did this happen? (Be specific) Date: Time:
4. Where did this happen? (Be specific)
5. Where were you when the incident occurred?
6. If you saw the injured party get hurt, describe what you saw.
7. What did you observe the injuries to be?
8. What complaints did the injured party make at the time?
9. After the complaints were made, what happened to the injured party?
10. Have you seen the injured party since the accident occurred? ☐ Yes ☐ No If yes, what did you observe about their condition?
11. Was a third party or object involved (e.g. machinery, another subcontractor, or tools, etc.?) ☐ Yes ☐ No
12. Please list the names of any employee(s) who may have witnessed the incident:

Name of injured party:

OBSERVATIONS (continued)
13. Do you know if the injured party ever made these complaints before?
☐ Yes ☐ No If yes, give details.
14. Do you know of any other previous injury to the injured party?
☐ Yes ☐ No If yes, give details.
15. Does the injured party have any other employment to your knowledge?
☐ Yes ☐ No If yes, give details.
16. Did the injured party lose time from work? ☐ Yes ☐ No
17. Has the injured party returned to work or are they still off?
☐ Off ☐ Working If working, give date they returned to work.
The remainder of this document is only for UNWITNESSED Incidents
18. How did you first learn of the injured party's complaint? (In person, telephone, fellow worker, relative)
19. What were you told?
20. Were there any other complaints made? ☐ Yes ☐ No If yes, give details.
21. Did you report this to a supervisor?
If yes, give details (Who and When)

Root Cause Analysis
Incident Review

Name of injured person: _____

Branch Name: _____

Branch General Manager: _____

Branch Regional Manager Name: _____

Branch Regional Safety Manager Name: _____

Job Site Name: _____

Site Owner: _____

GC Company: _____

Date of injury: _____ Time of event: _____

Type and extent of injury: _____

Location of Incident at Job Site: _____

Foreman: _____

General Foreman: _____

Superintendent: _____

Is this an OCIP/PCIP job site: Yes ___ No___

<u>Time Line</u>:

Time Employee started work: _____

Did employee have a break prior to the incident (if so what time) Yes__ No___ Time____

Time of Incident:_____

Time Incident was reported to Foreman:_____

Time Incident was reported to Superintendent:_____

Time Incident was reported to General Manager:_____

Time Incident was reported to Regional Safety Manager:_____

Time incident reported to Regional Manager/Division Manager:_____

If outside medical, time incident reported to Workers' Compensation:_____

Root Cause Analysis
Incident Review

Job Task and Sequence of the Incident being performed when employee was injured: (what was employee doing and how did incident occur)

_____

_____

_____

_____

Contributing Factors:

Training/Communication: Yes __ No __ Explain:_____

_____

Work Practice/Instructions/Pre Task Plan: Yes __ No __ Explain:_____

_____

Rules/Procedures: Yes __ No __ Explain:_____

_____

PPE: Yes __ No __ Explain:_____

Other: Yes __ No __ Explain:_____

_____

Witness's: _____; _____; _____

Decide on the Root Cause: (*What one item could have prevented this incident)*

*Root Cause:*_____

_____.

Root Cause Analysis
Incident Review

<u>Corrective Actions</u>:

Corrective Action #1: _____

_____

*Who is responsible for completing this Corrective Action:*_____

*Date for Completion of this Corrective Action:*_____

Corrective Action #2: _____

_____

*Who is responsible for completing this Corrective Action:*_____

*Date for Completion of this Corrective Action:*_____

Corrective Action #3: _____

_____

*Who is responsible for completing this Corrective Action:*_____

*Date for Completion of this Corrective Action:*_____

Note: Use additional sheet for adding additional Corrective Actions

Branch General Manager: _____ Date:_____
(Signature)

Incident review forwarded to Branch Regional Manager, Division Manager, Vice President, and Sr. Vice President on: _____
(Date)

Root Cause Analysis
Incident Review

QUESTIONS TO ASK:

1. Materials
    a. Not stored/stacked properly?
    b. Not staged properly? (Too far from work area for example.)
    c. Too large for the job/task? (10 feet vs. 12 feet for example)
    d. Proper PPE used and correctly used?
2. Environment
    a. Is housekeeping a problem? (Ours or theirs?)
    b. Is job sequence an issue?
    c. What is the weather like? (Heat or cold stress?)
    d. Does the job require lots of physical demands?
    e. Time of day that work started?
    f. Day of the week and time of the event?
3. Tools and Equipment
    a. Are the correct tools available?
    b. Are there enough tools and equipment to do the job safely? (Ladders, harnesses, fall gear, other items?)
    c. Are the tools in good condition? (Broken or damaged?)
    d. Are broken tools taken out of service? (Why not?)
    e. Is there a place to store tools to protect them and keep them available for use?
4. Management
    a. Where was the foreman at the time of the incident?
    b. When did the foreman start on the job?
    c. Was Pre Task Plan completed?
    d. Was Pre Task Plan reviewed with employees?
    e. Were directions provided?
    f. Was there a violation of PAS Procedures?
    g. Was Disciplinary Action taken?
5. Methods
    a. Were procedures followed?
    b. Was this the first time this task was being performed by employee?
    c. Was this a routine task?
    d. Was there anything unusual about the task?
6. Training
    a. Was the job site orientation completed for injured worker?
    b. What was the quality of the job site orientation? How long did it take?
    c. Was there enough training provided for worker and foreman?
    d. Was the right training provided for worker and foreman?
    e. Was training current for worker and foreman?
    f. Was training documented for worker and foreman?

NEAR MISS REPORT

Date: _____

Branch:_____ Job Site:_____ Job Number:_____

1. Name of Person involved	2. Title/Position of Person Involved
3. Name of Person Completing Form	4. Title of Person Completing Form
5. Project Superintendent/General Foreman/Foreman	6. Contact Phone Number
7. Witness Name	8. Witness Phone Number

9. Date & Time of Incident Date: _____ Time: _____ AM/PM	10: Location where incident occurred (e.g. 2nd Floor, SE Corner of Building, etc…) _____ _____

11. Near-Miss Description: ___ Unsafe Act ___Unsafe Condition ___Unsafe Equipment ___Unsafe Use of Equipment ___ Other

_____

_____

_____

_____

12. Personal Protective Equipment (PPE) Used

_____

_____

13. Corrective Actions (what should be done or has been done to prevent recurrence of this incident? E.g. employee training, change of procedures, purchasing of equipment, etc.)

_____

_____

_____

_____

14. Responsible Party for Corrective Actions

_____

15. Date of Completion for Corrective Action

_____

Signature of Person that Completed Form: _____

Manager/Superintendent Review: _____ Date: _____

SECTION FIVE
GOVERNMENTAL REGULATION COMPLIANCE

A. Role of Management Representative

While sharing OSHA's goal of maintaining a safe place of employment, we should remain mindful that OSHA is a regulatory agency. The OSHA inspection is the first stage of the enforcement process, which always presents the possibility of ripening into litigation.

In developing these guidelines, we address only involuntary inspections. While OSHA tries to encourage employers to request voluntary inspections, we have accrued enough experience to strongly advise against inviting OSHA to inspect PAS facilities.

Highlights of the management representative's responsibilities are as follows:

1. Inform branch that OSHA is inspecting the site

2. Be assured in advance that all members of management understand your role as the company spokesman

3. Request from the OSHA inspector the reason for the inspection

4. Understand and comply with the guidance for responding to OSHA requests for information

5. Be most selective in permitting cameras on site. Also, ask that the compliance officer label his notes "CONFIDENTIAL"

6. Take detailed notes

7. Insist on being present during all interviews with salaried personnel and request to be present during all interviews with hourly personnel

8. Do not take any action in response to a citation without first consulting Corporate Safety

   NOTE: Never argue with an inspector.

B. Presenting Credentials

To begin a typical inspection, the OSHA compliance officer presents himself at the main entrance, displays his credentials, and asks to meet the appropriate management representatives. Verify the compliance officer's identity by closely scrutinizing his credentials, and if necessary, calling his local office. He should state the reason for the visit and outline in general terms the scope of the inspection. He will often provide copies of the applicable laws, safety and health standards, and a copy of an employee complaint, if one is involved.

C. Scope of Inspection

An OSHA inspection may be limited or broad in scope, the latter often referred to as a "wall-to-wall" inspection. The limited inspection may be an employee complaint investigation, reportable accident investigation, or a follow-up visit to verify abatement for a prior citation. OSHA frequently will attempt to broaden what otherwise should be a limited inspection.

The scope of the inspection should be agreed to by the compliance officer at the outset. To aid in avoiding potential differences with OSHA, immediately telephone Corporate Safety as soon as OSHA appears. Early telephone consultation has proven to be most helpful in getting organized. The branch office shall contact Corporate Safety as soon as possible.

For a limited inspection, escort the compliance officer as directly as possible to the area described in the complaint, site of the accident, or site of the earlier violation. If he shows signs of wanting to broaden the inspection, tell him that corporate approval is necessary and contact Corporate Safety. They will seek legal advice.

D. Employee Representative

The compliance officer will ask you to arrange for an employee representative to accompany him during the walk-around. Actual selection of the employee representative is made by the employees, usually through the union, if applicable. An employer can insist that only one employee representative accompany the compliance officer during the walk-around, which should be the case in the absence of special circumstances.

E. Employee Interviews

The compliance officer has the right and is encouraged by OSHA to confer privately with hourly employees. The Act grants this right of privacy in order to encourage employees to talk freely about safety conditions at your location without the hesitation that might exist if a management representative were present.

You should, however, ask to be present at any conversation with hourly employees. The burden should be placed on the compliance officer to determine whether the conversation should be a private one. If an hourly employee requests that the interview be held in private, that request should be honored. The interview should be scheduled to afford minimum interference with the duties of the employee.

<u>You should be present at all conversations with salaried employees. If OSHA objects, immediately contact Corporate Safety.</u>

F. Note Taking

Detailed inspection notes are most helpful should the company later be involved in an OSHA hearing. Notes should include, but not necessarily be limited to, the following:

1. Describing all areas inspected
2. Rationale for all violations and “possible violations” noted by OSHA
3. Specific standard(s) violated
4. Highlights of all employee interviews (when possible) and any other information conveyed to OSHA
5. All requests for information beyond the OSHA log sheets and injury reports
6. Any corrective actions taken during the inspection (See appropriate section of guidelines.)
7. Details of any hygiene sampling

8. Photographing the premises is not legitimate grounds for an objection unless there is a photograph of a trade secret. You should try to photograph every condition as photographed by the compliance officer. If the officer seems to be taking photographs of conditions from misleading perspectives, then you should photograph the condition from both the proper perspective and the misleading perspective.

9. If a statement made by the compliance officer demonstrates that he is misinterpreting a condition or situation, try to correct his understanding.

G. Correcting Apparent Violations

If apparent violations may be corrected easily (blocked aisle, unsafe floor surfaces, etc.), the inspector may suggest immediate correction. If this is done, it should be noted and will help in judging the employer's good faith and compliance. Even if corrected, the employer may still receive a citation and a proposed penalty. Clearly, you must be familiar with OSHA standards to understand and observe what constitutes an "apparent violation." If the least bit in doubt, call Corporate Safety before making any changes.

H. Records Access/Information Requests

During a routine inspection, the compliance officer will generally ask for the following records:

1. FORM #300, Log of Work-Related Injuries and Illnesses

2. FORM #301, Injuries and Illnesses Incident Report

3. FORM #300A, Summary of Work-Related Injuries and Illnesses

4. Any records of exposures to toxic substances and harmful physical agents which are required to be maintained by the standards and regulations

Any requests from the compliance officer for records or information beyond those listed require Corporate Safety approval. The compliance officer may also request copies of specific programs from our *Accident Prevention Plan* (i.e., respirator program, hazard communication program), and prior to complying with the request you must contact Corporate Safety for approval.

Often the compliance officer will ask to see the *PAS Accident Prevention Plan*. We strongly oppose this. The *PAS Accident Prevention Plan* would be considered by OSHA as setting a higher standard of safety for PAS compared to employers generally. Any departure from the *PAS Accident Prevention Plan* might result in a citation for violating the "general duty clause," the catchall clause in the Federal Act for any condition OSHA thinks might be unsafe.

I. Industrial Hygiene Sampling

OSHA regulations contain exposure limits for a great number of airborne contaminants. Even so, OSHA will sometimes ask to conduct sampling for some airborne contaminant not presently covered by OSHA regulations. We strongly advise that you not permit OSHA to sample for any airborne contaminant without OSHA first supplying the following information:

1. The sampling method
2. Sampling time
3. Job functions to be sampled
4. Specific regulatory exposure level

If the compliance officer cannot, or will not, supply this information and still insists on sampling, immediately contact Corporate Safety.

J. Closing Conference

Upon completion of the inspection, the compliance officer will request a closing conference with the employer. The designated employee representative will normally be invited to the closing conference.

Prior to attending the closing conference, you should converse with all salaried personnel who will be in attendance at this meeting. We suggest limiting such attendance to reduce the possibility of confusion and to avoid the appearance of "leaning" on the compliance officer. In any event, as the management representative, you should remind other salaried personnel of the importance of following your lead as spokesman for the company.

The compliance officer will review all possible violations and determine the time the company will be given to abate each alleged violation. For each item, ask the compliance officer to specify:

1. The hazard created
2. The job functions exposed to the hazard
3. The standard alleged to be violated
4. What possible means of abatement he suggests

In estimating time for abatement, be sure to make it clear that the company is not admitting any violations other than those apparent violations corrected during the walk-around. Request as much time as is reasonably needed.

Immediately following the closing conference, contact Corporate Safety (regional safety representative or manager of corporate safety).

K. The Citation Arrives

You should immediately forward a copy of the citation to Corporate Safety since there is only a 15-day time period for filing a notice of contest. The citation is the first step of potential litigation. Therefore, you should NOT communicate with OSHA, and you should NOT take any corrective action without first securing at least telephone approval from Corporate Safety.

At this point, Corporate Safety will notify legal counsel (if necessary) and will coordinate all future actions pertaining to the citation including direction to be given to the location personnel, coordination of Corporate Safety, and contact with the agency. If you are contacted by the agency, you should refer them to our legal counsel and not discuss the citation or any actions with them.

L. Fatality

In case of a fatality at your facility, contact Corporate Safety as soon as possible. Corporate Safety will assist you in every way possible to assure that limited problems occur during a very difficult time. Normally Corporate Safety will come to the location to conduct an investigation and assist you during your OSHA inspection.

M. Checklist of Employer Responsibilities (U.S. Dept. of Labor)

1. Be aware that you have a general duty responsibility to provide a place of employment free from recognized hazards and to comply with occupational safety and health standards promulgated under the Act.

2. Familiarize yourself with mandatory occupational safety and health standards.

3. Make sure your employees know about OSHA.

4. Examine conditions in your workplace to make sure they conform to applicable safety and health standards.

5. Remove or guard hazards.

6. Make sure your employees have and use safe tools and equipment, including required personal protective gear, and that they are properly maintained.

7. Use color codes, posters, labels, or signs to warn employees of potential hazards.

8. Establish or update operating procedures and communicate them so that employees follow safety and health requirements for their own protection.

9. Provide medical examinations when required by OSHA standard.

10. Keep required OSHA records of work-related injuries and illnesses and post the Annual Summary from February 1 to April 30 each year.

11. The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) requires that within eight (8) hours of an accident which results in a fatality or the hospitalization of three (3) or more employees, the employer must orally report the incident to the nearest OSHA area office or by using OSHA's toll-free hotline (1-800-321-OSHA). Many states have state OSHA divisions. This notification is then made to the state OSHA office.

12. Post in the workplace the OSHA poster informing employees of their rights and responsibilities.

13. Advise OSHA compliance officers of authorized employee representatives to permit their participation in the inspection walk-around. If there are no such representatives, allow a reasonable number of employees to confer with the compliance officer during the walk-around.

14. Do not attempt to discriminate against employees who properly exercise their rights under the Act (such as filing a complaint).

15. Post OSHA citations of violations of standards at the worksite involved.

N. Types of OSHA Violations

1. De Minimis. Where a violation of an OSHA standard is not immediately or directly related to safety or health, OSHA normally issues a notice De Minimis violation. This is not a citation, and it involves no fine. There is no abatement and no further enforcement, even if the employer does not correct the De Minimis condition. An example of a De Minimis notice would be where the height of letters on an exit sign are not in strict conformity with the size requirements of a standard.

2. Other or Notice. This type of citation is issued in situations where an accident or an occupational illness resulting from a violation of a standard would probably not cause death or serious physical harm, but which would have a direct or immediate relationship to the safety or health of employees. Example of a non-serious violation would be the lack of guardrails at a height from which a fall would probably result only in mild sprains or cuts and abrasions.

3. Serious. A serious violation exists if there is a substantial probability that death or serious physical harm could result from the condition which exists, or from one or more practices, operations, or processes which have been adopted or are in use. The inspector need only prove that an accident which might have resulted from violation of a regulation would have a substantial probability of resulting in death or serious physical harm. The inspector is not required to prove a substantial probability of an accident occurring.

4. Willful. A willful violation exists under the Act where evidence shows that the employer committed an intentional and knowing violation of the Act, and the employer is conscious of the fact that what he is doing constitutes

a violation of the Act, or even though the employer was not consciously violating the Act, he was aware that a hazardous condition existed and made no reasonable effort to eliminate the condition.

5. Repeated. A repeated violation exists, where, upon re-inspection, an employer is found in violation of a section of the standard, regulation, rule, or order violating the general duty clause for which he has previously been cited. Understandably, a repeated citation will assess considerably heavier penalties than the original citation.

6. Failure to Abate. In this situation, an employer is found on re-inspection to have previously cited conditions uncorrected. As with repeated citations, failure to abate citations will assess heavy penalties.

SECTION SIX
EMERGENCY MEDICAL TREATMENT

A. First-Aid Kit

REQUIRED ITEMS:

- Recordkeeping form
- Small scissors
- Tweezers or splinter forceps
- Towelettes
- Gauze squares (2” x 2”; 4” x 4”)
- Large gauze pads for compression
- Roll gauze of Kling
- Adhesive tape
- Triangular bandage
- First-aid cream (Johnsons & Johnsons)
- Eye wash solution (Dacriose)
- Ammonia inhalant
- Assorted band-aids
- Burn Treatment
- Mouthpiece (for administering CPR)
- Surgical rubber gloves
- Closable container for contaminated items (bloodborne pathogens)

OPTIONAL ITEMS:

- Tongue depressors
- Cotton tipped applicators
- Safety pins
- Thermometer
- Ace bandages
- Aspirin
- Cold pills
- Stomach antacid
- Kwik Kold (cold pack)

NOTE: The items recommended for the first-aid kit are very simple. Items specifically not recommended include: merthiolate, hydrogen peroxide, burn spray, antibiotic ointment, and spray bandage.

Commercial first-aid kits are available and generally acceptable, but often contain too few items that are used often and many items which will never be used at all.

The materials must be individually sealed packages stored in a weatherproof container.

B. Requirements for Personnel Trained in First Aid

1. OSHA Standard 29 CFR 1926.50(c) is as follows:

   "In the absence of an infirmary, clinic, hospital, or physician that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, The American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid."

2. If job site first-aid services are provided by others, you can waive the above standard provided:

   a) The personnel are available to you at all times for emergency treatment

   b) That at all times you know the names of the personnel and how and where to contact them

C. Use of Hospitals, Local Physicians, and Ambulance Service for Transporting Injured

Normally, the easiest means to procure medical care would be to use a local hospital emergency room. This is also the most expensive method of care and will almost always result in an injured employee receiving prescription medication, doctor referrals, and time off work. Therefore, arrangements for medical treatment should be made with a local industrial accident clinic. A meeting should be held with the clinic's management to explain our mandatory return-to-work program as well as small details, such as the use of over-the-counter medications whenever possible to avoid a case becoming an OSHA recordable simply because of a medication issue. The Corporate Safety Department will assist you in this process if necessary. Once a clinic has been chosen, the name, address, phone number, and directions must be posted at the job site. This information must also be reviewed during the orientation process.

D. Procedure for Transporting Injured

If an employee is ill or injured, the person best qualified must make the decision whether to call for a rescue squad/ambulance or to transport the person by company or private vehicle to a source of medical care. The most conservative means of transportation should be used, and an ambulance or rescue squad should be called if there is any doubt at all about the advisability of transporting the employee.

Employees who are ill or injured, but are conscious and have only minor illnesses or injuries and are able to move about under their own power, can be transported to the local emergency room or clinic by whatever mode of transportation is available, including a company vehicle or private automobile.

No injured employee shall be permitted to transport themselves to a medical treatment facility.

Use of Private Car or Job Truck. One or more personnel should be designated for this responsibility. Vehicles to be used must be in safe operating condition. Drivers must be legally licensed and known to be safe drivers. They should be cautioned to observe all road signs and traffic regulations while transporting the injured and be previously knowledgeable of the location of the hospital, clinic, or physician.

E. General Advice, Questions

Questions concerning medical care and treatment should be directed to the corporate claims manager.

F. Occupational Exposure to Bloodborne Pathogens

OSHA has a standard which applies to all occupational exposure to bloodborne pathogens or other potentially infectious materials (29 CFR 1910.1030). Even though this is a general industry standard, the construction industry is covered where employees are trained in first aid and **designated to render first-aid assistance as a requirement of their job**. Even though first-aid trained personnel are not required to administer first-aid treatment, we have included the following for the personal protection of these employees.

1. First-Aid Training

   a) Our employees (as required/necessary) will be trained in first aid by the U.S. Bureau of Mines, The American Red Cross, or equivalent.

   b) This training addresses the issue of bloodborne pathogens as it relates to administering first aid.

2. Protective Equipment

   a) Gauze pads are provided as required items in our first-aid kits. These pads are required to be used as a barrier between the bleeding, injured person and the person rendering first aid.

   b) Surgical rubber gloves are required in all first-aid kits and are required to be used whenever administering first aid on a bleeding person.

   c) Mouthpieces are required in all first-aid kits and are required to be used whenever administering CPR.

3. Hygiene Practices. After first aid is provided to a bleeding, injured person, the person rendering first aid shall wash his/her hands with soap and water as soon as possible. If hand-washing facilities are not available, we shall provide an antiseptic hand cleaner in conjunction with clean cloth/paper towels. When hand cleaners are used, hands must still be washed with soap and water as soon as feasible.

4. Housekeeping. Each first-aid kit must contain a closable container for blood-contaminated items. It must be constructed to prevent leakage. It must be red in color and be affixed with a red-orange “Biohazard” label. Containers should be discreetly disposed of as regular trash.

5. Hepatitis B Vaccine. In the rare event that an employee has an occupational exposure, the hepatitis B vaccine shall be made available to all employees who have occupational exposure and post-exposure evaluation and follow-up to all employees who have had an exposure incident.

6. Medical Records. The branch shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020. This record shall include:

a) The name and social security number of the employee

b) A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination

c) A copy of all results of examinations, medical testing, and follow-up procedures

d) The employer's copy of the healthcare professional's written opinion

e) A copy of the information provided to the healthcare professional

f) Shall be maintained for at least the duration of employment plus 30 years.

7. Confidentiality. Employee medical records required by the above are confidential.

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

A. General Safety Rules

1. Each job site and office/warehouse facility must display the General Safety Rules (Appendix 7A-A).

2. On small jobs with no tool box, the General Safety Rules (Appendix 7A-A) must be in the safety documentation box.

PAS
PERFORMANCE
ABATEMENT SERVICES

GENERAL SAFETY RULES

BE SURE:	You know how to do the job.
BE SURE:	You know its hazards and how to protect yourself.
IF YOU AREN'T SURE:	Ask your supervisor.

1. Report all injuries/illnesses immediately.
2. Wear the required personal protective equipment necessary for the job.
3. Always work clear of suspended loads.
4. Obey all warning signs.
5. Inspect all equipment, scaffolds, ladders, etc., for safety before using.
6. Do not use ladders as scaffolds and never climb so high that it is impossible to hold the top step for support.
7. Never use a stepladder as a straight ladder.
8. Report any unsafe tools, equipment, or hazardous conditions to your supervisor.
9. Only authorized personnel shall repair company-furnished tools or equipment.
10. See that good housekeeping is maintained in your work area.
11. Do not perform work under unsafe conditions.
12. Operate vehicles in a safe manner.
13. Exercise proper lifting techniques.
14. Horseplay of any kind will not be permitted.
15. Firearms on the job are prohibited.
16. No jewelry permitted that creates a hazard while performing job duties on a job site.
17. Drug-Free Work Place

DON'T PUT
YOURSELF AND YOUR SUPERVISOR
"ON THE SPOT"
BY NOT OBSERVING SAFETY RULES AND REGULATIONS!

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

B. Reserved

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

C. General Safety and Health Provisions

1. Warehouse Safety

   a) Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways, and wherever turns or passages must be made.

   b) Minimum PPE required in the Warehouse for employees performing any work or employees walking through the Warehouse while any work is being performed will be as follows:
      1. Hard Hat
      2. Safety Glasses
      3. Gloves (when handling any material)
      4. Sturdy Work shoes (over the ankle)
      5. Any other PPE required for the task they are performing

   c) Employees walking through the Warehouse or visitors to the Warehouse when no work is being performed are exempt from the PPE requirements

   d) Smoking is not permitted in any Warehouse.

   e) Aisles and passages shall be kept clear.

   f) Permanent aisles and passageways shall be appropriately marked.

   g) Storage of material shall not create a hazard. Storage of material shall be limited in height so that it is stable and secure against sliding or collapse.

   h) Proper housekeeping shall be maintained.

i) Wheel chocks shall be provided and employees instructed to place them under the rear wheels to prevent highway-type trucks and trailers from rolling while they are being loaded or unloaded with powered industrial trucks.

j) In battery changing and servicing areas, the employer shall:
(1) Provide facilities for quick drenching or flushing of the eyes and body to neutralize spilled electrolyte
(2) Provide fire protection
(3) Provide protection to charging apparatus to prevent damage by trucks
(4) Provide adequate ventilation for exhausting fumes
(5) Provide signs prohibiting open flames or smoking

k) Only trained and authorized operators shall be permitted to operate a powered industrial truck (documentation required). See Section Ten – Vehicular Safety for complete certification requirements.

l) All exits shall be marked by a readily visible sign that reads: “EXIT” At least two of the exits shall be remote from each other and so arranged to minimize any possibility that both may be blocked by a fire.

m) Every exit sign shall be suitably illuminated by a reliable light source (internal or external) giving a value of not less than five-foot candles on the illuminated surface.

n) Any door or passage that is not an exit or way to exit, that is likely to be mistaken for an exit, shall be identified by a sign reading “NOT AN EXIT.”

o) “WAY TO EXIT” signs should be displayed for ease of locating exits. Route of egress shall be clearly marked, maintained free of obstruction, and be not less than 28 inches wide.

p) All automatic sprinkler systems shall be continuously maintained. Periodic inspections and tests shall be made to assure proper maintenance.

q) Portable fire extinguishers shall be maintained in a fully charged and operable condition and kept in their designed places at all times.

r) Extinguishers shall be conspicuously located where they will be readily accessible and immediately available in the event of a fire. The maximum travel distance from any location to the nearest extinguisher shall not exceed 75 feet.

s) Extinguisher locations shall be marked.

t) Extinguishers shall be certified annually by a competent fire extinguisher agency and inspected monthly to insure they have not been actuated or tampered with and to detect any obvious physical damage, corrosion, or other impairments. A record of this inspection must be maintained.

u) Warehouse storage of flammable and combustible liquids shall be in accordance with the following table for Class A, B, C, II, III class liquids:

(1) **Class A**: Includes liquids having flashpoints below 73 degrees Fahrenheit (22.8 degrees Centigrade) and having a boiling point below 100 degrees Fahrenheit (37.8 degrees Centigrade)
(2) **Class B**: Includes liquids having flashpoints below 73 degrees Fahrenheit (22.8 degrees Centigrade) and having a boiling point at or above 100 degrees Fahrenheit (37.8 degrees Centigrade)
(3) **Class C**: Includes liquids having flashpoints at or above 73 degrees Fahrenheit (22.8 degrees Centigrade) and below 100 degrees Fahrenheit (37.8 degrees Centigrade)
(4) **Class II**: Includes liquids having flashpoints at or above 100 degrees Fahrenheit (37.8 degrees Centigrade) and below 140 degrees Fahrenheit (60 degrees Centigrade)
(5) **Class III:** Includes liquids having flashpoints at or above 140 degrees Fahrenheit (60 degrees Centigrade)

INDOOR CONTAINER STORAGE

CLASS LIQUID	STORAGE LEVEL	Protected storage maximum per pile GALLONS	Unprotected storage maximum per pile GALLONS
A	Ground and upper floors Basement	2,750 (50) not permitted	660 (12) Not permitted
B	Ground and upper floor Basement	5,500 (100) Not permitted	1,375 (25) Not permitted
C	Ground and upper floor Basement	16,500 (300) Not permitted	4,125 (75) Not permitted
II	Ground and upper floor Basement	16,500 (300) Not permitted	4,125 (75) Not permitted
III	Ground and upper floor Basement	55,000 (1,000) 8,250 (450)	13,750 (250) Not permitted

NOTE 1: When two (2) or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile shall be the smaller of the two (2) or more separate maximum gallonages.

NOTE 2: Aisles shall be provided so that no container is more than 12 feet from an aisle. Main aisles shall be at least three (3) feet wide and side aisles at least four (4) feet wide.

NOTE 3: Each pile shall be separated from each other by at least four (4) feet. (Numbers in parentheses indicate corresponding number of 55-gal. drums.)

2. Insulation Fabrication Facilities

   a) Protection against the effects of exposure to fibrous materials shall be provided for all workers for nuisance level dust and abrasives. Engineering controls must be implemented to the extent feasible (i.e., proper ventilation of work areas).

   b) Air samples shall be taken in the work area and the reports maintained on file. If there is a significant change in equipment, procedures, environmental control system, etc., new air samples shall be taken. Air sampling results should be kept below the specific OSHA PEL Standard through engineering controls whenever and wherever feasible.

   c) Work Station Design
      (1) Work station design shall be adjusted to suit individual requirements to the extent feasible, while meeting the functional requirements of the operation. Appropriate ergonomic factors include, but are not limited to:
         (a) Proper chair lumbar support
         (b) Chair height
         (c) Swivel or stationary seat
         (d) Optimum standing/working height for worktables
         (e) Lighting
      (2) These ergonomic factors must be considered to maintain optimum work conditions, create the least amount of injury exposure, and obtain maximum productivity and quality.

   d) When possible, mechanized material handling equipment shall be used.
      (1) All employees required to operate any mechanized equipment must be fully trained by a competent person.
      (2) All training must be documented and that documentation filed in the employee's personnel file.

   e) All employees that are required to lift material in the course of their work will be required to wear a company supplied back support as mandated by corporate policy. (See Back Supports - Section Seven E and Appendix 7E-A.)

f) Fire extinguisher locations, exit markings, and ways to exits shall be marked in accordance with OSHA regulations. (See Warehouse Safety in this section.)

g) Housekeeping must be maintained at a level that eliminates the potential for related injury accidents.

h) The PAS Hazard Communication program must be implemented and maintained per the requirements in Section Seven D.

3. Metal Fabrication Facilities

a) All metal fabrication equipment shall be maintained per the manufacturer's recommended preventive maintenance program. Documentation of the preventive maintenance performed and the maintenance schedule is to be maintained.

b) Each person qualified/certified to operate such equipment must be trained by a competent person, and this training must be documented and filed in the employee's personnel file. (See Section Nine – Training and Motivation.)

c) All equipment shall have safety protective guards/devices to insure against an inadvertent maiming injury accident.

d) Lighting shall be provided equal to or greater than 10-foot candles for <u>all</u> machinery operation areas.

e) Strict adherence to the company's lockout/tagout procedures shall be implemented whenever maintenance on equipment is conducted. (See Section Seven K – Lockout/Tagout.)

f) Housekeeping must be maintained at the level that eliminates the potential for related injury accidents.

g) The PAS Hazard Communication program must be implemented and maintained per the requirements in Section Seven D.

h) Fire extinguisher locations, exit markings, and ways to exits shall be marked in accordance with OSHA regulations. (See Warehouse Safety in this section).

i) The storage of flammable and combustible liquids shall be in accordance with the standards as indicated on the table under Warehouse Safety in this section.

j) All welding operations must be in accordance with the requirements of welding standards in Section Seven J.

k) Oxygen and acetylene cylinders must be stored and secured in an upright position. When in storage, they must be separated by a five-foot high, one-hour rated wall or 20 feet in distance.

l) All employees are required to wear the appropriate personal protective equipment as the specific job assignment may dictate.
(1) Hard hat
(2) Safety glasses/side shields
(3) Hearing protection
(4) Respirator
(5) Back support (mandatory)
(6) Gloves
(7) Welding shield
(8) Gauntlet gloves/sleeves
(9) Work boots
(10) Goggles
(11) Other as necessary

4. Confined Space Entry

a) Definitions
(1) Confined Space
(a) Is large enough and so configured that an employee can bodily enter and perform assigned work.
(b) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
(c) Is not designed for continuous employee occupancy. (A vault designed to be worked in to service its contents is not considered designed for continuous employee occupancy.)
(2) Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:
(a) Contains or has a potential to contain a hazardous atmosphere

(b) Contains a material that has the potential for engulfing an entrant
(c) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section
(d) Contains any other recognized serious safety or health hazard

b) Types of Confined Spaces
(1) Confined spaces include, but are not limited to:
(a) Storage tanks
(b) Boilers
(c) Vent ducts
(d) Stacks
(e) Tanker cars
(f) Process vessels
(g) Sewers
(h) Exhaust ducts
(i) Underground utility
(j) Hopper cars
(k) Bins
(l) Tunnels
(m)Pipelines
(n) Vaults-silos
(o) Degreasers

(2) Open top spaces or containers more than four (4) feet in depth, such as:
(a) Pits
(b) Vessels
(c) Tubs
(d) Trenches
(e) Vaults

c) Confined Space Hazards
(1) Hazardous Atmosphere
(a) The air may not have enough oxygen. The minimum oxygen level must be 19.5 percent. At levels below this, no entry is permitted without being equipped with air supplied breathing equipment.

(b) The air may be flammable or toxic. If so, entry is not permitted if the concentration of flammables is above 10 percent of the lower explosive limit, which is found on the MSDS. Tests for toxic contaminants are to be conducted and for any concentrations above the TLV, (as contained on the MSDS), entry into the space shall be discussed with and approved by Corporate Safety.

(2) Engulfment - being trapped in liquid or solid material
(3) Danger from unexpected movement of machinery
(4) Electrocution
(5) Heat stress
(6) Physical dangers such as falls, debris, slipping ladders, and suffocation due to wedging

d) Preparation of Confined Spaces. The following steps are necessary to prepare the space before anyone enters. The entry supervisor shall check to see that each precautionary step has been taken.
(1) Assess confined space to determine if hazards exist capable of causing death or serious harm.
(2) If the answer to "(1)" is yes, complete the following:
(a) All departments likely to be affected by service interruptions must be notified.
(b) Signs and barriers shall be posted at the confined space.
(i) Barriers erected to prevent inadvertent entry.
(ii) Confined Space Entry Permit (Appendix 7C-A) properly completed and posted near the entry. The permit is valid only until completion of the job or end of the shift, whichever comes first. All permits shall be retained and filed with the permanent job records.
(iii) Posted warnings of permit-required confined space operations must be displayed.
(iv) Hot work permits, if applicable. This is separate from the confined space permit.
(v) Posted emergency response phone numbers or radio contact procedures must be displayed. This may be part of the permit.
(c) Blind or disconnect and cap all input lines, so that no hazardous materials can enter the space.
(d) Complete lockout/tagout procedures. (See Section Seven K – Lockout/Tagout procedures.)

(e) Empty the space of any materials that may be hazardous. If necessary, clean and purge hazardous residue in the space.
(f) When ventilation is needed, begin long enough in advance so that the air will be safe before anyone enters. Verify by air testing.
(g) Verify that the training of entry supervisor, attendant, and entrant is documented and current.

e) Entry Requirements
(1) Atmospheric Testing. Test the air in all areas and elevations before entry. Monitor continuously or retest periodically for as long as the space is occupied and as is appropriate for the hazard involved.
(a) Oxygen. Allowable limits are between 19.5 and 23.5 percent.
(b) Flammables. For gases, the lower flammable limit (LFL) must be lower than 10 percent. For dust, do not exceed the LFL.
(c) Toxicity. List and test for any toxic materials that could be present and their permissible exposure limits (PEL).
(d) If the air is unsafe according to any of these tests, the hazard must be controlled before entry is allowed. The priority of controls is first engineering, second administrative, and last, personal protective equipment.
(2) Evaluate for heat stress potential. Mitigate as necessary.
(3) Appropriate personal protective equipment such as respirators, goggles, gloves, shoes, and coveralls shall be used as required.
(4) If continuous visual communications between the attendant and entrant will be difficult or impossible, choose and list on the entry permit the devices to be used. Test this equipment before entry. List any special procedures necessary.
(5) List any special light sources, spark-proof tools, and other electrical equipment that must be on hand before entry begins. Flammable gas presence above one (1) percent of LFL requires continuous monitoring of gas levels and elimination of any source of ignition.

f) Duties of Authorized Entrants
(1) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
(2) Use equipment properly.
(3) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space.

(4) Alert the attendant whenever:
  (a) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
  (b) The entrant detects a prohibited condition
(5) Exit from the permit space as quickly as possible whenever:
  (a) An order to evacuate is given by the attendant or the entry supervisor
  (b) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
  (c) The entrant detects a prohibited condition
  (d) An evacuation alarm is activated

g) Duties of Attendants
(1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
(2) Is aware of possible behavioral effects of hazard exposure in authorized entrants.
(3) Continuously maintains an accurate count of the authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space. This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.
(4) Remains outside the permit space during entry operations until relieved by another attendant.
(5) Communicates with authorized entrants as necessary and monitors entrant status and activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  (a) If the attendant detects a prohibited condition
  (b) If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
  (c) If the attendant detects a situation outside the space that could endanger the authorized entrants
  (d) If the attendant cannot effectively and safely perform all the duties required

(6) Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
(7) Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
  (a) Warn the unauthorized persons that they must stay away from the permit space
  (b) Advise the unauthorized persons that they must exit immediately if they have entered the permit space
  (c) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space
(8) Performs non-entry rescues as specified by the employer's rescue procedure.
(9) Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

h) Duties of Entry Supervisors
(1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
(2) Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
(3) Terminates the entry and cancels the permit when the entry operations covered by the entry permit have been completed or a condition that is not allowed under the entry permit arises in or near the permit space.
(4) Verifies that rescue services are available and that the means for summoning them are operable.
(5) Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
(6) Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

i) Emergency and Rescue Procedures
   (1) The safest way of leaving a space when conditions deteriorate is self-rescue (when an entrant evacuates the space with no help at the first sign of trouble).
   (2) Only workers trained in rescue can enter the space for the purpose of rescue. This training is extensive and must be renewed yearly. Call Corporate Safety prior to qualifying any PAS personnel.
   (3) Attendant personnel shall not leave their post unless the confined space entry operation is complete, all personnel have exited, and the space is secure. For rescue operations, they shall:
      (a) Notify rescue personnel via their radio/phone voice/visual signal communications - No communication links are permitted which require leaving their attendant post.
      (b) Attempt rescue via established “non-entry” rescue procedures
      (c) Maintain count of all personnel entering the confined space
   (4) List on the entry permit all of the necessary emergency equipment or devices such as rescue and communication equipment and verify its working order prior to space entry.
   (5) Review the emergency response plan prior to any entry.

j) Post Entry Considerations. The supervisor who authorized the entry shall be responsible for:
   (1) Verifying all personnel are no longer in the confined space
   (2) Determining that all equipment used during the entry has been removed from the confined space
   (3) Removal of entry permit and forwarding it to the office for filing

k) Training
   (1) All employees and supervisors involved in confined space entry shall be instructed on the proper procedures to be followed. Documentation of the training is to be maintained.
   (2) Standby personnel must be trained in first aid and CPR.
   (3) All employees and supervisors involved in confined space entry shall be trained in the use of self-contained breathing apparatus, if entry requires this type of equipment.
   (4) Training in the use of testing equipment must be conducted unless you choose to employ an industrial hygiene consultant for testing of the confined space. If an employee is to be trained for testing, the testing shall include the use, calibration, and limitations of all testing equipment. Contact an industrial hygiene group or the equipment

distributor for guidance in obtaining the necessary training in the use of testing equipment.

l) Physical Examination. Each employee involved in the confined space entry shall be required to take a physical examination to determine if he/she is capable of performing the assigned work wearing respiratory equipment. Document your actions in offering the medical examination to employees and maintain the documentation in the job file.

m) Recordkeeping. Retain each canceled entry permit for at least one year to facilitate the review of the permit-required confined space program.

n) Coordination with Other Personnel. Due to the nature of our work, we will rarely work in a confined space with another trade. If the occasion arises, the entry supervisor will:
(1) Meet with the other trade's entry supervisor
(2) Determine if the combined work will create any hazards not previously identified
(3) Revise entry plan as required

5. Housekeeping

a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails and all other debris shall be kept cleared from work areas, passageways, and stairs in and around buildings or other structures.

b) Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.

c) Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc., shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

d) Hazardous waste shall not be disposed of with common trash.

CONFINED SPACE ENTRY PERMIT

GENERAL INFORMATION

Space to be Entered: Purpose of Entry: Permit #

Purpose of Entry:

Location/Building: Authorized Duration of Permit: Date: to

Time: to

PERMIT SPACE HAZARDS (indicate specific hazards with initials)

_____ Oxygen deficiency (less than 19.5%)
_____ Flammable gases or vapors (greater than 10% of LFL)
_____ Toxic gases or vapors (greater than PEL)
_____ Electrical shock
_____ Engulfment
_____ Oxygen enrichment (greater than 23.5%)
_____ Airborne combustible dust (meets or exceeds LFL)
_____ Mechanical hazards
_____ Materials harmful to skin
Other:

PREPARATION FOR ENTRY (check after steps have been taken)

☐ Notification of affected departments of service interruption
☐ Isolation Methods: ☐ Lockout/tagout ☐ Blank/blind ☐ Purge/clean ☐ Inert ☐ Ventilate ☐ Atmospheric test
☐ Barriers ☐ Other:_____
☐ Personnel Awareness: ☐ Pre-entry briefing on specific hazards and control methods
☐ Notify contractors of permit and hazard conditions
☐ Other:_____
☐ Additional permits required and/or attached: ☐ Hotwork ☐ Line breaking ☐ Other:_____

EMERGENCY SERVICE

NAME OF SERVICE	PHONE #	METHOD CONTACT

EQUIPMENT REQUIRED FOR ENTRY AND WORK (specify as required)

Personal Protective Equipment:
Respiratory Protection:
Atmospheric Testing/Monitoring:
Communication:
Rescue Equipment:
Other:

COMMUNICATION PROCEDURES (to be used by attendants and entrants):

AUTHORIZED ENTRANTS (list by name or attach roster)

AUTHORIZED ATTENDANTS (list by name)

TESTING RECORD

TIME	ACCEPTABLE CONDITIONS	RESULT AM/PM	RESULT AM/PM	RESULT AM/PM	RESULT AM/PM	RESULT AM/PM	RESULT AM/PM	RESULT AM/PM
Oxygen-min.	> 19.5%							
Oxygen-max.	< 23.5%							
Flammability	< 10% LEL/LFL							
H_2S	< 10 ppm							
Toxic (specify)								
Cl_2	< 0.5 ppm							
CO	< 35 ppm							
SO_2	< 2 ppm							
Heat	°F/°C							
Other								
Tester Initials								

AUTHORIZATION BY ENTRY SUPERVISORS

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

PRINTED NAME SIGNATURE DATE TIME

THIS PERMIT MUST BE POSTED ON JOB SITE - GOOD ONLY ON INDICATED DATE

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

D. Occupational Health and Environmental Controls

1. Heat Stress Prevention

   a) Policy.

      (1) PAS shall provide to employees access to drinking water provided either as a continuous source or portable supply in the amount of one quart per employee per hour for the entire shift.
      (2) If contacted by an employee complaining of heat related symptoms or believing a preventative recovery period is needed to prevent a heat stress condition, we will provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times.
      (3) PAS Supervisors will be trained in this policy and procedures to prevent Heat Illness to PAS Employees prior to supervising any PAS employees.
      (4) PAS Supervisors will be trained to follow the procedures when an employee exhibits symptoms to possible heat illness, including emergency response procedures.
      (5) PAS Supervisors will evaluate the personal factors of employees prior to assigning them a task that could contribute to heat related illnesses. These personal factors could include, but not be limited to the following:
          (a) Employees age
          (b) Employees Physical condition (weight/fitness)
          (c) Employees prior heat related illnesses
      (6) PAS Supervisors will instruct employees of the physical work factors that can contribute to heat related illnesses and what action they should take before performing their task. This factors will included at a minimum the following:
          (a) Type of work they will be performing
          (b) Duration of the work activity
          (c) Level of physical activity
          (d) Use of clothing color and clothing weight

(7) PAS Supervisors will evaluate what measures will be put into place to control environmental factors that can contribute to heat related illnesses. This measures will include, but not be limited to the following:
   (a) Evaluate air temperature
   (b) Evaluate air humidity
   (c) Control radiant heat sources
   (d) Provide adequate air circulation in work area

(8) High heat procedures are additional preventative measures that PAS will use when the temperature equals or exceeds 95 degrees Fahrenheit.
   (a) Effective communication by voice, observation or electronic means will be maintained so that all PAS employees at the worksite can contact a foreman/supervisor when necessary.
   (b) Frequent communication will be maintained with employees working by themselves or in small groups to observe for possible signs of heat illness.
   (c) PAS employees will be observed for alertness, and signs of heat illness. When the foreman/supervisor is not available, an alternate person may be assigned to observe for signs of heat illness symptoms. Such designated person shall be trained and know what steps to take in the event of a heat illness situation.
   (d) PAS employees will be reminded throughout the work day to drink plenty of fluids.
   (e) New PAS employees will be closely supervised and/or assigned a “buddy” for the first 14 days of employment unless the employee indicates he/she has been conducting similar outdoor work for at least the past ten days or the past 30 days for four or more hours per day.

(9) PAS shall provide training to all employees in the following areas:
   (a) The environmental and personal risk factors for heat stress.
   (b) Employees will be trained in what measures must be in place to control heat related illnesses. This will include knowing the air temperature, humidity, radiant heat sources and air circulation.
   (c) Employees will be trained in work factors that can contribute to heat related illnesses and what action should be taken into consideration before performing their task.

(d) The importance of frequent consumption of small quantities of water, up to one quart per hour under extreme conditions of work and heat.
(e) The importance of acclimatization. New Hire employees and employees who have been off work for 2 weeks or longer should not work extended time in the heat until they become accustom to the heat.
(f) The different types of heat stress and common signs and symptoms.
(g) The importance of immediately reporting to one's supervisor symptoms or signs of heat stress in themselves or in a co-worker.
(h) The site procedures for providing first-aid to respond to a heat stress, and the emergency procedures in place for contacting medical service providers.
(i) Procedures for complying with the requirements of the Heat Stress Prevention Policy.

(10) We shall extend to employees the exclusive right to determine when a "Preventive Recovery Period" is necessary and for how long. The recovery period shall not be less than five minutes.

b) Procedure.
(1) The Foreman on each project will determine the sufficient amount of drinking water to satisfy the standard of one quart of water per hour per employee and supply the water, drinking utensil, and trash container needed.
(2) The foreman shall designate an area on the job site to be used for recovery from Heat Stress symptoms.
(3) An employee who shows signs of Heat Stress or reports this condition to his foreman shall be escorted to the designated recovery area and the Foreman or a designated employee will stay with the employee until he is ready to return to work. (no less than 5 minutes)
(4) The employee shall remain in the designated area during the recovery period. He will not leave the site during this time. If symptoms persist longer than 15 minutes the employee may require medical attention.
(5) The Foreman will complete a Heat Stress Symptom Report (Appendix 7D-A) and forward the report to the Branch General Manager and Branch Superintendent.

(6) The Foreman will provide training on the Heat Stress Prevention Policy to all PAS employees on their job site during the employees Job Site Orientation. **This will be documented on the Job Site Orientation Checklist.**
(7) The Heat Stress Prevention Program will be followed by all employees.

c) Definitions.
(1) Acclimatization means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
(2) Heat Illness means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
(3) Environmental risk factors for heat illness means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by others.
(4) Personal risk factors for heat illness means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention of other physiological responses to heat.
(5) Preventative recovery period means a period of time to recover from the heat in order to prevent heat illness.
(6) Shade means blockage of direct sunlight. Canopies, umbrellas and other temporary structures of devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area if shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

2. Occupational Noise Exposure

   a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in the Permissible Noise Exposures table.

   b) When our employees are subjected to sound levels exceeding those listed in the table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels listed in the Permissible Noise Exposures table.

PERMISSIBLE NOISE EXPOSURES

DURATION PER DAY, HOURS	SOUND LEVEL dBA SLOW RESPONSE
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ OR LESS	115

NOTE: 90 decibels (dBA) is approximately the noise level when you must raise your voice to be heard from a distance of two (2) feet.

3. Ionizing Radiation

a) Background. In the course of our business we may require employees to visit or be assigned to an operating nuclear power station. Nuclear Regulatory Commission Regulation 10 CFR 20 requires all operating nuclear power stations to monitor the radiation dosage exposure of every person exposed to ionizing radiation at that location. It is also required that the power station provide that person with a radiation exposure report, under NRC Regulation 10 CFR 19.

b) Objectives. The objectives are to protect our employees from any specific or potential hazard associated with their work environment and to indoctrinate our employees in the requirements applicable to this goal. It is, therefore, our objective to provide safety instructions to employees prior to their assignment and to strictly monitor radiation dosages of those employees who may be exposed to occupational radiation in the performance of their duty.

c) Personnel Radiation Safety Procedures
   (1) In compliance with NRC Regulation 10 CFR 20, no employee shall receive in any period of one calendar quarter, from radioactive material and other sources of radiation, a total occupational dose (not including radiation for the purpose of medical diagnoses or medical therapy) in excess of the following Occupational Dose Limits (See Appendix 7D-B):
      (a) Total Effective Dose Equivalent (TEDE): 5 REM per year
      (b) Total Organ Dose Equivalent (TODE): 50 REM per year
   (2) Prior to the assignment or visit of an employee to an operating nuclear plant, the utility shall determine whether the employee is eligible to visit the facility under the requirements of the Code Section. The employee's current level of occupational radiation dosage and expected dosage exposure at the new assignment will be the determining factors in the decision to allow an employee to be assigned to an operating nuclear power station.
   (3) Once the employee has been cleared for the assignment, he shall receive a safety indoctrination from the General Manager which would include the following:
      (a) Reading NRC Regulation 10 CFR 20
      (b) Reading NRC Regulation 10 CFR 19
      (c) Determination of the employee's current level of radiation exposure for the calendar quarter

(d) An orientation as to each employee's responsibilities as enumerated in the procedure

(4) The employee and the General Manager should complete the indoctrination checklist together to ensure a thorough indoctrination has been accomplished. This checklist will be signed by both the employee and the General Manager prior to the employee's departure for his assignment. (Use the Radiation Safety Program Checklist – Appendix 7D-C.)

(5) The employee who has visited an operating nuclear power station shall ensure that he logs in his radiation exposure dose (REM) prior to departure from the power station on the proper form. (Use the Personal Occupational Radiation Exposure Record – Appendix 7D-D).

(6) The employee shall be responsible to ensure he receives a copy of the official exposure report from the power station's Health Physics Department within three to six weeks of his visit, in accordance with NRC Regulation 10 CFR 19.

(7) A copy of the Personal Occupational Radiation Exposure Record (Appendix 7D-D) should be submitted to the General Manager as soon as the employee returns from his assignment. A copy of the official exposure report from the power station's Health Physics Department must also be submitted to the General Manager as soon as it is received by the employee. The employee shall be requested to maintain his own file of exposure records also. However, the company's log, properly signed, shall be the form used as the employee's official record of exposure when entering or re-entering an operating nuclear power station.

(8) All employees who have previously visited an operating nuclear power station prior to this procedure or may have had occupational radiation history, are required to submit their exposure records to the General Manager. All newly hired personnel whose responsibilities may require an assignment or a visit to an operating nuclear power station shall be required to read this policy and to submit their occupational radiation history to the General Manager.

4. Nonionizing Radiation (Lasers)

   a) Training
      (1) All laser training must be conducted by the laser manufacturer's representative or sales representative.
      (2) All laser training shall be documented utilizing our standard Safety Meeting Report form (Appendix 9-A). This document should be maintained with all other safety training documents.
      (3) Each trained and qualified operator will be presented (from the instructor) a Laser Operator Training and Qualification card or something similar. This card must be in the possession of the operator at all times when operating a laser.

   b) Eye and Face Protection
      (1) Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles, which are designed to protect for the specific wave length of the laser and be of optical density adequate for the energy involved. The table below lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from five (5) through eight (8).

SELECTING LASER SAFETY GLASS

Intensity, CW Maximum Power Density (watts/cm²)	***Attenuation***	
	Optical Density (O.D.)	**Attenuation Factor**
0.01	5	10^5
0.1	6	10^6
1.0	7	10^7
10.0	8	10^8

(Output levels falling between lines in this table shall require the higher optical density.)

      (2) All laser safety goggles shall bear the following data:
         (a) The laser wave lengths for which use is intended.
         (b) The optical density of those wave lengths.
         (c) The visible light transmission.

c) Operation
   (1) Employees, when working in areas in which a potential exposure to direct or reflected laser light greater than 0.005 watts (5 milliwats) exists, shall be provided with the appropriate eye protection as specified in the above Selecting Laser Safety Glass table.
   (2) Areas in which lasers are used shall be posted with standard laser warning placards. These placards are to be obtained from your laser supplier. At a minimum this placard should display the following:

WARNING
LASER LIGHT

LASER
AVOID DIRECT EYE EXPOSURE

   (3) Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch, overnight, or at shift change, the laser shall be turned off.
   (4) Only mechanical or electronic means shall be used as a detector for guiding the alignment of the laser.
   (5) The laser shall not be directed at employees.
   (6) When it is raining or snowing, or when there is dust or fog in the air, the operation of laser systems shall be prohibited where practicable; in any event, employees shall be kept out of range of the area of source and target during such weather conditions.
   (7) Laser equipment shall bear a label to indicate maximum output.
   (8) Employees shall not be exposed to light intensities above:
      (a) Direct staring: 1 microwatt per square centimeter
      (b) Incidental observation: 1 milliwatt per square centimeter
      (c) Diffused reflected light: 2 ½ watts per square centimeter
   (9) Laser units in operations should be set up above the heads of employees whenever possible.
   (10) Employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

5. Hazard Communication Program/Global Harmonization System

   a) Objectives. Performance Abatement Services, Inc.'s (PAS) Hazard Communication/Global Harmonization System (GHS) program shall be implemented and maintained at all branch locations and at each job site. The first two steps in any program to ensure the safe use of chemicals are to identify intrinsic hazard(s) (i.e., classification) and then to communicate that information.
   b) This program:
      (1) Explains the procedures PAS will use to ensure that our employees are provided with necessary information regarding hazardous products to which they may be exposed in the workplace
      (2) Provides adequate training for their safe handling and use, including emergency procedures in the case of explosion, fire, leak, or spill, and training for hazards associated with non-routine tasks
      (3) Provides a list of the hazardous products known to be present
      (4) Maintains the appropriate Safety Data Sheet (SDS), making copies available to employees
      (5) Informs other employers at the job site of hazardous products that PAS uses, including the labeling system used, any precautionary measures that need to be taken to protect employees during normal and emergency conditions, making available copies of SDS(s)
      (6) Makes available this written Hazard Communication program to employees and Department of Labor personnel upon request

   c) Labels and Other Forms of Warning

      Each container or hazardous product received from a manufacturer, importer, or distributor shall be delivered with a hazardous warning label that has the harmonized core information under the GHS (signal words, hazard statements and symbols, etc.)

      The standardized label elements included in the GHS are:

      - **Symbols (hazard pictograms)**: Convey health, physical and environmental hazard information, assigned to a GHS hazard class and category.
      - **Signal Words:** "Danger" or "Warning" are used to emphasize hazards and indicate the relative level of severity of the hazard, assigned to a GHS hazard class and category.

- **Hazard Statements:** Standard phrases assigned to a hazard class and category that describe the nature of the hazard.

(1) The warning label must:
  (a) Identify the hazardous product(s) contained
  (b) Contain appropriate hazard warnings
  (c) Contain the name and address of the manufacturer, importer, or other responsible party

(2) These labels must remain intact at all times. If the label is destroyed or defaced in any manner that renders it unreadable, PAS must immediately provide a new label for the container or package. The new label shall contain the same information as the manufacturer's label.

(3) If we put the contents of an original container or package into another container or package, we must label that container or package also.
  (a) An example would be: Received material in a five-gallon container that is poured into 5 one-gallon containers to transport to job site. All 5 one-gallon containers must have the same type of label as the original five-gallon container.
  (b) Exception: It is not required to label portable containers into which hazardous products are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer.

(4) All labels or other forms of warning must be legible and prominently displayed on the container(s). All labels/pictograms and warnings shall be in the English language. In areas where PAS has employees who speak other languages, the label or warning information may be presented in their language in addition to the required English language information.

(5) At any location in which PAS shall act in the capacity of a distributor, supplying products to other distributors or employers, the person preparing the order for shipment shall ensure each container of hazardous products leaving our facility is labeled, tagged, or marked with the following information:
  (a) Identity of the hazardous products
  (b) Appropriate hazard warnings
  (c) Name and address of the product manufacturer, importer, or other responsible party

(6) Manufacturers' warning labels shall not be damaged or defaced. If labels are illegible, we must immediately affix a new label which

has all the information contained on the original label. Care shall be taken to label in the same manner as the manufacturer so as not to conflict with the requirements of the Hazardous Materials Transportation Act or a substance-specific health standard regulated by OSHA.

(7) Stationary process containers may be labeled by use of signs, placards, process sheets, batch tickets, operating procedures, or other written material in lieu of affixing labels to each stationary container as long as the label identifies the hazardous product and contains the appropriate hazard warning. Such written material shall be readily available to employees during each work shift.

d) Safety Data Sheet (SDS)

(1) PAS installs products that are manufactured or imported by others. Each product PAS purchases must be delivered with a corresponding Safety Data Sheet (SDS). (See sample SDS – Appendix 7D-E.) If the SDS is not provided, one must be obtained immediately. This can be done by requesting a copy from the supplier. SDS(s) should be requested at the time we initially order the product.

(2) Each SDS shall be in English and include the following data as a minimum:

(a) Manufacturer's name, address, and emergency telephone number
(b) Trade name used on the label
(c) The product and common name(s) of the product
(d) The product and common name(s) of all hazardous ingredients
(e) Physical and chemical characteristics (such as appearance, vapor pressure, solubility, etc.)
(f) Fire and explosion hazard data (such as flash point, extinguishing media, special firefighting procedures, and unusual hazards)
(g) Health hazard data (such as symptoms and effects of overexposure, primary route(s) of entry, exposure limit, whether the hazardous product has been identified as a potential carcinogen)
(h) Emergency and first-aid procedures
(i) Reactivity (such as incompatibility with other materials, conditions to avoid, and hazardous decomposition products)
(j) Procedures for spills or leaks, including waste disposal method

(k) Special protection information (such as appropriate engineering controls, work practices, personal protective equipment, and appropriate hygiene practices)
(l) Precautions for safe handling and storage
(m) Date of preparation of the SDS

(3) Each SDS will be maintained on file and be readily accessible at the job site during the work shift.
(4) When employees are required to work at more than one job site during their shift, SDS information shall be immediately available to them by telephone from PAS's nearest branch office in any emergency.
(5) At any location in which PAS shall act in the capacity of a distributor, supplying products to other distributors or employers, appropriate SDS(s) shall be provided with the initial product shipment and with the first shipment after an SDS is updated.

e) Employee Information and Training
(1) PAS shall provide its employees with information and training on hazardous products in their work area at the time of their assignment to the job site and whenever a new product is introduced into their work area.
(2) Training shall be included as part of the job site orientation program for all PAS personnel. Each employee shall be informed by his foreman, superintendent, or other qualified person of any operations in the work area where hazardous products are present; be provided a list of the hazardous products, and be provided a copy of SDS(s) when requested.
(3) Training shall include:
(a) An explanation of the labeling system - use an actual label as an audiovisual to explain the labeling system
(b) An explanation of the SDS - use an actual SDS to explain how to read and use it
(c) How to obtain and use the appropriate hazard information
(d) Methods of observation that can be used to detect the presence or release of a hazardous product
(e) The physical and health hazard of the product(s)
(f) The measures an employee can take to protect themselves from these hazards
(g) Specific procedures PAS has implemented to protect employees from exposure to hazardous products (appropriate work practices, engineering controls, etc.)

(h) Procedures for employee protection during any "non-standard" work operation
(i) Required personal protective equipment and instruction in its use and care (demonstrate with the actual equipment, explain what it is, how to wear it, how to care for it, and where it is located)

(4) Each training session shall be documented on the standard PAS Safety Meeting Report form (Appendix 9-A). The documentation shall list the products/chemicals discussed, name(s) of employee(s) present, date, and trainer signature.

f) Job Site Inventory List of PAS Hazardous Products. The lead foreman (or other designated person) shall maintain a Job Site Inventory List of Hazardous Products (Appendix 7D-F) known to be present using an identity that is referenced on the appropriate SDS. This reference will then make each SDS readily accessible for each product listed on the inventory list. The on-site inventory and SDS(s) shall be made available to our employees on request.

g) Multi-Employer Job Sites. PAS regularly works on job sites with several other employers. It is the responsibility of PAS's job site supervision to inform other contractors of the hazardous products that we will be using at that job site. A letter (HAZ/COM for Multi-Employer Job Sites – Appendix 7D-G) shall be sent to each contractor informing them of PAS's Hazard Communication program. Contract responsibilities may mandate that all correspondence between subcontractors be sent through the general contractor or construction manager, in which case we will request the letter be forwarded to each contractor. Note that the sample letter should be copied onto your branch letterhead. This sample letter includes:
(1) PAS's Job Site Inventory List of Hazardous Products (Appendix 7D-F)
(2) SDS(s) availability and location
(3) All precautionary measures
(4) Labeling requirements

h) Hazardous Products/Chemicals List from Other Contractors. PAS shall compile lists of products/chemicals supplied by other contractors on multi-employer job sites. PAS's supervision shall request SDS(s) for all hazardous products/chemicals which are used by other job site employers.

i) Responsibility
   (1) It is the responsibility of PAS's branch manager to ensure that this program is implemented at the branch office and at each job site operated by the branch.
   (2) PAS's lead supervisor (project manager, superintendent, or foreman) at each job site shall be responsible for field implementation. The supervisor shall ensure compliance with product labeling, SDS(s), employee training, Job Site Inventory List of Hazardous Products (Appendix 7D-E), notification of other contractors at multi-employer job sites (Appendix 7D-F), and keeping all records required. The supervisor shall ensure that all employees have received training.

j) Hazardous "Non-Standard" (Non-Routine) Task
   (1) Prior to beginning a non-routine task, the foreman (supervisor) shall instruct the employees about the hazards of the products/chemicals to which they may be exposed. The training shall be documented on a Safety Meeting Report form (Appendix 9-A).
   (2) The training will include:
      (a) Specific product/chemical hazards (review of SDS)
      (b) Safety measures that will be taken
      (c) Measures taken to reduce the hazard (example: ventilation, respirators, etc.)
      (d) Emergency procedures, if different from standard job site procedures

6. Lead

a) These requirements apply to all construction activities where an employee may be occupationally exposed to lead. Construction activities include, but are not limited to, the following:
   (1) Demolition or salvage of structures where lead or materials containing lead are present
   (2) Removal or encapsulation of materials containing lead
   (3) New construction, alteration, repair, or renovation of structures, substrates, or portions thereof that contain lead
   (4) Installation of products containing lead
   (5) Lead contamination/emergency cleanup
   (6) Transportation, disposal, storage, or contaminant of lead or materials containing lead on the construction site

(7) Maintenance operations associated with construction activities

b) Definitions
(1) Action Level. Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30$\mu g/m^3$) calculated as an eight-hour time weighted average (TWA).
(2) Competent Person. One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.
(3) Lead. Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

c) Permissible Exposure Limit (PEL)
(1) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50$\mu g/m^3$) averaged over an eight-hour period.
(2) When respirators are used to limit employee exposure, then the employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn.

d) Exposure Assessment
(1) Initially we shall determine if any employee may be exposed to lead at or above the action level.
(2) Under the monitoring requirements, we shall collect personal samples representative of a full shift, including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level.
(3) With respect to lead related task, until the employer performs an employee exposure assessment and documents that the employee performing the task is not exposed above the PEL, the employer shall treat the employee as if he/she were exposed above the PEL and not in excess of 10 times the PEL, shall implement employee protective measures prescribed as follows:
(a) Appropriate respirator protection
(b) Appropriate personal protective clothing and equipment
(c) Change area
(d) Hand washing facilities

(e) Biological monitoring to consist of blood sampling and analysis for lead and zinc protoporphyrin (ZPP) levels
(f) Training as required:
i) Hazard communication
ii) Respirator
iii) Personal hygiene

(4) Where the employer has previously monitored for lead exposure and the data was obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results.
(5) Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation, or activity involving lead cannot result in employee exposure to lead at or above the action level during processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

e) Positive Initial Determination and Initial Monitoring
(1) Where a determination shows the possibility of any employee exposure at or above the action level, the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.
(2) Where a determination is made that no employee is exposed to airborne concentrations of lead at or above the action level, the employer shall make written record of such determination. This record shall include:
(a) Location within the worksite
(b) Name and social security number of each employee monitored
(c) Any information, observations, or calculations which would indicate employee exposure to lead
(d) Any previous measurements of airborne lead
(e) Any employee complaints of symptoms which may be attributable to exposure to lead

f) Frequency
(1) If the initial determination or subsequent determination reveals employee exposure to be at or above the action level, but at or below the PEL, the employer shall perform monitoring at least every six (6) months.

(2) If the initial determination reveals that employee exposure is above the PEL, the employer shall perform monitoring quarterly.

g) Additional Exposure Assessments. Whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may result in employees being exposed above the PEL, the employer shall conduct additional monitoring.

h) Employee Notification
(1) Within five (5) working days after completion of the exposure assessment, the employer shall notify each employee in writing of the results which represent that employee's exposure.
(2) Whenever the results indicate that the representative employee exposure, without regard to the respirators, is at or above the PEL, the employer shall include in the written notice a statement that the employee's exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

i) Methods of Compliance. Engineering and work practice controls shall be implemented to reduce and maintain employee exposure to lead below the permissible exposure limit to the extent that such controls are feasible. Wherever these controls are not sufficient to reduce employee exposure, the employer shall, nonetheless, use them to reduce employee exposure to the lowest feasible level and shall supplement them by the use of proper personal protective equipment.

j) Compliance Program
(1) Prior to the commencement of the job, the employer shall establish and implement a written compliance program to achieve compliance with the standard.
(2) Written plans for these job compliance programs shall include as a minimum:
(a) A description of each activity in which lead is emitted, equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices
(b) A description of the specific means that will be employed to achieve compliance and, where engineering controls are required, engineering plans and studies used to determine methods selected for controlling exposure to lead

(c) Air monitoring data which documents the source of lead emissions
(d) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.
(e) A description of arrangements made among contractors on multi-contractors sites with respect to informing affected employees of potential exposure to lead
(f) The compliance program shall provide for frequent and regular inspections of job site, materials, and equipment to be made by a competent person
(g) This written program shall be submitted upon request to any affected employee or authorized representatives, to the assistant secretary, and the director, and shall be available at the worksite for examination and copying by the assistant secretary and the director
(h) Written job programs shall be revised and updated at least every six (6) months to reflect the current status of the program

k) Administrative Controls. If administrative controls are used as a means of reducing employees' exposure to lead, the employer shall establish and implement a job rotation schedule which includes:
(1) Name or identification number of each affected employee
(2) Duration and exposure levels at each job or work station where each affected employee is located

l) Respiratory Protection
(1) Where the use of respirators is required, the employer shall provide at no cost to the employee and enforce the use of respirators. Respirators shall be used in the following circumstances:
(a) Whenever an employee's exposure to lead exceeds the PEL
(b) In work situations in which engineering controls and work practices are not sufficient to reduce exposures to below the PEL
(c) Whenever an employee requests a respirator
(2) Respirator Selection
(a) Where respirators are used, the employer shall select the appropriate respirator or combination of respirators. (See Respiratory Protection for Lead Aerosols table – Appendix 7D-H.)

(b) The employer shall provide a powered air-purifying respirator (PAPR) whenever:
  i) An employee chooses to use this type of respirator
  ii) When it is needed to provide adequate protection
(c) The employer shall select respirators from those approved for protection against lead, dust, fume, and mist.

(3) Respirator Usage/Program. Adhere to the program requirements established under Respiratory Protection in Section Seven E.

m) Protective Work Clothing and Equipment. Where employees are exposed to lead above the PEL without regard to the use of respirators and/or where employees are exposed to lead compounds, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:
(1) Coveralls or similar full-body work clothing
(2) Gloves, hats, and shoes, or disposable shoe coverlets
(3) Face shields, vented goggles, or other appropriate protective equipment

n) Cleaning and Replacement
   (1) The employer shall provide the protective clothing in a clean and dry condition.
   (2) The employer shall provide for the cleaning, laundering, and disposal of protective clothing and equipment.
   (3) The employer shall repair or replace protective clothing and equipment as needed to maintain their effectiveness.
   (4) The employer shall assure that contaminated protective clothing is placed in a closed container in the change area which prevents dispersion of lead outside the container.
   (5) The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.
   (6) The containers of contaminated protective clothing and equipment shall be labeled as follows:

   CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

o) Housekeeping
   (1) All surfaces shall be maintained as free as practicable of accumulations of lead.
   (2) Clean up of floors and other surfaces where lead accumulates shall, whenever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.
   (3) Shoveling, dry or wet sweeping and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.
   (4) Where vacuuming methods are selected, the vacuums shall be equipped with high efficiency particulate air (HEPA) filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.
   (5) Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne lead dust created by the compressed air.

p) Hygiene Facilities and Practices
   (1) General. The employer shall assure that in areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.
   (2) Change Areas
      (a) The employer shall provide clean change areas for employees whose airborne exposure to lead is above the PEL.
      (b) The change areas shall be equipped with separate storage facilities for protective work clothing and equipment and for street clothes which will prevent cross-contamination.
      (c) The employer shall assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.
   (3) Showers
      (a) Shower facilities shall be provided, where feasible, for use by employees whose airborne exposure to lead is above the PEL.
      (b) The employer shall assure, where shower facilities are available, that employees shower at the end of the work shift and shall provide an adequate supply of cleaning agents and towels.
   (4) Eating Facilities
      (a) Lunchroom facilities or eating areas shall be provided for employees whose airborne exposure to lead is above the PEL.
      (b) The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.
      (c) Employees shall be required to wash their hands and face prior to eating, drinking, smoking, or applying cosmetics.
      (d) The employer shall assure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming.
   (5) Hand Washing Facilities. The employer shall provide adequate hand washing facilities where showers are not provided.
   (6) Medical Surveillance
      (a) The employer shall make available initial medical surveillance to employees occupationally exposed to lead at or above the action level. Initial medical surveillance consists of biological

monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

(b) The employers shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

(c) The medical examinations shall be made available without cost to employees and at a reasonable time and place.

(7) Biological Monitoring

(a) Blood Lead and Zinc Protoporphyrin (ZPP) Level Sampling and Analysis

i) The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin level.

ii) Blood sampling shall take place at least every two (2) months for the first six (6) months and every six (6) months thereafter.

iii) Each employee who is removed from exposure to lead due to an elevated blood lead shall have blood sampling at least monthly until two (2) consecutive blood samples and analysis indicate a blood lead level below 40 micrograms per deciliter (40 μg/dl).

(b) Employee Notification. Within five (5) working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level.

(c) Medical Examinations and Consultations. The employer shall make available medical examinations and consultations at least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40μg/dl.

(8) Content

(a) The content of medical examinations shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility.

(b) Medical examinations shall include the following elements:

i) A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking), and past gastrointestinal, hematological, renal, cardiovascular, reproductive and neurological problems

ii) The examination shall pay particular attention to teeth, gums, hematological, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should also be evaluated if respiratory protection will be used.
iii) A blood pressure measurement
iv) A blood sample and analysis which determines:
aa) Blood lead level
bb) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology
cc) Zinc protoporphyrin
dd) Blood urea nitrogen
ee) Serum creatininine
v) A routine urinalysis with microscopic examination
vi) Any laboratory or other test relevant to lead exposure which the examining physician deems necessary by sound medical practice

(9) Multiple Physician Review Mechanism
(a) When the employer selects the initial physician who conducts any medical examination or consultation related to lead exposure, the employee may designate a second physician to:
i) Review any findings, determinations, or recommendations of the initial physical
ii) Conduct such examinations, consultants, and laboratory tests as the second physician deems necessary to facilitate this review
(b) The employer shall notify each employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation. PAS is not obligated to pay for the second opinion.
(c) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.
(d) If the two physicians cannot resolve their disagreement, then the employer and employee through their respective physicians shall designate a third physician who will:
i) Review any findings, determinations, or recommendations of the prior physicians
ii) Conduct such examinations, consultations, laboratory tests, and discussions with the prior physicians to resolve the disagreement

(e) Information to Be Provided to Physicians
  i) A copy of the OSHA Standard, 29 CF1926.62 including all appendices, using the following internet links:
    aa) Lead – 1926.62
    bb) Appendix A to 1926.62
    cc) Appendix B to 1926.62
    dd) Appendix C to 1926.62
    ee) Appendix D to 1926.62
  ii) A description of the affected employee's duties as they relate to the employee's exposure
  iii) The employee's exposure level or anticipated exposure level to lead
  iv) A description of any personal protective equipment used or to be used
  v) Prior blood lead determinations
  vi) All prior written medical opinions concerning the employee

(f) This information shall be provided to a second or third physician conducting a medical examination or consultation upon request either by the second or third physician, or by the employee.

(g) Written Medical Opinions
  i) The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:
    aa) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead
    bb) Any recommended special protective measures to be provided to the employee or limitations to be placed upon the employee's exposure to lead
    cc) Any recommended limitation upon the employee's use of respirators
    dd) The results of the blood lead
  ii) The employer shall instruct each physician to:
    aa) Not reveal, either in the written opinion or orally with the employer, findings including laboratory results or diagnoses unrelated to an employee's occupational exposure to lead

bb) Advise the employee of any medical condition, occupational or non-occupational, which dictates further medical examination or treatment

(10) Medical Removal Protection. Temporary medical removal and return of an employee due to elevated blood lead level.

(a) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and/or a follow-up blood sampling test that indicates the employee's blood lead level is at or above 50μg/dl.

(b) The employer shall return an employee to his or her former job status when two consecutive blood sampling tests indicate that the employee's blood lead level is at or below 40μg/dl.

(c) Medical Removal Protection Benefits

i) The employer shall provide an employee up to 18 months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead.

ii) Medical removal protection benefits means that, as long as the job the employee was removed from continues, the employee shall maintain the total normal earnings, seniority, and other employment rights and benefits of an employee, including the employee's right to his or her former job status as though the employee had not been medically removed from the employee's job.

(d) Worker's Compensation Claims. If the removed employee files a claim for worker's compensation payments for a lead related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for worker's compensation payments received by the employee for treatment related expenses.

(11) Employee Information and Training

(a) The employer shall communicate information concerning lead hazards according to the requirements of OSHA's Hazard Communication Standard, including but not limited to the requirements concerning warning signs and labels, Material Safety Data Sheets, employee information, and training. In addition, employers shall comply with the following requirement:

i) The employer shall provide the training as initial training prior to the time of job assignment
ii) The employer shall also provide the training program at least annually for each exposure at or above the actual level on any day

(b) The training program shall include the following:
i) The content of 29 CFR 1926.62 and its appendices
aa) Lead – 1926.62
bb) Appendix A to 1926.62
cc) Appendix B to 1926.62
dd) Appendix C to 1926.62
ee) Appendix D to 1926.62
ii) The specific nature of the operations that could result in exposure to lead above the action level
iii) The purpose, prior selection, fitting, use, and limitations of respirators
iv) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant)
v) The engineering controls and work practices (See Appendix B to 1926.62)
vi) The contents of any specific compliance plan
vii) Instructions to employees that chelating agents should not be used to remove lead from their bodies except under the strict direction of a licensed physician
viii) The employee's right of access to records regarding this work

(c) Access to Information and Training Material
i) The employer shall make readily available to all affected employees a copy of the OSHA Standard and its appendices.
ii) The employer shall provide, upon request, all materials relating to the employee information and training program to affected employees and their designated representatives, and to the assistance secretary and the director.

(d) Signs

i) The employer shall post the following warning sign in each work area where an employee's exposure to lead is above the PEL.

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

ii) The employer shall assure that the signs are illuminated and cleaned as necessary so that the legend is readily visible.

(12)Recordkeeping. The employer shall establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments.

(a) Exposure monitoring records shall include:

i) The date(s), number, duration, location, and results of each of the samples taken including a description of the sampling procedure used to determine representative employee exposure

ii) A description of the sampling and analytical methods used and evidence of their accuracy

iii) The type of respiratory protective devices worn

iv) Name, social security number, and job classification of the employee monitored and of all other employees whose exposure measurement is intended to represent

(b) Medical Surveillance. The employer shall establish and maintain an accurate record for each employee subject to medical surveillance. This record shall include:

i) The name, social security number, and description of the duties of the employee

ii) A copy of the physician's written opinions

iii) Results of any airborne exposure monitoring done on or for that employee and provided to the physician

iv) Any employee medical complaints related to exposure to lead

(c) The employer shall keep the following records, or assure that the attending physician keeps the following records:

i) A copy of the medical examination results including medical and work history

ii) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results

iii) A copy of the results of biological monitoring

iv) All medical records related to lead exposure

(d) Medical Removals

i) The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead. Each record shall include:

aa)The name and social security number of the employee

bb)The date of each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status

cc) An explanation of how each removal was or is being accomplished

dd)A statement about each removal indicating whether or not the reason for the removal was an elevated blood lead level

ii) This information shall be maintained on film and/or in the job file indefinitely.

(e) Availability. The employer shall make available upon request all records required to be maintained.

(f) Transfer of records. Whenever the employer ceases to do business, the successor employer shall receive and retain all records as required to be maintained. If there is no successor employer, the records are to be sent to the local OSHA director.

(13)Observation of Monitoring. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead.

(14)Affected Project Type for Miscellaneous Special Trade Contractors

(a) Underground storage tank demolition
(b) Housing - lead abatement (paint)
(c) Housing - lead abatement (other)
(d) Housing - in place management
(e) Industrial facility maintenance and renovation
(f) Industrial process equipment maintenance and repair
(g) Installation of radiation shielding
(h) Installation of sound barriers
(i) Commercial and institutional remodeling
(j) Reinsulation over existing mineral wool*
(k) Removal of existing mineral wool*

*Older forms of mineral wools contained lead.

(15)Primary Sources of Lead Exposure

(a) Lead based paint and paint debris

(b) Lead oakum pipe joint material
(c) Lead bricks, lead mortar and lead sheets
(d) Metallic lead dust
(e) Lead containing construction materials
(f) Mineral wool insulation with lead contaminants
(g) Lead pipes and lead solder

7. Process Safety Management

a) Background. The Department of Labor Process Safety Management Standard 29 CFR 1910.119 established procedures for process safety management that will protect employees by preventing or minimizing the consequences of chemical accidents involving highly hazardous chemicals. A portion of this Standard 29 CFR 1910.119(h) applies to contractors performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to operations covered by this Standard.

b) Owner Responsibilities
(1) The owner, when selecting a contractor, shall obtain and evaluate information regarding the contractor's safety performance and programs. Information that may be requested:
(a) A written safety policy endorsed by top management
(b) A copy of the contractor's accident prevention plan
(c) An on-site staffing plan for safety program implementation
(d) The contractor's experience modification rate
(e) The contractor's disciplinary procedures
(f) A copy of the contractor's orientation program/safety handbook
(g) A description of the contractor's safety incentive program
(h) A copy of the contractor's program/policy related to alcohol/controlled substances
(i) A list of the contractor's experience on similar projects
(j) A description of the contractor's inspection procedures
(k) A description of how the contractor's supervisors are held accountable for safety performance
(This list is not all-inclusive; rather, it provides examples of the kind of information that prospective customers may seek to acquire before they begin the contractor selection process.)
(2) The owner is required to inform the contractor of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.

(3) The owner is required to explain to the contractors the applicable provisions of the facilities emergency action plan.
(4) The owner is required to develop and implement procedures to control the entrance, presence, and exit of the contractor's employees in the work areas covered by this Standard.
(5) The owner is required to periodically evaluate the contractor's performance in fulfilling the requirements of this Standard.
(6) The owner shall maintain a construction employee injury and illness log related to the contractor's work in the process areas covered by this Standard.

c) Contractor Responsibilities
(1) PAS is responsible to assure that each employee is trained in the work practices necessary to safely perform the job and that the safety training is in conjunction with the owner's site safety program.
(2) PAS is responsible/required to assure that each employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process and applicable provisions of the owner's site emergency action plan.
(3) PAS shall document that each employee has received and understood the training as described in paragraph (2) above. This documentation must contain:
(a) Employee's name
(b) Date of training
(c) A written test
i) This test must be administered by PAS and graded.
ii) It is required that the employee pass this test because the Standard requires the employees understand the information discussed in the training. For purposes of PAS's testing, a 70 percent test score or above will be needed for a passing grade.
iii) The written test will be developed for each job with the appropriate questions related to the specific requirements of each job.
(4) PAS is responsible to assure that our employees are following general and specific safety rules and safe practices. This will be accomplished by conducting a formal safety inspection. Use PAS Safety Inspection Checklist form (Appendix 2-A) to document compliance with this requirement.

(5) PAS is responsible to advise the owner (or customer) of any unique hazards presented by our work or found by our employees. This notification must be documented in letter form on company letterhead stationery.

Performance Abatement Services, Inc.
HEAT STRESS SYMPTOM REPORT

Jobsite Name: _____

Date: _____ Time: _____

Employee Name: _____

Employee Condition:

Signs of profuse sweating or high temperature without sweating observed? ☐ Yes ☐ No

Has the employee been advised by a doctor to stay out of the sun due to prescription medication? ☐ Yes ☐ No

If the employee is new on the job or returning from an extended vacation has he/she had sufficient time (7 – 14 days) to become acclimated? ☐ Yes ☐ No

Does the employee have allergies? ☐ Yes ☐ No

Is this the first time during this shift that the employee has requested a break for heat stress related symptoms? ☐ Yes ☐ No

Describe reported symptoms of nausea, vomiting, lightheaded or dizziness:

_____

_____

_____

_____

Work Area Observations

Is the workspace enclosed and without air circulation? ☐ Yes ☐ No

Is the workspace hot or humid? ☐ Yes ☐ No

Is the workplace in direct sunlight? ☐ Yes ☐ No

Actions taken:

_____

_____

_____

Information on Person Completing this Form

Print Name: _____ Title: _____

Signature: _____ Phone No.: _____

Occupational Dose Limits
Old vs New 10 CFR 20

New Category	New Limit	Present Limit	Present Category
TEDE	**5 Rem/Yr**	**3 Rem/Qtr 12 Rem/Yr**	**Whole Body**
LDE	**15 Rem/Yr**	**Included in WB Limit**	**Lens of Eyes**
SDE ExtRemities	**50 Rem/Yr**	**18.75 Rem/Qtr 75 Rem/Yr**	**Hands, Forearms, Feet & Ankles**
SDE Skin	**50 Rem/Yr**	**7.5 Rem/Qtr 30 Rem/Yr**	**Skin of Whole Body**
CEDE	**2,000 DAC HRS/Yr 5 Rem/Yr***	**520 MPC Hr/Qtr 5.2 Rem/Yr**	**Internal Dose**
TODE	**50 Rem/Yr**		
Embryo/Fetus	**0.5 Rem/Gestation Period**		
PSE (Annual)	**Occupational Dose Limits**		
PSE (Lifetime)	**5 times Occupational Dose Limits**	**5(N-18)**	**Lifetime**

*** if DDE = 0**

Radiation Safety Program Checklist

Employee Name: _____

Project Assignment: _____

Prior to departure of employee to assignment of operating nuclear power station, provide and review the following items with designated employee:

	Manager	Employee
• Read Radiation Safety Policy.	☐	☐
• Read NRC Regulation 10 CFR 20.408.	☐	☐
• Read NRC Regulation 10 CFR 19.	☐	☐
• Provide exposure log and agree current radiation exposure level of employee.	☐	☐

_____ _____

Manager Signature Date Employee Signature Date

Upon Return of Employee from Assignment:

	Manager	Employee
Record and submit Personal Occupational Radiation Exposure Record.	☐	☐
Submit official exposure form from project location	☐	☐

_____ _____

Manager Signature Date Employee Signature Date

Distribution: Job File

Personal Occupational Radiation Exposure Record

Employee Name: _____

Social Security Number: _____-____-_____

List Employer Name: _____

Exposure Date From /To	Location: Project Name:	Owner/ Utility	Exp.Type TEDE,LDE, SDE Extremities SDE Skin,CEDE TODE	Monitory Method, TLD, Dosimeter or Estimated	Dose REM

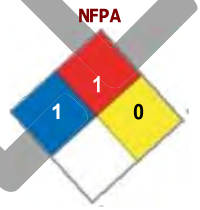
Distribution: Job File

INNOVATIONS FOR LIVING™

Personal Protective Equipment		WHMIS Pictograms	DOT Pictograms
		Not Controlled	Not Regulated
Protective Gloves	Safety Glasses		

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**Low Density Fiber Glass Insulation/Insulation Board - Unfaced Products**
MSDS Manufacturer Number:	13614-NAM
Synonyms:	Acoustical Backing Board, Attic Door Insulator, Attic Hatch Insulator, Attic Scuttle Insulator, Batts in Bags, Blended Blowing Wool, Cathedral Batt Insulation, Cavity Wall, Cold Storage Wall, Curtain Wall 225, ECOTOUCH™, FDM ARP100, FDM ARP125, Flexible Marine, Flexible Type 75 AF-FDM, HV-24, HV-26, H2V-1000, H2V-2000, Insulation Batts, Manufactured Housing Insulation, Masonry Wall Insulation, Metal Building (all types), Metal Framing Batts, Metal Framing Insulation, Multi-purpose Insulation, Noise Stop Board, Pink® Insulation, Pink Pak, QuietZone® Acoustic Batt, RA Series, Shaft Wall, Sill Sealer, Sonobatts®, Sound Attenuation Batts, Standard Blend, Super Pink R Blowing Wool, ThermaGlas®, Marine Board, ULTRAVANTAGE™ Comfort Touch™, Unfaced Duct Wrap, Warm-N-Dri®, Aislhogar, Aislacustic™, MBI, MBI Certified R, Attic Blanket®, Flexible Duct Media FIBERGLAS® Insulation with PureFiber Technology®, Metal Building FIBERGLAS® Insulation with PureFiber Technology®
Product Use/Restriction:	Insulation
Manufacturer Name:	Owens Corning Insulating Systems, LLC
Address:	One Owens Corning Parkway Toledo, OH 43659
Customer Service Phone Number:	1-800-GET-PINK or 1-800-438-7465
Health Issues Information:	1-419-248-8234 (8am-5pm ET)
Technical Product Information:	1-800-GET-PINK or 1-800-438-7465
Emergency Phone Number:	1-419-248-5330 (after 5pm ET and weekends)
CHEMTREC:	800-424-9300 (24 hours everyday)
Canutec:	(613) 996-6666 (Canada 24 hours everyday)
Website:	www.owenscorning.com
MSDS Creation Date:	December 16, 1997
MSDS Revision Date:	March 01, 2011



HMIS	
Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	X

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Cured Binder	N/A	0 - 15 by weight
Fiber Glass (Wool)	65997-17-3	85 - 100 by weight

Non-Hazardous Statement: The remaining components of this product are non-hazardous or are in a small enough quantity as to not meet regulatory thresholds for disclosure. These components contain no substances or impurities which would influence the classification of this product.

SECTION 3 - HAZARDS IDENTIFICATION

Applies to Product

Emergency Overview: Exposure to dust may be irritating to eyes, nose, and throat.

Route of Exposure:	Eye contact Skin contact Inhalation
Potential Health Effects:	
Eye:	May cause slight irritation.
Skin:	May cause slight skin irritation.
Inhalation:	May cause irritation of respiratory tract.
Ingestion:	Ingestion of this product is unlikely.
Chronic Health Effects:	There is no known chronic health effect connected with long-term use or contact with this product.
Carcinogenicity:	This product contains a component which is listed by IARC, OSHA or NTP. See Section 11 for additional information.
Potential Environmental Effects:	There is no known ecological information for this material.
Aggravation of Pre-Existing Conditions:	Chronic respiratory or skin conditions may temporarily worsen from exposure to this product.
OSHA Regulatory Status:	This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Do not rub or scratch eyes. If eye irritation persists, consult a specialist.
Skin Contact:	Wash off immediately with soap and cold water. DO NOT use warm water because this will open up the pores of the skin, which will cause further penetration of the fibers. Use a wash cloth to help remove fibers. DO NOT rub or scratch affected areas. Remove contaminated clothing. If irritation persists get medical attention. Never use compressed air to remove fibers from the skin. If fibers are seen penetrating from the skin, the fibers can be removed by applying and removing adhesive tape so that the fibers adhere to the tape and are pulled out of the skin.
Inhalation:	Move to fresh air. If symptoms persist, call a physician.
Ingestion:	Accidental ingestion of this material is unlikely. If this does occur, watch person for several days to make sure intestinal blockage does not occur. Rinse mouth with water and drink water to remove fibers from the throat. If symptoms persist, call a physician.
Note to Physicians:	Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Non Flammable.
Flash Point:	None.
Flash Point Method:	Not applicable.
Lower Flammable/Explosive Limit:	Not applicable.
Upper Flammable/Explosive Limit:	Not applicable.
Extinguishing Media:	dry chemical foam carbon dioxide (CO_2) water fog
Protective Equipment:	Wear self-contained breathing apparatus (SCBA) and full fire fighting protective gear.
Unusual Fire Hazards:	Hydrogen chloride to be released from the PVC barrier and vinyl facings during a fire.
Hazardous Combustion Byproducts:	Carbon monoxide. Carbon dioxide. A mmonia. Other undetermined compounds could be released in small quantities.
Universal Fire And Explosion Hazards:	Not available.

NFPA Ratings:

NFPA Health:	1
NFPA Flammability:	1
NFPA Reactivity:	0

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Avoid contact with skin and eyes.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so.
Methods for containment:	This material will settle out of the air. Prevent from spreading by covering, diking or other means.
Methods for cleanup:	Use an industrial vacuum cleaner with a high efficiency filter to clean up dust and fiber contamination. Avoid dry sweeping. Pick up and transfer to properly labeled containers.
Other Precautions:	Does not apply.

SECTION 7 - HANDLING and STORAGE

Handling:	Avoid dust formation. Do not breathe dust. Wear personal protective equipment.
Storage:	Keep product in its packaging until use to minimize potential dust generation. Product should be kept dry and undercover.
Hygiene Practices:	Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Provide local exhaust and/or general ventilation to maintain exposure below regulatory and recommended limits. Dust collection system must be used in transferring operations, cutting or machining or other dust generating processes, such as using power tools. Vacuum or wet clean-up methods should be used.
Eye/Face Protection:	Safety glasses with side-shields.
Skin Protection Description:	Protective gloves. Long sleeved shirt and long pants.
Respiratory Protection:	When workers are facing airborne particulate/dust concentrations above the exposure limit they must use appropriate certified respirators. A properly fitted NIOSH approved disposable N 95 type dust respirator or better is recommended.
Other Protective:	When the temperature of the surface being insulated exceeds 250°F (121°C), including initial startup, the binder in these products may undergo various degrees of decomposition depending on the temperature in the application. The need for respiratory protection will vary according to the airborne concentration of the decomposition products released and accumulated in the area. Wear the appropriate respiratory protection according to the conditions and exposure levels in the area.
General Hygiene Considerations:	Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use.

EXPOSURE GUIDELINES

Ingredient	Guideline OSHA	Guideline ACGIH	Ontario Canada	Mexico	
Fiber Glass (Wool)	PEL-TWA: 1 f/cc (Respirable)	TLV-TWA: 1 f/cc (Respirable)	TWAEV-TWA: 0.05 mg/m3 or 1 f/cc STEL: 0.6 mg/m3	TWA: 0.15 mg/m3	

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Fibrous.
Odor:	organic
Boiling Point:	No Data
Melting Point:	No Data
Specific Gravity:	No Data

Solubility:	Insoluble in water.
Vapor Density:	No Data
Vapor Pressure:	No Data
Evaporation Rate:	No Data
pH:	No Data
Viscosity:	Not applicable.
Flash Point:	None.
Flash Point Method:	Not applicable.

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal conditions.
Hazardous Polymerization:	Hazardous polymerization does not occur.
Conditions to Avoid:	None expected
Incompatible Materials:	No materials to be especially mentioned.
Special Decomposition Products:	See Section 5 of MSDS for hazardous decomposition products during a fire.

SECTION 11 - TOXICOLOGICAL INFORMATION

Applies to Product :

Acute Toxicity: Dusts may cause mechanical irritation to eyes and skin. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. High exposures may cause difficulty breathing, congestion, and chest tightness.

Carcinogens:

	ACGIH	NIOSH	OSHA	IARC	NTP	MEXICO
Cured Binder	No Data	No Data	No Data	No Data	No Data	No Data
Fiber Glass (Wool)	A3 Animal Carcinogen	No Data	OSHA: Designated carcinogen	Group 3 - Not Classifiable as to its Carcinogenicity to Humans.	RAC - Reasonably anticipated to be a human carcinogen.	A3 Animal Carcinogen

Applies to Product :

Sensitization:	No information available.
Mutagenicity:	No information available.
Reproductive Toxicity:	No information available.
Teratogenicity:	No information available.
Neurological Effects:	No information available.

Cured Binder :

Ingestion: Inhalation - Rat LD50: 7 gm/kg - [Autonomic Nervous System - other (direct) parasympathomimetic Behavioral - muscle weakness Lungs, Thorax, or Respiration - respiratory depression]
Inhalation - Mouse LD50: 7 gm/kg - [Autonomic Nervous System - other (direct) parasympathomimetic Behavioral - muscle weakness Lungs, Thorax, or Respiration - respiratory depression](RTECS)

Fiber Glass (Wool) :

Chronic Effects: In October 2001, the International Agency for Research on Cancer (IARC) classified fiber glass wool as Group 3,""not classifiable as to its carcinogenicity to humans"". The 2001 decision was based on human studies and animal research that have not shown an association between inhalation exposure to dust from fiber glass wool and the development of respiratory disease. This classification replaces the IARC finding in 1987 of a Group B designation ""possibly carcinogenic to humans."".

In May 1997, the American Conference of Governmental Industrial Hygienists (ACGIH) adopted an A3 carcinogen classification for glass wool fibers. The ACGIH A3 classification considers glass wool to be carcinogenic in experimental animals at relatively high doses, by routes of administration, at sites, or by mechanisms that it does not consider relevant to worker exposure. It also reviewed the available epidemiological studies and concluded that they do not confirm an increased risk of cancer in exposed humans. Overall, the ACGIH found that the available medical/scientific evidence suggests that glass wool is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

In 1994, the National Toxicology Program (NTP) classified glass wool (respirable size) as ""reasonably anticipated to be a human carcinogen"". This classification was primarily based upon the 1987 IARC classification. NTP is currently considering reclassifying this material.

SECTION 12 - ECOLOGICAL INFORMATION

Applies to Product :

Ecotoxicity:	This material is not expected to cause harm to animals, plants or fish.
Bioaccumulation:	Not available.
Biodegradation:	Not available.
Mobility In Environmental Media:	Not available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Applies to Product :

Waste Disposal:	Dispose of in accordance with Local, State, Federal and Provincial regulations.
Contaminated Packaging:	Empty containers should be taken for local recycling, recovery or waste disposal.
RCRA Number:	No EPA Waste Numbers are applicable for this product's components. RC
RA Characteristics:	This material is not expected to be a characteristic hazardous waste under RCRA.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Not Regulated.
IATA Shipping Name:	Not Regulated.
Canadian Shipping Name:	Not Regulated.
IMDG Shipping Name :	Not Regulated.
ADR Shipping Name :	Not Regulated.
RID Shipping Name :	Not Regulated.
ICAO Shipping Name:	Not Regulated.
MEX Shipping Name :	Not Regulated.

SECTION 15 - REGULATORY INFORMATION

Inventory Status

	Japan ENCS	EINECS Number	Philippines PICCS	China	South Korea KECL
Cured Binder	Not listed			Listed	KE-35185
Fiber Glass (Wool)	Not listed	266-046-0	Listed	Listed	KE-17630

	Australia AICS	Canada DSL	TSCA Inventory Status		
Cured Binder	Listed	Listed	Listed		
Fiber Glass (Wool)	Listed	Listed	Listed		

Applies to Product :

Canada Reg. Status:	This product has been classified in accordance with the hazard criteria of the C ontrolled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.
Canada WHMIS:	Not controlled.
CA PROP 65:	The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): WARNING! This product contains a chemical known to the State of California to cause cancer.
SARA:	This product does not contain any chemicals which are subject to the reporting requirements of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III (40CFR, Part 372).
Section 311/312 Hazard Categories:	Acute Health Hazard: Yes

	Chronic Health Hazard:	Yes	Risk of ignition: No
	Sudden Release of Pressure Hazard:	No	Reactive Hazard: No

Clean Air Act: This product does not contain any Hazardous Air Pollutants (HAPs).

State Right To Know

	RI	MN	IL	PA	MA
Cured Binder	No Data	No Data	No Data	No Data	No Data
Fiber Glass (Wool)	Listed	Listed	Listed	Listed	Listed

	NJ	
Cured Binder	No Data	No
Fiber Glass (Wool)		

SECTION 16 - ADDITIONAL INFORMATION

HMIS Health Hazard:	1
HMIS Fire Hazard:	1
HMIS Reactivity:	0
HMIS Personal Protection:	X
MSDS Creation Date:	December 16, 1997
MSDS Revision Date:	March 01, 2011
MSDS Revision Notes:	Added to the synonyms list
Disclaimer:	Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

JOB SITE
INVENTORY LIST
OF HAZARDOUS PRODUCTS

DATE: _____

JOB NAME: _____ PAGE NO. _____

The following hazardous products are known to be present at this job site. For information consult applicable Safety Data Sheet.

USED ON THIS JOB	TRADE NAME	MANUFACTURER'S NAME	EMERGENCY PHONE #

HAZ/COM FOR MULTI-EMPLOYER JOB SITES

TO:

Performance Abatement Services, Inc. (PAS) would like to inform you of our Hazard Communication program. Our program requires that you are notified of the following:

1. Attached is a Job Site Inventory List of Hazardous Products which PAS will use at this job site.

2. Safety Data Sheet(s) [SDS(s)] for each product we use are maintained by our job supervisor at our job site office. Copies of the SDS(s) information are available upon request.

3. Special precautionary measures that must be taken to protect employees during normal working conditions and during foreseeable emergencies (check one) are:
   attached ☐ not applicable ☐

4. All containers of hazardous products brought to the job site will be labeled with the manufacturer's hazard warning labels. PAS does not transfer hazardous products from the original container except for end use application. If any other occasion requires transfer, we will re-label the new container in the same manner as the original manufacturer's label.

If you have any questions regarding our program or the products we will be using on this job site, please do not hesitate to contact me.

_____
Signature Job Site Management

RESPIRATORY PROTECTION FOR LEAD AEROSOLS

Airborne concentration of lead or condition of use	Required respirator
Not in excess of 500 $\mu g/m^3$	• ½ mask air-purifying respirator with high efficiency filters. • ½ mask supplied air respirator operated in demand (negative pressure) mode
Not in excess of 1,250 $\mu g/m^3$	• Loose fitting hood or helmet powered air-purifying respirator with high efficiency filters. • Hood or helmet supplied air respirator operated in a continuous-flow mode -- e.g., type CE abrasive blasting respirators operated in a continuous-flow mode.
Not in excess of 2,500 $\mu g/m^3$	• Full face piece air-purifying respirator with high efficiency filters. • Tight fitting powered air-purifying respirator with high efficiency filters. • Full face piece supplied air respirator operated in demand mode. • ½ mask or full face piece supplied air respirator operated in a continuous-flow mode. • Full face piece self-contained breathing apparatus (SCBA) operated in demand mode.
Not in excess of 50,000 $\mu g/m^3$	• ½ mask supplied air respirator operated in pressure demand or other positive-pressure mode.
Not in excess of 100,000 $\mu g/m^3$	• Full face piece supplied air respirator operate din pressure demand or other positive-pressure mode -- e.g., type CE abrasive blasting respirators operated in a positive-pressure mode.

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

E. Personal Protective and Life Saving Equipment

1. Back Supports

   a) Background: Many of our employees are required to lift, twist, bend, and stoop in the conduct of their daily job assignments. These actions have the potential to cause injuries to the back. Back supports assist in the reduction and/or elimination of associated injuries.

   b) Requirement: As a result of those associated injuries, the corporation has established a policy regarding back support usage. That policy states that all non-administrative employees shall be provided with a personal back support that has been designed to reduce the potential of work-related back injuries. These employees shall be required to wear the back support as outlined below:

      - When lifting material over 50 lbs. without the assistance of another person and/or use of a mechanical lifting device.
      - When lifting material under 50 lbs. where the employee cannot use proper lifting technique due to physical work area restrictions.
      - When the employee's physical ability is such that lifting causes a strain on their back area or is required by a treating physician in conjunction with work duty restrictions.

      Note: Administrative personnel with job assignments that have the potential of causing a back injury will be provided a back support and follow the above back support procedures.

   c) Training: All employees shall receive instructions on the proper use of the back support they receive. The viewing of the orientation video will provide general information, but additional literature provided by the specific manufacturer must also be reviewed.

      Exception: Any employee that provides his/her supervisor with a written letter from a physician, indicating that because of the person's

current medical condition they cannot wear a back support, will be exempt for the period of time indicated by the treating physician.

2. Manual Lifting Program

   a) Introduction - Performance Abatement Services, Inc. requires that safety planning and practices for commonplace tasks are as thorough as for operations with unusual hazards. Commonplace tasks make up the greater part of the daily activities of most employees and, not unexpectedly, offer more potential sources of accidents with injuries and property damage. Every operation or work assignment begins and ends with handling of materials. Whether the material is a sheet of paper (paper cuts are painful) or a cylinder of toxic gas, accident risks can be reduced with thorough planning. Identifying obvious and hidden hazards should be the first step in planning work methods and job practices. Thorough planning should include all the steps associated with good management from job conception through performance and completion of the task.

      Most of the material presented in this section is related to the commonplace and obvious. Nevertheless, a majority of the incidents leading to injury, occupational illness, and property damage stem from failure to observe the principles associated with safe materials handling and storage.

      A less obvious hazard is potential failure of used or excessive motorized handling or lifting equipment. The PAS Branch Superintendent, or designated representative must be notified whenever it is desired to acquire a crane, forklift truck, or other motorized handling or lifting equipment.

   b) Lifting and Moving

      Lifting and moving of objects must be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used must be appropriate for the lifting or moving task. Lifting and moving devices must be operated only by personnel trained and authorized to operate them. Employees must not be required to lift heavy or bulky objects that overtax their physical condition or capability.

c) Training

Training shall be coordinated through the PAS Branch Superintendent, and should include general principles of ergonomics, recognition of hazards and injuries, procedures for reporting hazardous conditions, and methods and procedures for early reporting of injuries. Additionally, job specific training should be given on safe lifting and work practices, hazards, and controls.

d) Manual Lifting Rules

Before manual lifting is performed, a hazard assessment must be completed. The assessment must consider size, bulk, and weight of the object(s), if mechanical lifting equipment is required, if two-man lift is required, whether vision is obscured while carrying and the walking surface and path where the object is to be carried.

Manual lifting and handling of material must be done by methods that ensure the safety of both the employee and the material. It is Performance Abatement Services, Inc. policy that employees whose work assignments require heavy lifting be properly trained and physically qualified, by medical examination if deemed necessary.

The following are rules for manual lifting:

(1) Inspect the load to be lifted for sharp edges, slivers, and wet or greasy spots.
(2) Wear gloves when lifting or handling objects with sharp or splintered edges. These gloves must be free of oil, grease, or other agents that may cause a poor grip.
(3) Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping.
(4) Consider the distance the load is to be carried. Recognize the fact your gripping power may weaken over long distances.
(5) Size up the load and make a preliminary "heft" to be sure the load is easily within your lifting capacity. If it is not, get help.
(6) Where use of lifting equipment is impractical or not possible, two man lifts must be used. When performing two man lifts, personnel should be similar in size and physique. One person should act as leader and give the commands to lift, lower, etc.
(7) Two persons carrying a long piece of pipe or lumber should

carry it on the same shoulder and walk in step. Shoulder pads should be used to prevent cutting shoulders and help reduce fatigue.

To lift an object off the ground, the following are manual lifting steps:

(1) Make sure of good footing and set your feet about 10 to 15 inches apart. It may help to set one foot forward of the other.

(2) Assume a knee-bend or squatting position, keeping your back straight and upright. Get a firm grip and lift the object by straightening your knees - not your back.
(3) Carry the load close to your body (not on extended arms). To turn or change your position, shift your feet - don't twist your back.
(4) The steps for setting an object on the ground are the same as above, but in reverse.

e) Incidents

Musculoskeletal injuries caused by improper lifting must be investigated and documented. Incorporation of investigation findings into work procedures must be accomplished to prevent future injuries. Injuries must be recorded and reported to the PAS Branch Superintendent as required by 29 CFR Part 1904.

f) Mechanical Lifting

Mechanical devices must be used for lifting and moving objects that are too heavy or bulky for safe manual handling by employees. Manual lifting equipment such as dollies, hand trucks, lift-assist devices, jacks, carts, hoists must be provided for employees. Other engineering controls such as conveyors, lift tables, and work station design should be considered. Employees who have not been trained must not operate power-driven mechanical devices to lift or move objects of any weight. Heavy objects that require special handling or rigging must be moved only by riggers or under the guidance of employees specifically trained and certified to move heavy objects. Use of provided manual lifting equipment by employees must be enforced.

g) Inspections

Each mechanical lifting or moving device must be inspected periodically. Each lifting device must also be inspected before lifting a load near its rated capacity. Defective equipment must be repaired before it is used. The rated load capacity of lifting equipment must not be exceeded.

Material moving equipment must be driven forward going up a ramp and driven backward going down a ramp.

Traffic must not be allowed to pass under a raised load.

The floor-loading limit must be checked before mobile lifting equipment enters an area. Passengers must not be carried on lifting equipment unless it is specifically equipped to carry passengers.

h) Load Path Safety

Loads moved with any material handling equipment must not pass over any personnel. The load path must be selected and controlled to eliminate the possibility of injury to employees should the material handling equipment fail.

Equipment worked on while supported by material handling equipment must have a redundant supporting system capable of supporting all loads that could be imposed by failure of the mechanical handling equipment. A suspended load must never be left unattended but must be lowered to the working surface and the material handling equipment secured before leaving the load unattended.

i) Supervision

Supervision must periodically evaluate work areas and employees' work techniques to assess the potential for and prevention of injuries. New operations should be evaluated to engineer out hazards before work processes are implemented.

j) Truck Loading

All objects loaded on trucks must be secured to the truck to prevent

any shifting of the load in transit. The wheels of trucks being loaded or unloaded at a loading dock must be chocked to prevent movement.

3. Hand and Foot Protection

   a) Workers exposed to the following categories of work are required to wear protective gloves unless specific hazard analysis issues exempt employees from this level of protection.
      (1) All material handling
      (2) Steel framing
      (3) Metal jacketing
      (4) Banding
      (5) Drywall installation
      (6) Duct installation/insulation
      (7) Scaffold erection
      (8) Asbestos and lead abatement
      (9) Welding

   b) Use of gloves is discouraged during the following operations:
      (1) All work around rotating machinery/tools
      (2) Metal rollers
      (3) Metal building insulation machines

   c) If cut resistant gloves/sleeves are required by the task, a minimum of cut resistant Level 3 is required. Examples include but are not limited to:
      (1) Cutting insulation
      (2) Cutting drywall
      (3) Working around sharp edges
      (4) Metal framing
      (5) Metal jacketing & banding applications
      (6) Any task with the potential for lacerations

   d) No jewelry permitted that creates a hazard while performing job duties on job site.

   e) Employees shall wear sturdy, over-the-ankle work boots.

4. Head Protection

   a) Employees working in areas where there is a possible danger of head injury from impact or from falling or flying objects or from electrical shock and burns shall be protected by protective helmets, Type I, class G or E.

   b) Helmets for the protection of employees against impact and penetration of falling and flying objects shall meet the specifications contained in American National Standards Institute Z 89.1. (This should be indicated on a sticker adhered to the inside of the helmet.)

   c) New employees during their first six months of employment are required to wear a "new hire hard hat". Branches will implement a program that either provides a specific color of hard hat for the new hire and another color of hard hat for the longer term employee, or provide new employee with a hard hat that has a bright color of tape displayed on all sides so as to be readily visible from a distance in all directions.

5. Eye and Face Protection

   a) The use of eye protection for all employees working on job sites, in warehouses, or in fabrication facilities is **mandatory**.

   b) Eye and face protection shall meet the requirements specified in American National Standards Institute Z87.1.

   c) The company shall provide "non-prescription" eye and face protection:
      (1) Safety glasses
      (2) Side shields for prescription safety glasses
      (3) Goggles
      (4) Face shields
      (5) Other eye and face protection that may be required by specific job assignment

   d) Employees whose vision requires the use of corrective lenses in spectacles shall be protected by prescription safety glasses (employee provided) with side shields (employer provided) or goggles/glasses that can be worn over corrective spectacles.

e) Certain hazardous conditions warrant the use of eye protection over and above safety glasses only. The frequency of eye injuries involved with the following activities require face shields in addition to eye protection.
   (1) Chop saws
   (2) Powder actuated tools
   (3) Working with hazardous liquid chemicals
   (4) Grinding operations
   (5) Shop equipment

f) Goggles may be necessary for desired levels of eye protection in windy, dusty conditions.

g) All eye and face protection equipment shall be kept clean and in good repair.

6. Respiratory Protection

a) Where Respirator Use Is Not Required
   (1) The company may provide respirators at the request of employees or permit employees to use their own. If the company determines that any voluntary respirator use is permissible, the company must provide the user with the information contained in Appendix D to 29 CFR 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required By OSHA Standards (Appendix 7E-B). A record of distribution of Appendix D must be maintained in each employee's personnel file. The Certification of Orientation form (Appendix 1-A) can be used to document this for new hires.
   (2) If employees are using their own respirators or their respirator use is voluntary, the company shall ensure that the employee is medically able to use the respirator and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

   Exception. Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering face pieces (dust mask/respirator).

b) Where Respirator Use Is Required
   (1) The company shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed

and workplace and user factors that affect respirator performance. All respirators must be N.I.O.S.H. certified.

(2) The company shall identify and evaluate the respiratory hazard(s) in the workplace. The evaluation shall include:
   (a) A reasonable estimate of employee exposures to respiratory hazards
   (b) Identification of the contaminant's chemical state and physical form

(3) Where the company cannot identify or reasonably estimate the employee exposure, the company shall consider the atmosphere to be "immediately dangerous to life or health" (I.D.L.H.).

(4) The following respirators are required for employee use in (I.D.L.H.) atmospheres:
   (a) A full face piece pressure demand S.C.B.A. certified by N.I.O.S.H. for a minimum service life of thirty minutes, or
   (b) A combination full face piece pressure demand supplied-air respirator (S.A.R.) with auxiliary self-contained air supply

NOTE: All oxygen-deficient atmospheres shall be considered (I.D.L.H.).

(5) Respirators for atmospheres that are not (I.D.L.H.). The company shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with OSHA requirements. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.
   (a) For protection against gases and vapors, the company shall provide:
      i) An atmosphere-supplying respirator, or
      ii) Provide that the respirator is equipped with an "end-of-service-life" indicator (E.S.L.I.). If there is no E.S.L.I. appropriate for conditions in the workplace, the company shall implement a change schedule for canisters and cartridges that is based on objective information. This schedule must be documented for each job. (See Canister/Cartridge Change Schedule – Appendix 7E-C.)
   (b) For protection against particulates, the company shall provide:
      i) An atmosphere-supplying respirator, or
      ii) An air-purifying respirator equipped with a filter certified by N.I.O.S.H.

c) Medical Evaluation
   (1) Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job conditions, and the medical status of the employee. Therefore, the company must implement a medical evaluation program to determine the employee's ability to use a respirator.
   (2) The company shall provide a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use a respirator in the workplace.
      (a) The company shall identify a physician or other licensed health care professional (PLHCP) to perform a medical evaluation.
      (b) The medical evaluation can either be from the PLHCP or use the OSHA Respirator Medical Evaluation Questionnaire (Mandatory) (Appendix 7E-D).
   (3) The company shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions one through eight in Section 2, Part A of the questionnaire or whose initial medical examination demonstrates the need for a follow-up medical examination.
   (4) The medical questionnaire shall be administered confidentially during the employee's normal working hours. The company shall provide the employee with an opportunity to discuss the questionnaire and examination results with the physician.
   (5) The following information must be provided to the physician before he/she makes a recommendation concerning an employee's ability to use a respirator: (See Supplemental Information for the Physician – Appendix 7E-E.)
      (a) The type and weight of respirator to be used
      (b) The duration and frequency of respirator use
      (c) The expected physical work
      (d) Additional protective clothing and equipment to be worn
      (e) Any temperature and/or humidity extremes
      (f) The company must also provide the physician with a copy of this Respirator Program and the completed OSHA Respirator Medical Evaluation Questionnaire and a copy of the OSHA Respiratory Protection Standard (29 CFR 1910.134).
   (6) In determining the employee's ability to use a respirator, the company shall obtain a written recommendation regarding the employee's ability to use a respirator from the physician. The Medical Determination form (Appendix 7E-F) can be used for this purpose. The recommendation shall provide the following:

(a) Any limitations on respirator use including whether or not the employee is medically able to use the respirator
(b) The need, if any, for a follow-up medical evaluation
(c) A statement that the physician has provided the employee with a copy of the physician's written recommendation

d) The company shall require that before an employee is required to use a respirator (not a filtering face piece), the employee must be fit tested with the same make, model, style, and size of respirator that will be used.
(1) The company shall ensure that employees using respirators pass an appropriate qualitative fit test or quantitative fit test.
(2) The fit test shall be performed prior to the initial use of the respirator, whenever a different respirator face piece is used, and at least annually thereafter. The Respirator Fit Test Record (Appendix 7E-G) can be used for documentation purposes.
(3) The fit test shall be administered using an OSHA-accepted qualitative or quantitative protocol. (See Appendix A to 29 CFR 1910.134)
(4) A qualitative fit test may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.
(5) If the fit factor, as determined through an OSHA-accepted quantitative protocol, is equal to or greater than 100 for half face pieces, or equal to or greater than 500 for full face pieces, the quantitative fit test has been passed.
(6) Fit testing of atmosphere-supplying respirators and air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode.

e) The employer must implement procedures for the proper use of respirators.
(1) The company shall not permit respirators to be worn by employees who have:
(a) Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function
(b) Any condition that interferes with face-to-face piece seal or valve function
(c) If an employee wears corrective glasses, the company shall ensure that the corrective glasses are worn in a manner that does not interfere with the seal of the face piece to the face

(2) The company shall insure that employees leave the respirator use area:
  (a) To wash their face and respirator face piece as necessary
  (b) If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece
  (c) To replace the respirator or the filter, cartridge, or canister elements

f) Procedures for atmospheres that are "immediately dangerous to life or health" (I.D.L.H.) require the employer to ensure at least one employee is stationed outside the I.D.L.H. atmosphere.
  (1) Visual, voice, or signal line communication is maintained between the employee(s) inside and outside the I.D.L.H. atmosphere.
  (2) The employee(s) located outside the I.D.L.H. atmosphere are trained and equipped to provide effective emergency rescue.
  (3) Employee(s) located outside the I.D.L.H. atmosphere shall be equipped with:
    (a) Pressure demand or other positive pressure S.C.B.A.'s
    (b) Appropriate retrieval equipment

g) The company is required to provide for cleaning and disinfecting, storage, inspection, and repair of respirators.
  (1) The company shall provide each respirator user with a respirator that is clean, sanitary, and in good working order.
    (a) The company shall ensure that respirators are cleaned and disinfected using the procedures recommended by the respirator manufacturer as a minimum.
    (b) Respirators shall be cleaned and disinfected at the following intervals:
      i) Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition
      ii) Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different employees
      iii) Respirators maintained for emergency use shall be cleaned and disinfected after each use
      iv) Respirators used in fit testing and training shall be cleaned and disinfected after each use

(2) The company shall ensure that respirators are stored as follows:
  (a) All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals
  (b) Emergency respirators shall be kept accessible to the work area and shall be stored in compartments or in covers clearly marked as containing emergency respirators

(3) The company shall ensure that respirators are inspected as follows:
  (a) All respirators used in routine situations shall be inspected before each use and during cleaning
  (b) All respirators maintained for use in emergency situations shall be inspected at least monthly and before and after each use. (See “Emergency Use Respirator Only” Inspection Record – Appendix 7E-H.)
  (c) Respirator inspections shall include:
    i) A check of respirator function, tightness of connections, and the condition of the various parts
    ii) A check of the elastomeric parts for pliability and signs of deterioration
  (d) Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be fully charged and shall be recharged when the pressure falls to 90 percent of the manufacturer’s recommended pressure level.
  (e) For respirators maintained for emergency use, the company shall certify the respirator by documenting the date of the inspection, the name of the person who made the inspection, the findings, required remedial action, and the respirator serial number or other means of identifying the inspected respirator. This information shall be maintained until replaced following the subsequent inspection/certification.

(4) The company shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service and are discarded or repaired or adjusted in accordance with the following procedures:
  (a) Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations
  (b) Repairs shall be made according to the manufacturer’s recommendations
  (c) Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or technician trained by the manufacturer

h) The company is required to provide employees using atmosphere-supplying respirators with breathing gases of high purity and shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:
   (1) Compressed breathing air shall meet at least the requirements for Type 1 – Grade D breathing air
   (2) The company shall insure that oxygen concentrations greater than 23.5 percent are used only in equipment designed for oxygen service or distribution
   (3) The company shall ensure that cylinders are tested and maintained as prescribed in the shipping container specification regulations of the D.O.T.
   (4) The company shall ensure that compressors used to supply breathing air to respirators are constructed and situated as to:
      (a) Prevent entry of contaminated air into the air-supply system
      (b) Minimize moisture content so that the dew point at one (1) atmosphere pressure is 10 degrees Fahrenheit below the ambient temperature
      (c) Compressors must be located so that the intake systems does not develop a contamination problem and to provides unhealthy are supply. They must also have suitable in-line filters to remove contaminants with the filters and sorbents tagged, dated, and signed by the person that performed the activity. Oil-lubricated compressors must have a high temperature alarm and a CO alarm (calibrated periodically). The alarm system, set to alarm at 10 ppm, must be located so the respirator user and/or Breathing Air Watch attendant is made immediately aware of the problem and leaves the area requiring respirators.
      (d) Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality
   (5) For all compressors that are not oil-lubricated, the company shall ensure that carbon monoxide levels in the breathing air do not exceed 10ppm (parts per million).
   (6) For oil-lubricated compressors, the company shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels.

i) The company is required to provide effective training to all employees who are required to use respirators. *The training must be comprehensive, understandable, and recur annually and more often if necessary.* The company is also required to provide the basic

information on respirators in Appendix D to 1910.134 (Appendix 7E-B) to employees who wear respirators when not required to do so.

(1) The company shall ensure that each employee can demonstrate knowledge of at least the following: (See Respirator Examination – Appendix 7E-I.)
   (a) Why the respirator is necessary and how proper fit, usage, or maintenance can compromise the protection effect of the respirator
   (b) What the limitations and capabilities of the respirator are
   (c) How to use a respirator effectively in emergency situations, including situations in which the respirator malfunctions
   (d) How to inspect, put on and remove, use, and check the seals of the respirator
   (e) What the procedures are for maintenance and storage of the respirator
   (f) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
   (g) Employee must receive at least a 70 percent score to pass the written examination. If the employee fails to pass the exam, he/she must be retrained and retested until a 70 percent score (or above) has been obtained.
(2) The company shall provide training prior to requiring the employee to use a respirator.
(3) Retraining shall be administered annually and when the following situations occur:
   (a) Changes in the workplace or type of respirator render previous training obsolete
   (b) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill

j) The company shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented. (See Evaluation and Employee Assessment Record – Appendix 7E-J.)

k) The company shall regularly consult employees required to use respirators to assess the employees' views on program effectiveness, to identify problems and develop appropriate corrective action. The factors to be assessed are:
   (1) Respirator fit

(2) Respirator selection
(3) Proper respirator use
(4) Proper respirator maintenance

l) The company is required to establish and retain written information regarding:
(1) Medical evaluations
(2) Fit testing
(3) Respirator program

m) Other documentation that will be maintained (not government required):
(1) Training test
(2) Program evaluation and employee's assessment
(3) Appendix D distribution
(4) Cartridge change schedule
(5) Other medical information as necessary

n) Other mandatory sections of OSHA 1910.134, Respiratory Program (See 29 CFR 1910.134 and the below appendices.)
(1) Appendix A to 1910.134: Fit Testing Procedures (Mandatory)
(2) Appendix B-1 to 1910.134: User Seal Check Procedures (Mandatory)
(3) Appendix B-2 to 1910.134: Respirator Cleaning Procedures (Mandatory)
(4) Appendix C to 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
(5) Appendix D to 1910.134: Information for Employees Using Respirators When Not Required Under the Standard

(SAMPLE - To be typed on branch letterhead and distributed to all employees on an annual basis and at orientation.)

Appendix D to 1910.134: (Mandatory) Information for Employees Using Respirators When Not Required By OSHA Standard.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should read the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. N.I.O.S.H., The National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

CANISTER/CARTRIDGE CHANGE SCHEDULE

Branch: _____

Job Name: _____

Respirator Number: _____

Job Start Date: _____ Job Completion Date: _____

Initial Date Canister/Cartridge Was Issued: _____

Canister/Cartridge Change Dates:

Information used to determine the above noted Canister/Cartridge Change Dates: _____

_____

_____

_____

_____

Person Completing the Form: _____

(Sample – To be copied on branch letterhead and completed by every employee required to wear a respirator. The employee will take this questionnaire to the physician.)

Appendix C to 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To The Employee:

1. Can You Read? (Circle One): Yes / No

The company must allow you to answer this questionnaire during normal working hours or at a time and place convenient to you. To maintain the confidentiality of this questionnaire, the company must not review your answers to these questions. The company will have you hand carry your completed questionnaire, along with other related documents, to the physician who will review it as part of the process to determine if you are physically capable to wear a respirator and perform the required duties of the job.

RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

Part A, Section 1

The following information must be provided by every employee who has been selected to use any type of respirator. **PLEASE PRINT.**

1. Today's Date: _____
2. Your Name: _____
3. Your Age (To Nearest Year): _____
4. Sex (Circle One): Male / Female
5. Your Height: _____ ft. _____in.
6. Your Weight: _____ lbs.
7. Your Job Title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the area code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire? (Circle One): Yes No
11. Check the type of respirator you will use. (You can check more than one category.):
    a. _____ N, R, or P Disposable Respirator (filter-mask, non-cartridge type only)
    b. _____ Other type (for example, half or full face piece type, powered air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator? (Circle One): Yes No
    If "Yes," what type? _____

PART A, SECTION 2

Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator. **(PLEASE CIRCLE "YES" OR "NO.")**

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month? Yes No
2. Have you ever had any of the following conditions?
   a. Seizures (fits): Yes No
   b. Diabetes (sugar disease): Yes No
   c. Allergic reaction that interferes with your breathing: Yes No
   d. Claustrophobia (fear of closed-in places): Yes No
3. Have you ever had any of the following pulmonary or lung problems?
   a. Asbestosis Yes No
   b. Asthma Yes No
   c. Chronic bronchitis Yes No
   d. Emphysema Yes No
   e. Pneumonia Yes No
   f. Tuberculosis Yes No
   g. Silicosis Yes No
   h. Pneumothorax (collapsed lung) Yes No
   i. Lung cancer Yes No
   j. Broken ribs Yes No
   k. Any chest injuries or surgeries Yes No
   l. Any other lung problems that you've been told about Yes No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?
   a. Shortness of breath Yes No
   b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline Yes No
   c. Shortness of breath when walking with other people at an ordinary pace on level ground Yes No
   d. Have to stop for breath when walking at your own pace on level ground Yes No
   e. Shortness of breath when washing or dressing yourself Yes No
   f. Shortness of breath that interferes with your job Yes No
   g. Coughing that produces phlegm (thick sputum) Yes No
   h. Coughing that wakes you early in the morning Yes No
   i. Coughing that occurs mostly when you are lying down Yes No
   j. Coughing up blood in the last month Yes No
   k. Wheezing Yes No
   l. Wheezing that interferes with your job Yes No
   m. Chest pain when you breathe deeply Yes No
   n. Any other symptoms that you think may be related to lung problems Yes No
5. Have you ever had any of the following cardiovascular or heart problems?
   a. Heart attack Yes No
   b. Stroke Yes No
   c. Angina Yes No
   d. Heart failure Yes No
   e. Swelling in your legs or feet (not caused by walking) Yes No
   f. Heart arrhythmia (irregular heart beat) Yes No
   g. High blood pressure Yes No

h. Any other heart problem that you've been told about Yes No

6. Have you ever had any of the following cardiovascular or heart symptoms?
   a. Frequent pain or tightness in your chest Yes No
   b. Pain or tightness in your chest during physical activity Yes No
   c. Pain or tightness in your chest that interferes with your job Yes No
   d. In the past two years, have you noticed your heart skipping or missing a beat Yes No
   e. Heartburn or indigestion that is not related to eating Yes No
   f. Any other symptoms that you think may be related to heart or circulation problems Yes No
7. Do you currently take medication for any of the following problems?
   a. Breathing or lung problems Yes No
   b. Heart trouble Yes No
   c. Blood pressure Yes No
   d. Seizures (fits) Yes No
8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to Question 9): _____
   a. Eye irritation Yes No
   b. Skin allergies or rashes Yes No
   c. Anxiety Yes No
   d. General weakness or fatigue Yes No
   e. Any other problem that interferes with your use of a respirator Yes No
9. Would you like to talk to the health care professional that will review this questionnaire about your answers to the questionnaire? Yes No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full face piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently)? Yes No

11. Do you currently have any of the following vision problems?
    a. Wear contact lenses Yes No
    b. Wear glasses Yes No
    c. Color blind Yes No
    d. Any other eye or vision problem Yes No

12. Have you ever had an injury to your ears, including a broken eardrum? Yes No

13. Do you currently have any of the following hearing problems?
    a. Difficulty hearing Yes No
    b. Wear a hearing aid Yes No
    c. Any other hearing or ear problems Yes No

14. Have you ever had a back injury? Yes No

15. Do you currently have any of the following musculoskeletal problems?
    a. Weakness in any of your arms, hands, legs, or feet Yes No
    b. Back pain Yes No
    c. Difficulty fully moving your arms and legs Yes No
    d. Pain or stiffness when you lean forward or backward at the waist Yes No
    e. Difficulty fully moving your head up or down Yes No
    f. Difficulty fully moving your head side to side Yes No
    g. Difficulty bending at your knees Yes No
    h. Difficulty squatting to the ground Yes No

i. Climbing a flight of stairs or a ladder carrying more than 25 lbs. Yes No

j. Any other muscle or skeletal problem that interferes with using a respirator Yes No

Part B

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen?

   Yes No

   If "Yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions? Yes No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust) or have you come into skin contact with hazardous chemicals?

   Yes No

   If "Yes," name the chemicals if you know them:

   _____

   _____

3. Have you ever worked with any of the materials or under any of the conditions, listed below?

   a. Asbestos Yes No

   b. Silica (e.g., in sandblasting) Yes No

   c. Tungsten/Cobalt (e.g., grinding or welding this material) Yes No

   d. Beryllium Yes No

e. Aluminum Yes No

f. Coal (for example, mining) Yes No

g. Iron Yes No

h. Tin Yes No

i. Dusty environments Yes No

j. Any other hazardous exposures Yes No

If "Yes," describe these exposures: _____

_____

_____

4. List any second jobs or side businesses you have: _____

_____

_____

5. List your previous occupations: _____

_____

_____

6. List your current and previous hobbies: _____

_____

_____

7. Have you been in military service? Yes No

If "Yes," were you exposed to biological or chemical agents (either in training or combat)? Yes No

8. Have you ever worked on a HAZMAT team? Yes No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)? Yes No

If "Yes," name the medications if you know them: _____

_____

_____

10. Will you be using any of the following items with your respirator?
    a. HEPA filters Yes No
    b. Canisters (for example, gas masks) Yes No
    c. Cartridges Yes No
11. How often are you expected to use the respirator(s)? (Circle "Yes" or "No" for all answers that apply to you.)
    a. Escape only (no rescue) Yes No
    b. Emergency rescue only Yes No
    c. Less than 5 hours per week Yes No
    d. Less than 2 hours per day Yes No
    e. 2 to 4 hours per day Yes No
    f. Over 4 hours per day Yes No
12. During this period you are using the respirator(s), is your work effort:
    a. Light (less than 200 KCAL per hour) Yes No

       If "Yes," how long does this period last during the average?

       Shift: _____ Hrs. _____ Min

       Examples of light work effort are sitting while writing, typing, drafting, or performing light assembly work, or standing while operating a drill press (1-3 lbs.) or controlling machines.

b. Moderate (200 to 350 KCAL per hour): Yes No

If "Yes," how long does this period last during the average?

Shift: _____ Hrs. _____ Min

Examples of moderate work effort are sitting while nailing or filing, driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 MPH or down a 5-degree grade about 3 MPH; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. Heavy (above 350 KCAL per hour) Yes No

If "Yes," how long does this period last during the average?

Shift: _____ Hrs. _____ Min

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings, walking up an 8-degree grade about 2 MPH; climbing stairs with a heavy load (about 50 lbs.)

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator? Yes No

If "Yes," describe this protective clothing and/or equipment: _____

_____

_____

14. Will you be working under hot conditions (temperatures exceeding 77^{o}F)? Yes No

15. Will you be working under humid conditions? Yes No

16. Describe the work you'll be doing while you're using your respirator. _____

_____

_____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator (for example, confined spaces, life-threatening gases): _____

_____

_____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator:
    - Name of toxic substance: _____
    - Estimated maximum exposure level per shift: _____
    - Duration of exposure per shift: _____
    - Name of second toxic substance: _____
    - Estimated maximum exposure level per shift: _____
    - Duration of exposure per shift: _____
    - Name of third toxic substance: _____
    - Estimated maximum exposure level per shift: _____
    - Duration of exposure per shift: _____
    - The name of any other toxic substances that you'll be exposed to while using your respirator: _____

      _____

      _____

19. Describe any special responsibilities you'll have while using your respirator that may affect the safety and well-being of others (for example, rescue, security): _____

_____

_____

(SAMPLE – To be typed on branch letterhead, completed by branch management, and given to employee to take to the physician.)

SUPPLEMENTAL INFORMATION FOR THE PHYSICIAN

Company Name: _____

Address: _____

_____

_____

Telephone Number: _____

Branch Contact: _____

Employee: _____ SS#: _____

The following supplemental information is provided to assist you in your recommendation concerning this employee's ability to use a respirator.

1. The type and weight of the respirator to be used: _____

   _____

2. The duration and frequency of respirator use: _____

   _____

3. The expected physical work effort: _____

   _____

4. Additional protective clothing and equipment to be worn: _____

   _____

5. Temperature and humidity extremes that may be encountered: _____

   _____

Also included for you are a copy of our written Respirator Program and a copy of the OSHA Standard regarding respirators.

Date: _____

(SAMPLE – To be typed on branch letterhead and given to employee to take to the physician. The bottom portion of this form is to be completed by the branch management.)

MEDICAL DETERMINATION

Per the requirements of OSHA 1910.134 Respirator Program, we are providing you with this document to complete and return.

PLEASE CIRCLE ONE.

1. Has your medical evaluation determined any limitations on respirator use?

   Yes No

   If "Yes," please explain: _____

   _____

2. Has your medical evaluation determined the need for any follow-up medical evaluations?

   Yes No

3. Have you provided the employee with a copy of your written recommendation?

   Yes No

4. Is this employee physically capable to perform his/her duties while wearing a respirator?

   Yes No

Employee: _____ SS#: _____

Please return this document to:

(Company Name) _____

(Company Address) _____

_____

(Telephone Number) _____

(Contact Person) _____

Physician Signature: _____ Date: _____

RESPIRATOR FIT TEST RECORD

Date: _____

Employee Name: _____ SS#: _____

Address: _____

_____

Project Name or Job Number: _____

Test Conductor: Name: _____ Title: _____

Qualifications: _____

_____

Test Type:

- Qualitative Fit Test ☐
- Quantitative Fit Test ☐
- Isomal Acetate ☐
- Irritant Smoke ☐
- Other ☐

Respirator Data:

- Manufacturer: _____
- Model #: _____
- Size: _____

Test Results:

- Order Threshold Test: _____
- +/- Pressure Test: _____
- Fit Test: _____

Comments: (Any attempts, respirator size, etc., that did not pass first fit test):

_____

_____

_____

"EMERGENCY USE RESPIRATOR ONLY" INSPECTION RECORD

All respirators used for emergency escape only shall be inspected monthly and before being carried into the workplace for use.

Respirator Manufacturer: _____

Respirator Model: _____

Date of Inspection: _____

Inspection Conducted By: _____

	SATISFACTORY	UNSATISFACTORY	N/A
• Tightness of Connections			
• Face Piece			
• Head Straps			
• Valves			
• Connecting Tube			
• Cartridges/Canisters/Filters			
• All Elastomeric Parts			
• Air/Oxygen Cylinders Fully Charged			
• Regulator and Warning Devices			

Any required remedial action: _____

_____

_____

_____

Respirator Examination
(ANNUALLY)

1. Why is a respirator necessary to use when performing your work? _____

   _____

   _____

   _____

2. How does an improper fit compromise the protective effect of the respirator?

   _____

   _____

   _____

3. How does improper usage of the respirator compromise the protective effect of the respirator? _____

   _____

   _____

   _____

4. How does improper maintenance of the respirator compromise the protective effect of the respirator? _____

   _____

   _____

   _____

5. What are the limitations and capabilities of the respirator you will be using?

   _____

   _____

   _____

6. Explain how you would use your respirator if it malfunctioned and you needed to evacuate your work area. _____

_____

_____

_____

7. Explain how you would inspect your respirator. (What would you inspect?)

_____

_____

_____

8. Explain how to put on and remove your respirator. _____

_____

_____

_____

9. What are the maintenance requirements for the respirator you will be using?

_____

_____

_____

_____

10. What are the storage requirements for the respirator you will be using?

_____

_____

_____

11. What are some of the reasons that could prevent an employee from obtaining an effective respirator fit? _____

_____

_____

_____

CIRCLE ONE.

12. Have you received training regarding respirators for I.D.L.H. atmospheres? Yes No
13. Have you received training regarding respirator for atmospheres that are not I.D.L.H.? Yes No
14. Have you received medical evaluation training? Yes No
15. Have you received training regarding fit test procedures? Yes No
16. Have you received cleaning and disinfecting training? Yes No
17. Have you received training regarding proper respirator storage? Yes No
18. Have you received training regarding proper respirator inspection procedures? Yes No
19. Have you received training regarding the repair of respirators? Yes No
20. Have you received training regarding filter/cartridge identification? Yes No

Branch: _____

Examination Date: _____

Employee: _____

Evaluation and Employee Assessment Record

PLEASE PRINT

Branch: _____

Job Name: _____

Date: _____

Person Completing Form: _____

(Only negative responses require appropriate corrective action.)

1. Is all Respirator Program documentation being maintained and readily available? Yes No
2. Have all employees required to wear a respirator received a proper fit test? Yes No
3. Were respirators, from a sufficient number of models and sizes, offered to employees to ensure the respirator was acceptable to and correctly fit the user? Yes No
4. In questioning the employees using a respirator, were you confident that they understood the proper use of the respirator? Yes No
5. In questioning the employees (or observation) were you confident that they understood proper respirator maintenance procedures? Yes No

CORRECTIVE ACTION REQUIRED:

DEFICIENCY	PERSON RESPONSIBLE FOR ACTION	DATE ACTION COMPLETED

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

F. Fire Protection/Fire Extinguishers

1. The Company shall provide portable fire extinguishers and shall mount, locate, and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.

2. The Company shall assure that the portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places.

3. The Company shall distribute fire extinguishers so that the travel distance to any fire extinguisher is 75 feet or less.

4. All portable fire extinguishers shall be visually inspected monthly. (Note the inspection date on the card that is affixed to the extinguisher.)

5. The Company shall assure that portable fire extinguishers are subjected to an annual maintenance service check. The Company shall record the annual maintenance date and retain the record for one year after the last entry of the life of the fire extinguisher, whichever is less.

6. The Company shall assure that stored dry chemical extinguishers that require a 12 year hydrostatic test are emptied and subjected to applicable maintenance procedures every six (6) years.

7. The Company shall provide an educational program to familiarize employees with the general principles of fire-fighting equipment (including Fire Extinguishers) and the hazards involved with incipient space fire-fighting. The training shall be provided upon initial employment and at least annually thereafter.

8. The Company shall assure that small hose standpipes are located or otherwise protected against mechanical damage.

9. The Company shall assure that the hose reels and cabinets are conspicuously identified and used only for fire equipment.

10. The Company shall assure that every one and a half inch (1 ½") hose or smaller hose outlet is equipped with the hose connected and ready to use.

11. The Company shall provide hose of such length that friction loss resulting from water flowing through the hose will not decrease the pressure at the nozzle below 30 psi.

12. The minimum water supply for standpipe and hose systems shall be sufficient to provide 100 gallons per minute for a period of at least 30 minutes.

13. It is the Company's responsibility to assure all standpipe and hose systems are tested and maintained per the requirements established in 29 CFR 1910.158(e).

14. For specific regulations governing the following, contact Corporate Safety:

    - Automatic sprinkler systems
    - Fixed extinguishing systems, general
    - Fixed extinguishing systems, dry chemical
    - Fixed extinguishing systems, gaseous agent
    - Fixed extinguishing systems, water spray foam
    - Fire detection systems
    - Employee alarm systems

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

G. Signs and Barricades

1. Accident Prevention Signs and Tags. Signs are the warnings of hazard, temporarily or permanently affixed or placed, at locations where hazards exist.

   a) General. Signs and symbols required by 29 CFR 1926 Subpart G shall be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist.

   b) Danger Signs. Danger signs shall be used only where an immediate hazard exists. Danger signs shall have red as the predominate color for the upper panel, black outline on the borders, and a white lower panel for additional sign wording.

   c) Caution Signs. Caution signs shall be used to warn against potential hazards or to caution against unsafe practices. Caution signs shall have yellow as the predominate color, black upper panel and borders, yellow lettering of “caution” on the black panel, and the lower yellow panel for additional sign wording. Black lettering shall be used for additional wording.

d) Exit Signs. Exit signs, when required, shall be lettered in legible red letters, not less than six (6) inches high, on a white field, and the principal stroke of the letters shall be a least three-fourths inch in width.

e) Safety Instruction Signs. Safety instruction signs, when used, shall be white with green upper panel with white letters to convey the principal message. Any additional wording on the sign shall be black letters on the white background.

f) Accident Prevention Tags. Accident prevention tags shall be used as a temporary means of warning employees of an existing hazard, such as defective tools, equipment, etc. They shall not be used in place of, or as a substitute for, accident prevention signs.

g) Additional Rules. American National Standards Institute ANSI Z35.1-1968, Specifications for Accident Prevention Signs, and ANSI Z35.2-1968, Specifications for Accident Prevention Tags, contain rules, which are additional to the rules prescribed above.

2. Barricades. The purpose of using barricades is to prevent unauthorized personnel or equipment from entering an area where a hazard may exist as a result of maintenance, construction, equipment failure, weather, and or any other emergency condition.

   a) Type of Barricades
      (1) Red Barricade. Shall indicate that imminent danger exits. All unauthorized personnel and equipment should stay clear of the barricaded area. Only the barricade owner can authorize personnel or equipment to enter the barricaded area.
      (2) Yellow Barricade. Shall warn personnel or equipment of potential hazardous conditions that exist in the barricaded area. Employees shall review the barricade tag and take the necessary precautions prior to entry.
      (3) Barricade Tag. Shall identify the company and erectors name, date, contact number where the supervisor can be located, and a brief description of the hazard.

   b) Use of Barricades. Barricades should be used to isolate those areas where a hazard may exist to personnel and/or equipment. Barricades should be erected only when needed and taken down immediately after the work has been completed. Examples of work commonly required to have barricades, but not inclusive are:
      (1) Open excavations
      (2) Floor openings
      (3) Walkways made hazardous by unusual conditions, such as materials in walkway, tools and/or electrical cords in the walkway

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

H. Rigging Equipment for Materials Handling

1. General

A *Qualified Rigger* is a rigger who meets the criteria for a qualified person. Employers must determine whether a person is qualified to perform specific rigging tasks. Each Q*ualified Rigger* may have different credentials or experience.

A Q*ualified Rigger* is a person that:

- possesses a recognized degree, certificate, or professional standing, or
- has extensive knowledge, training, and experience, and
- can successfully demonstrate the ability to solve problems related to rigging loads.

a) 29 CFR 1926.251 covers safety regulations for the rigging of slings used in conjunction with material handling by hoisting.

b) The use, operation, and rigging of slings shall be performed under the direct supervision of a designated competent person. Knowledge and practice of the requirements of 29 CFR 1926.251 are the minimum requirements. Except in extraordinary circumstances, all material handling requiring the rigging of load handling slings for crane operations shall be performed by an experienced rigger (not just one of our employees that thinks he knows how to rig material for lifting). The extraordinary circumstances shall require approval of the safety department.

c) Rigging equipment shall be visually inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective equipment shall be removed from service. (See Daily Visual Inspection Criteria form - Appendix 7H-A.)

d) Rigging equipment shall not be loaded in excess of its recommended safe working load as prescribed in Tables H-1 through H-20 (Appendix 7H-B).

e) All custom designed grabs, hooks, clamps, or other lifting accessories shall be marked to indicate safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.

f) In addition to the daily visual and pre-use inspections, a thorough annual inspection (see Annual Rigging Gear Inspection Checklist – Appendix 7H-C) and load test of all manual, electrical, air powered hoist and slings shall be conducted by a competent person. The company shall maintain a record of the dates and results of such inspections and load tests. This record shall be made available for examination. This record must identify the individual equipment tested, dates of inspections and load tests, and the results. (The most recent load test report and inspection for each piece of equipment must be maintained in a current file.)

g) Each piece of applicable equipment shall be tagged, engraved, or otherwise marked in a manner that clearly identifies it for annual inspection purposes and also identifies the rated load. Where rated load markings are removed during the repair process or where markings are hard to read because of wear, the equipment shall be re-marked.

h) Test requirements for rigging gear and “below the hook” lifting devices.
   (1) For common rigging gear (i.e., slings, shackles, hooks, rings, chain links, eye bolts, etc.) made or purchased after January 21, 1998, a certificate of proof test shall be obtained from the equipment supplier. A proof test is required for each piece of gear. These certificates shall be retained on file.
   (2) Applicable equipment shall be visually inspected by the user prior to each use to verify rate load marking and condition.
   (3) Periodic inspections shall be performed on all below the hook rigging each time a job box, or set of job boxes, is shipped out of the office/warehouse to a job site. This inspection will be performed by a competent person on all inventory items in each box(es) in a job set. The competent person doing the inventory and inspection shall sign and date the inventory and inspection form(s) to verify completing the periodic inspection and when it was

performed. An inventory and inspection form will be maintained in each box and also at the office in the appropriate job folder. (The office copy is in case the job copy is damaged or misplaced.) All rigging must be inspected as per ASME standards B30.9, B30.10, and B30.16. The time frame between these periodic inspections shall not exceed one year.

(4) Re-inspection and load test of repaired or altered equipment shall be performed prior to returning to service. Documentation shall be retained on file.

(5) Equipment that is in storage and marked “out of service” must be inspected and load tested by a competent and qualified person prior to it being placed back into service. This inspection and test must be properly documented and the record kept on file.

(6) Inspect below the hook rigging gear annually and each time it is placed back into service when taken out of storage. The inspection will be identified by the color codes as indicated in the table below. This inspection should be made each year in either June or July.

Below the Hook Rigging Gear Annual Inspection Color Codes (Inspection in June or July)	
Red	2009
Tan	2010
Green	2011
Blue	2012
Purple	2013
White	2014
Orange	2015
Dark Brown	2016

i) A re-inspection and load test must be performed on all repaired or altered equipment prior to returning it to service. Alteration and repair documentation shall be maintained in a current file for the life of the equipment.

j) Gantries

(1) All gantries must be inspected and tested on an annual basis. A record of the inspection and load test must be maintained in a current file. The inspection and load test must be certified by a professional engineer.

(2) All gantry parts must be marked or color coded as a single unit for identification purposes and must remain as a “single unit” for inspection and test purposes and can only be used as tested and certified.
(3) After the unit has been certified, it cannot be modified in any way unless it is to be re-certified by a professional engineer.
(4) There can be no mixing or matching of gantry components unless the completed unit is inspected, tested, and certified by a professional engineer.
(5) All gantries must be visually inspected on a daily basis.
(6) A copy of the documentation and certification shall be attached to each gantry in such a manner as to be visible and it must remain legible. The original of the certification shall be kept on file, in the main office.

2. Hoist Maintenance and Inspection

   a) Hoists shall be maintained, inspected (see Hoist Inspection Checklist – Appendix 7H-D), and tested according to the manufacturer's recommendations and in accordance with intervals and requirements of ASME B30.16, Table 1 – Inspection for Hand Chain Operated Hoists and Table 2 – Inspection for Electric- or Air-Powered Hoists (Appendices 7H-E and 7H-F).

      Cranes and gantries shall be maintained, inspected and tested in accordance with the recommendations of the crane or gantry manufacturer's manual and in accordance with the intervals and requirements of ASME B30.2, B30.16, B30.17, and B30.22.

   b) Before maintenance or inspections are performed on a hoist, the following precautions shall be taken as applicable.
      (1) The hoist, trolley, and equipment to be inspected, tested, or repaired shall be moved on its support to a location where it will cause the least interference with other hoists and operations in the area.
      (2) If a load is attached to the hoist hook, it shall be landed.
      (3) If the crane, monorail, or other piece of equipment where the hoist is installed is electric powered, all controllers shall be placed in the off position and tagged or locked out.
      (4) If hoist is trolley suspended, the trolley shall be blocked to prevent trolley movement.
      (5) If hoist is installed on a crane, the crane shall be blocked to prevent crane movement.

   c) Inspection. Inspection procedure for hoists in normal service is divided into two general classifications as outlined in ASME B30.16. These two general classifications are based upon the intervals at which inspections should be performed. The intervals are dependent upon the nature of the critical components of the hoist and the degree of exposure of hoist components and parts to wear and deterioration. The degree of exposure is dependent upon hoist activity, severity of hoist service, and the environment of hoist location. These two general classifications of hoist inspections are frequent and periodic. In addition, daily inspections are required to be performed by the operator at the start of each shift, or at the time the hoist is first used during each shift.

(1) Frequent Inspection. Frequent inspections are visual and audio inspections and examinations by designated personnel with records not required. Nominal inspection intervals are as follows:
  (a) Normal service - monthly
  (b) Heavy service - weekly to monthly
  (c) Severe service - daily to weekly
(2) Periodic Inspection. Periodic inspections are visual and audio inspections and examinations by designated competent personnel making records of external conditions to provide the basis for continuing evaluation of the hoist and components. If the external inspection indicates the need, some disassembly may be required to make a more detailed inspection and examinations. Nominal Inspection intervals are as follows:
  (a) Normal service - annually
  (b) Heavy service - semiannually
  (c) Severe service – quarterly

d) Definitions of service from ASME B30.16 are as follows:
(1) Normal service involves operation of the hoist with randomly distributed loads within the rated load limit, or uniform loads less than 65 percent of rated load, for not more than 25 percent of the time for a single work shift.
(2) Heavy service involves operation of the hoist within the rated load limit that exceeds normal service.
(3) Severe service involves operation of the hoist in normal service or heavy service with abnormal operating conditions.

e) A hoist that is not in regular service, that has been idle for a period of one month or more but less than one year, shall be inspected in accordance with the requirements for frequent inspection before being placed into service.

f) A hoist that is not in regular service that has been idle for a period of one year or more shall be inspected in accordance with the requirements for periodic inspections before being placed into service.

g) Required hand chain and/or electric, air-powered hoist inspections shall be performed by the operator at the start of each shift, or at the time the hoist is first used during each shift in accordance with Table 1 and Table 2 of ASME B30.16a, 2001 (Appendices 7H-E and 7H-F).

Note: *Detailed inspection procedures for some items will be found in specific section of the owner's' maintenance manual. These inspections may be performed with the hoist in normal locations and may not require that the hoist be disassembled.*

h) Covers and other items normally supplied to allow inspection of components should be opened or removed for these inspections. Deficiencies or damage, such as those listed in Tables 1 & 2 (Appendices 7H-E and 7H-F), shall be evaluated by a designated competent person to determine whether they constitute a hazard and whether additional disassembly is necessary for a more detailed examination. The hoist operator should make observations during regular operation for any deficiencies or damage that might appear between inspections.

Warning!

- **Read and understand these, and the specific owner's, maintenance, inspection, and test instructions. Failure to do so may result in death or serious injury.**
- **If a chain fall hoist is part of a crane or monorail or electric powered system, de-energize, lock, and tag before maintenance, inspection, or test procedures.**
- **Recommended inspection intervals are for single shift, normal environmental conditions. Multi-shift, corrosive environment, or intense heat operating conditions will warrant shorter hoist component inspection intervals.**
- **If damage or malfunctions are noted by the inspections of Table 1 or 2, the hoist shall not be operated until corrective action has been taken.**

3. Records of Inspections

   a) Records of the condition of critical components such as load chain, hooks, bearings, and brakes observed during frequent and periodic inspections should be established. This record should also record replacement, maintenance, and repair information. Use of this recorded information will allow a preventative maintenance program to be established for replacement of wearing components on a regular basis, thereby eliminating or reducing unscheduled downtime situations.

   b) If maintenance, adjustment, replacement of parts, or repair of the hoist is required because of any damage or malfunctions noted during the frequent or periodic inspections, refer to the maintenance and repair section of the owner's manual and other sections of the owner's manual for specific instructions or parts identification. Before performing any maintenance on the hoist, refer to the maintenance and inspection procedures section of the owner's manual. After performing maintenance, adjustment or replacement of parts or components, refer to the TEST section of the owner's manual.

   c) Four documents will be completed and maintained on the inspection, load testing and/or certification process.
      (1) Master Inventory and Inspection (Appendix 7H-G). A checklist that has all the inspected equipment inventoried, identified, current location, and the date of last inspection/certification. The information allows tracking of equipment and monthly checking of dates for notification for renewal of inspections and certifications. The warehouse foreman will review the date of last inspection on all equipment. This inspection review will be done on a monthly basis. The warehouse foreman will schedule equipment for re-inspection as indicated by the review of prior inspection dates. New equipment will be scheduled for initial inspection on purchase and thereafter at one-year intervals after being placed into service.
      (2) Inspection Log (Appendix 7H-H). This log identifies each piece of critical lift rigging, which requires documentation of periodic inspections assigned to the job and the date that it was inspected or certified prior to shipping. It is signed/initialed and dated by the competent person doing the inspection or certification.
      (3) Inventory and Checklist Sheet (Appendix 7H-I) on <u>all</u> tools assigned and shipped to the job. These tools shall be categorized by type.

(a) Machinists tools
(b) Rigging and hoisting equipment
(c) Gantries and trolley
(d) Work bench and hand tools

(4) Copies of the inspection/certification documents by a third party testing performed by qualified persons, engineer, or company.

4. Owner's Manual. Owner's manuals can be obtained from the manufacturer of the hoist being inspected and should be available at each office or location doing annual periodic inspections for certification. Hoists that are electrical or air driven should always be completely inspected as directed in the specific manufacturers' owners and maintenance manual.

5. Tackle Block Maintenance

a) Tackle blocks must be regularly inspected, lubricated, and maintained for peak efficiency and extended usefulness. Their proper use and maintenance is equal in importance to other mechanical equipment. The frequency of inspection and lubrication is dependent upon frequency and periods of use, environmental conditions, and the user's good judgment.

b) Items to Look for in Block Inspections
(1) Wear on pins or axles, rope groves, side plates, bushing or bearings, and fittings. Excessive wear may be a cause to replace parts or remove block from service.
(2) Deformation in side plates, pins and axles, fitting attachment points, trunnions, etc. Deformation can be caused by abusive service and / or overload and may be a cause to remove block from service.
(3) Misalignment or wobble in sheaves.
(4) Security of nuts, bolts, and locking methods, especially after reassembly following a tear down inspection. Original securing method should be used; e.g., staking, setscrew, cotter pin, or cap screw.
(5) Pins retained by snap rings should be checked for missing or loose rings.
(6) Sheave pin nuts should be checked for proper positioning. Pins for tapered roller bearings should be tightened to remove all endplay during sheave rotation. Pins for bronze bushings and straight roller bearings should have a running clearance of 0.031 inch per sheave of endplay and should be adjusted accordingly.

(7) Hook or shackle to swivel case clearance is set at 0.031 to 0.062 at the factory. Increased clearance can result from component wear. Clearance exceeding 0.12 to 0.18 of an inch should necessitate disassembly and further inspection.
(8) Deformation or corrosion of hook and nut threads.
(9) Surface condition and deformation of hook should be inspected as per ANSI (ASME) B30.10.
(10) Welded side plates for weld corrosion or weld cracking.
(11) Hook latch for deformation, proper fit and operation.

c) Lubrication. The frequency of lubrication depends upon frequency and period of use as well as environmental conditions, which are contingent upon the user's good judgment. Assuming normal use, the following schedule is suggested when using lithium-based grease of a medium grade and consistency.
(1) Sheave Bearings
(a) Tapered Roller Bearings. Every 40 hours of continuous operation or every 30 days of intermittent operation.
(b) Roller Bearings. Every 24 hours of continuous operation or every 14 days of intermittent operation.
(c) Bronze Bushings (Not Self Lubricating). Every eight (8) hours of continuous operation or every 14 days of intermittent operation.
(2) Hook Bearings
(a) Anti-Friction. Every 14 days for frequent swiveling, every 45 days for infrequent swiveling.
(b) Bronze Thrust Bushing or No Bearings. Every 16 hours for frequent swiveling, every 21 days for infrequent swiveling.

NOTE: *Tackle block maintenance also depends upon proper block selection (see owner's manual "load and block" section) and proper reeving. Consideration must be made for shock loads, side loading, and other adverse conditions.*

6. Equipment Control

a) A designated competent person will be responsible for controlling the disbursement of all rigging equipment.

b) This control person will also be responsible for the annual inspection and record keeping requirements for all rigging equipment.

7. Below the Hook Inspection Criteria. Each Forman's Safety Box shall contain the Daily Visual Inspection Criteria (Appendix 7H-A) for below the hook rigging equipment. This list is considered a minimum.

8. Slings. Each day before being used, the sling and all fastenings and attachments shall be inspected (See Sling Inspection Checklist – Appendix 7H-J) for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

   a) Alloy steel chains
      (1) All welded alloy steel chain slings shall have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer.
      (2) Hooks, rings, oblong links, pear shaped links, or other attachments, when used with alloy steel chains, shall have a rated capacity at least equal to that of the chain.
      (3) Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, shall not be used.
      (4) Rated capacity for alloy steel chain slings shall conform to the values shown in Table H-1 (Appendix 7H-B).
      (5) The sling shall be removed from service if the inspection reveals any of the following:
         (a) Whenever wear at any point of any chain link exceeds that shown in Table H-2 (Appendix 7H-B), the assembly shall be removed from service
         (b) Detectable deformation
         (c) Nicks or cracks that cannot be removed by grinding

   b) Wire Rope
      (1) Tables H-3 through H-14 (Appendix 7H-B) shall be used to determine the safe working loads of various sizes and classifications of improved plow steel wire rope and wire rope slings with various types of terminals. For sizes, classifications, and grades not included in these tables, the safe working load recommended by the manufacturer for specific, identifiable products shall be followed, provided that a safety factor of not less than five (5) is maintained.
      (2) Protruding end of strands in splices on slings and bridles shall be covered or blunted.

(3) Wire rope shall not be secured by knots.
(4) The following limitations shall apply to the use of wire rope:
  (a) An eye splice made in any wire rope shall have not less than three full tucks
  (b) Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in pulling loads, shall consist of one continuous piece without knot or splice
  (c) Wire rope shall not be used if, in any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect
(5) When U-bolt wire rope clips are used to form eyes, Table H-20 (Appendix 7H-B) shall be used to determine the number and spacing of clips. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.
(6) Slings shall not be shortened with knots or bolts or other makeshift devices.
(7) Sling legs shall not be kinked.
(8) Slings used in a basket hitch shall have the loads balanced to prevent slippage.
(9) Slings shall be padded or protected from the sharp edges of their loads.
(10) Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
(11) Shock loading is prohibited.
(12) A sling shall not be pulled from under a load when the load is resting on the sling.
(13) Safe Operating Temperatures. Fiber core wire rope slings of all grades shall be permanently removed from service if they are exposed to temperatures in excess of 200 degrees Fahrenheit. When nonfiber core wire rope slings of any grade are used at temperatures above 400 degrees Fahrenheit or below minus 60 degrees Fahrenheit, recommendations of the sling manufacturer regarding use shall be followed.
(14) All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The company shall retain a certificate of the proof test, and make it available for examination.

(15)The inspection shall be conducted on the entire length of each sling, including splices, end attachments, and fittings.
(16)Wire rope slings shall be removed from service if the inspection reveals any of the following:
(a) Severe localized abrasion or scraping
(b) Kinked, crushed, or birdcage sections, or any other damage resulting in distortion of the rope structure
(c) Evidence of heat damage
(d) Cracked or deformed end attachment
(e) End attachments that are worn to the extent that their strength is questionable
(f) Severe corrosion of the wire rope, fittings, or attachments
(g) Broken wires
i) Single Part and Strand Laid Wire Rope Slings. Ten (10) randomly distributed broken wires in one rope lay length, or five (5) broken wires in one strand in one lay length, or two (2) broken wires within one lay length of the end connection.
ii) Braided Wire Rope Slings Less Than Eight Parts. Twenty (20) randomly distributed broken wires in one rope lay length, or one completely broken strand.
iii) Braided Wire Rope Slings Eight Parts or More. Forty (40) randomly distributed broken wires in one rope lay length, or one completely broken strand.
iv) Cable Laid Wire Rope Slings. Twenty (20) randomly distributed broken wires in one rope lay length, or one completely broken strand.

c) Natural Rope and Synthetic Fiber
(1) When using natural or synthetic fiber rope slings, Tables H-15, 16, 17, and 18 (Appendix 7H-B) shall apply.
(2) All splices in rope slings provided by the company shall be made in accordance with fiber rope manufacturer's recommendations.
(a) In manila rope, eye splices shall contain at least three (3) full tucks, and short splices shall contain at least six (6) full tucks (three (3) on each side of the centerline of the splice).
(b) In layed synthetic fiber rope, eye splices shall contain at least four (4) full tucks, and short splices shall contain at least eight (8) full tucks (four (4) on each side of the centerline of the splice).
(c) Strand end tails shall not be trimmed short (flush with the surface of the rope) immediately adjacent to the full tucks. In

applications where projecting tails may be objectionable, the tails shall be tapered and spliced into the body of the rope using at least two (2) additional tucks.

(d) For all eye splices, the eye shall be sufficiently large to provide an included angle of not greater than 60 degrees at the splice when the eye is placed over the load or support.

(e) Knots shall not be used in lieu of splices.

(3) Safe Operating Temperatures. Natural and synthetic fiber rope slings, except for wet frozen slings, may be used in a temperature range from minus 20 degrees Fahrenheit to plus 180 degrees Fahrenheit. For operations outside this temperature range and for wet frozen slings, the manufacturer's recommendations shall be followed.

(4) Splicing

(a) Spliced fiber rope slings shall not be used unless they have been spliced in accordance with the following minimum requirements and in accordance with any additional manufacturer's recommendations.

(b) Clamps not designed specifically for fiber ropes shall not be used for splicing.

(5) Fiber rope slings shall not be used if end attachments in contact with the rope have sharp edges or projections.

(6) Removal from Service. Natural and synthetic fiber rope slings shall be immediately removed from service if any of the following conditions are present:

(a) Abnormal wear
(b) Powdered fiber between strands
(c) Broken or cut fibers
(d) Variations in the size or roundness of strands
(e) Discoloration or rotting
(f) Distortion of hardware in the sling

d) Synthetic Webbing (Nylon, Polyester and Polypropylene)

(1) The company shall have each synthetic sling marked or coded to show:

(a) Name or trademark of manufacturer
(b) Rated capacities for the type of hitch
(c) Type of material

(2) The rated capacity shall not be exceeded.

(3) Synthetic webbing shall be of uniform thickness and width and salvage edges shall not be split from the webbings width.

(4) Fittings shall be:
  (a) Of a minimum breaking strength equal to that of the sling
  (b) Free of all sharp edges that could damage the webbing
(5) Stitching shall be the only method used to attach end fittings to webbing and to form eyes. The thread shall be in an even pattern and contain a sufficient number of stitches to develop the full breaking strength.
(6) When synthetic web slings are used, the following precautions shall be taken:
  (a) Nylon web slings shall not be used where fumes, vapors, sprays, mists, or liquids of acids or phenolics are present
  (b) Polyester and polypropylene web slings shall not be used where fumes, vapors, sprays, mists, or liquids of caustics are present
  (c) Web slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists, or liquids of caustics are present
(7) Safe Operating Temperatures. Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180 degrees Fahrenheit. Polypropylene web slings shall not be used at temperatures in excess of 200 degrees Fahrenheit.
(8) Removal from Service. Synthetic web slings shall be immediately removed from service if any of the following conditions are present:
  (a) Acid or caustic burns
  (b) Melting or charring of any part of the sling surface
  (c) Snags, punctures, tears or cuts
  (d) Broken or worn stitches
  (e) Distortion of fittings

e) Metal Mesh
(1) Metal mesh slings are recommended for use in abrasive and high temperature (up to 500 degrees Fahrenheit) environments. Metal mesh slings shall not be used where there is increased risk of electrical shock. Elastomer coated slings shall not be used in temperatures below zero (0) degrees or above 200 degrees Fahrenheit.
(2) The inspection shall be conducted on the entire length of each metal mesh sling, including welds, end attachments, and fittings.
(3) The sling shall be removed from service if the inspection reveals any of the following:
  (a) A broken weld or broken brazed joint along the sling edge
  (b) A broken wire in any part of the mesh
  (c) Reduction in wire diameter due to abrasion or corrosion

(d) Lack of flexibility due to distortion of the mesh
(e) Distortion of the choker fitting such that the depth of the slot is increased by more than 10 percent
(f) Distortion of either end fitting such that the width of the eye opening is increased by more than 10 percent
(g) A reduction of the original cross sectional area of metal at any point around the hook opening of the end fitting
(h) Visible distortion of either end fitting
(i) Any cracks in either end fitting

9. Shackles and Hooks

a) Table H-19 (Appendix 7H-B) shall be used to determine the safe working loads of various sizes of shackles, except that higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than five (5) is maintained.

b) The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The company shall maintain a record of the dates and results of such tests.

c) Shackles, links, rings, swivels, eye bolts, turnbuckles, hooks, and swivel hoists rings shall be inspected for proper operation and for wear and excessive corrosion daily. Special care shall be taken to check high wear areas of shackles, links, and rings. Inspect for such conditions as nicks, cracks, gouges, or peening. Where the component shows evidence of burning or welding, or is visibly bent, spread, twisted, or otherwise distorted, it shall be removed from service and destroyed.

d) Grinding to remove defects shall be the only method used to repair rigging gear. Dimensions after grinding shall be within the wear limits for the piece being repaired. No attempt shall be made to straighten bent or twisted rigging gear.

10. Air Dolly Load Platforms

a) Air dolly load platforms can be very productive and safe tools when used in the proper manner. All foremen and field personnel should read, be familiar with, and follow the manufacturer's operating instructions and guidelines at all times for the proper use, inspection, care, and application of the unique needs and characteristics of this type of specialized equipment. Air dollies have particular use and safety concerns that need to be recognized.

b) To cover cracks or thresholds, join cover plates, or to bridge smaller construction joints in floors, manufacturers recommend using a three (3) to four (4) inch wide aluminum foil backed tape, the kind used for sealing metal ductwork and insulation. Clean room tape also works well, but is not as readily available. Regular duct tape is not recommended and will not work properly. Before sending the unit to job sites, it would be appropriate to place an ample supply of aluminum foil backed tape in the shipping crate.

c) Each air dolly storage box should be provided with a spare replacement plate. If two plate sizes are present, each should have a spare. During operation, if a plate is damaged, an immediate replacement is available. This helps to prevent work delays and the temptation to use a non-matching inappropriate non-air, wheel type dolly. Mixing of dolly types is not recommended.

d) Due to the low surface friction of air dollies, extra precaution and care should be taken to restrain loads being moved on slopes or inclines. The load will create more inertia causing the dolly to move easily and rapidly down slopes or inclines.

e) Outriggers may be necessary to steady loads that are top heavy or designed in such a way that lends itself to tipping easily (heavy on one side), even when air is adjusted accordingly for the load. Use extreme caution when moving such loads.

f) Use the Air Dolly Daily Inspection Checklist (Appendix 7H-K) prior to and during operation of all air dollies. The checklist should be included in the air dolly storage box.

Daily Visual Inspection Criteria

ALLOY STEEL CHAINS

1. Permanently affixed identification
    a. Size
    b. Grade
    c. Rated capacity
    d. Sling manufacture
2. Wear points
3. Detectable deformation
4. Nicks or cracks

WIRE ROPE SLINGS

1. Protruding end of strands in splices shall be blunted
2. Eye splice must have three (3) full tucks
3. Wire rope used for hoisting must be one continuous piece
4. If visible broken wires exceeds 10% of the total number of wires – remove from service
5. Inspect for excessive wear, corrosion, defects
6. Slings shall not be shortened with knots or bolts
7. Sling legs shall not be kinked
8. All welded end attachments shall be proof tested
9. Severe abrasion or scraping
10. Kinked, crushed, or birdcage sections
11. Evidence of heat damage
12. Cracked or deformed end attachment
13. Corrosion
14. Broken wires

ROPE SLINGS (NATURAL/SYNTHETIC)

1. Eye splices in natural rope shall contain at least three (3) full tucks
2. Short splices in natural rope shall contain at least six (6) full tucks
3. Eye splices in synthetic rope shall contain at least four (4) full tucks
4. Short splices in synthetic rope shall contain at least eight (8) full tucks
5. Strand end tails shall not be trimmed short
6. Knots shall not be used in lieu of splices
7. Abnormal wear
8. Powdered fiber between strands
9. Broken or cut fibers
10. Variations in size of strands
11. Discoloration or rotting

SYNTHETIC WEBBING SLINGS

1. Slings shall be marked
    a. Manufacturer/trademark
    b. Rated capacity
    c. Type of material
2. Webbing shall be of uniform thickness
3. Fittings shall be free of sharp edges
4. Stitching shall be the only method used to attach end fittings to webbing and to form eyes
5. Burns
6. Snags, punctures, tears, or cuts
7. Broken or worn stitches
8. Distortion of fittings

METAL MESH SLINGS

1. Inspect entire length of sling
2. Broken weld
3. Broken wire
4. Wire reduction due to abrasion or corrosion
5. Distortion of the mesh
6. Distortion of end fitting
7. Cracks in end fitting
8. Reduction of the original cross section around the hook opening of the end fittings

SHACKLES/HOOKS

1. Load markings
2. Excessive wear
3. Corrosion
4. Nicks
5. Cracks
6. Gouges
7. Peening
8. Burning
9. Visibly bent
10. Spread
11. Twisted

Rigging Equipment Recommended Safety Working Load Tables

Tables H-1 through H-7 	**Tables H-8 through H-10** 
Tables H-11 through H-15 	**Tables H-16 through H-20** 

The tables can also be found in OSHA Standard 29 CFR 1926.251 (f) (2) .

Annual Rigging Gear Inspection Checklist

Inspected By: _____

Date Inspected: _____

Color Code I.D.: _____

Load Rating: _____

Load Test: Satisfactory ☐ Unsatisfactory ☐

Repairs Made: Yes ☐ No ☐

Explain: _____

_____

_____

If Repaired, Load Test Yes ☐

Type of Rigging Gear –

Hooks ☐

Shackles/pins ☐

Rings ☐

Eye bolts ☐

Other ☐

Date Returned To Service: _____

Hoist Inspection Checklist

Inspected By: _____

Date Inspected: _____

Hoist ID Number: _____

Manufacturer: _____

Load Rating: _____

Load Test: Satisfactory ☐ Unsatisfactory ☐

Repairs Made: Yes ☐ No ☐

Explain: _____

_____

_____

Type of Hoist –

Manual Chain Fall ☐

Electric Chain Fall ☐

Air Chain Fall ☐

Wire Rope Come-A-Long ☐

Other ☐

Date Returned To Service: _____

Table 1 – Inspection for Hand Chain Operated Hoists

Revised ASME B30.16

	Normal Service		Heavy Service		Severe Service	
	Visual Monthly [Note (1)]	**Record Yearly [Note (2)]**	**Visual Weekly [Note (1)]**	**Record Semiannually [Note (3)]**	**Visual Daily [Note (1)]**	**Record Quarterly [Note (3)]**
Item						
Frequent Inspection (Refer to para.16-2.1.2)						
All functional operating mechanisms for maladjustment and unusual sounds	X	---	X	---	X	---
Hoist braking system for proper operation	X	---	X	---	X	---
Hooks in accordance with ASME B30.10	X	---	X	---	X	----
Hook latch operation, if used	X	---	X	---	X	---
Load chain in accordance with para. 16-2.5.1 or 16-2.6.1	X	---	X	---	X	---
Load chain reeving for compliance with hoist manufacturer recommendations	X	---	X	---	X	---
Periodic Inspection (Refer to para. 16-2.1.3)						
Requirements of frequent inspections	---	X	---	X	---	X
Evidence of loose bolts, nuts, or rivets	---	X	---	X	---	X
Evidence of worn, corroded, cracked, or distorted parts such as load blocks, suspension bolts, shafts, gears, bearings, pins, rollers, and locking and clamping devices	---	X	---	X	---	X
Evidence of damage to hook retaining nuts or collars and pins, and welds or rivets used to secure the retaining numbers	---	X	---	X	---	X
Evidence of damage or excessive wear of load sprockets, idler sprockets, or hand chain wheel	---	X	---	X	---	X
Evidence of worn, glazed, or oil-contaminated friction discs; worn pawls, cams or ratchet; corroded, stretched, or broken pawl springs in brake mechanism	---	X	---	X	---	X
Evidence of damage of supporting structure or trolley, if used	---	X	---	X	---	X
Label or labels required by para. 16-1.1.4 for legibility	---	X	---	X	---	X

NOTES:

(1) By operator or other designated person with records not required.

(2) Visual inspection by a designated person making records of conditions to provide the basis for a continuing evaluation.

(3) As in Note (2) unless conditions indicate that disassembly should be done to permit detailed inspection.

Table 2 Inspection for Electric-or Air-Powered Hoists Revised ASME B30.16

	Normal Service		Heavy Service		Severe Service	
	Visual Monthly [Note (1)]	**Record Yearly [Note (2)]**	**Visual Weekly [Note (1)]**	**Record Semiannually [Note (3)]**	**Visual Daily [Note (1)]**	**Record Quarterly [Note (3)]**
Item						
Frequent Inspection (Refer to para.16-2.1.2)						
All functional operating mechanisms for maladjustment and unusual sounds	X	---	X	---	X	--
Limit devices for operation	X	---	X	---	X	---
Hoist braking system for proper operation	X	---	X	---	X	---
Air lines, valves, and other parts for leakage	X	---	X	---	X	---
Hooks in accordance with ASME B30.10	X	---	X	---	X	---
Hook latch operation, if used	X	---	X	---	X	---
Hoist rope in accordance with para. 16-2.4.1(a)	X	---	X	---	X	---
Load chain in accordance with para. 16-2.5.1 or 16-2.6.1	X	---	X	---	X	---
Rope or load chain reeving for compliance with hoist manufacturer's recommendations	X	---	X	---	X	---
Periodic Inspection (Refer to para. 16-2.1.3)						
Requirements of frequent inspection	---	X	---	X	---	X
Hoist rope in accordance with para. 16-2.4.1(a)	---	X	---	X	---	X
Evidence of loose bolts, nuts, or rivets	---	X	---	X	---	X
Evidence of worn, corroded, cracked, or distorted parts such as load blocks, suspension bolts, shafts, gears, bearings, pins, rollers, and locking and clamping devices	---	X	---	X	---	X
Evidence of damage to hook retaining nuts or collars and pins, and welds or rivets used to secure the retaining numbers	---	X	---	X	---	X
Evidence of damage or excessive wear of load sprockets, idler sprockets, and drums or sheaves	---	X	---	X	---	X
Evidence of excessive wear on motor or load brake	---	X	---	X	---	X
Electrical apparatus for signs of pitting or any deterioration of visible controller contacts	---	X	---	X	---	X
Evidence of damage of supporting structure or trolley, if used	---	X	---	X	---	X
Function labels on pendant control stations for legibility	---	X	---	X	---	X
Label or labels required by para. 16-1.1.4 for legibility	---	X	---	X	---	X
End connections of rope or load chain	---	X	---	X	---	X

NOTES:

(1) By operator or other designated person with records not required.

(2) Visual inspection by a designated person making records of conditions to provide the basis for a continuing evaluation.

(3) As in Note (2) unless conditions indicate that disassembly should be done to permit detailed inspection.

Master Inventory and Inspection

TOOL DESCRIPTION	SERIAL #	MAINTENANCE #	JD TAG #	RATING	MFG.	TOOL LOCATION	Shop Location	INSPECTION DATE 2000	INSPECTION DATE 2001	INSPECTION DATE 2002	INSPECTION DATE 2003
Gantry- Double Post Yellow	DP2-82500	DP2-82500		80,000 lbs		Phoenix, Az		8/25/2000		3/6/2002	2/14/2003
Gantry- Double Post Blue	DP5-81600	N/A		80,000 lbs.		Phoenix, Az		8/16/2000		3/6/2002	2/14/2003
Gantry-Stationary Yellow	CH82500-1	CH82500-1		80,000 lbs.		Phoenix, Az		8/25/2000		3/5/2002	2/14/2003

Inspection Log

Location:

_____

INSPECTION DATES				
CURRENT	NEW	DESCRIPTION	PAS ID#	INSPECTION TAG#

Inventory and Checklist Sheet

Work Bench Cut Down
Location: _____
Box #
Must be reviewed and signed by listed competent employee

			INVENTORY CHECK LIST INITIAL AND DATE				
QTY	ITEMS	NUMBERS	Inspected & Sent from Warehouse	Inspected & Received at Job Site	Sent from Job Site	Inspected & Received at Warehouse	Repairs Needed Remarks

Competent Person Signature: _____

Sling Inspection Checklist

Inspected By: _____

Date Inspected: _____

Sling ID Number: _____

Manufacturer: _____

Load Rating: _____

Load Test: Satisfactory ☐ Unsatisfactory ☐

Repairs Made: Yes ☐ No ☐

Explain: _____

_____

_____

Type of Sling –

- Wire rope ☐
- Metal mesh ☐
- Nylon ☐
- Natural rope ☐
- Synthetic rope ☐
- Other ☐

Date Returned To Service: _____

Air Dolly Daily Inspection Checklist
(Use prior to and during operation)

- All air dolly crewmembers and any onlookers or bystanders must wear eye protection at all times.
- Inspect the air bladder and all supply hoses for cuts or damage.
- Inspect to see that the air bladder discharge holes are not blocked.
- Look for damage to the bearing plate and attachment points of the bladder to the plates.
- Check the hose connections to plates and each section of hose.
- Ensure cam locks are tight. Wrap aluminum foil backed or clean room tape around all cam locks for security.
- Check the manifold and connections.
- When checking gauges while air pressure is applied, keep face away from directly in front of gauge. (If gauge were to rupture, the cover, needle, and indicator plate could strike you in the facial area.)
- During system operation, the control manifold must be monitored at all times.
- Do not leave the controls unattended unless the load is all the way down and the pressure has been turned off.
- Only use compressed air as a gas source.
- Never operate the system with compressed oxygen as an air supply.
- Before storing, clean the system and clean and coil the hoses.
- Store components in dry, cool location.

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

I. Tools – Hand and Power

1. General Requirements and Equipment Tagging Procedures

   a) Only qualified personnel are allowed to perform repair work on job site tools and equipment (not to include “heavy equipment”).

   b) Employees shall inspect tools and/or equipment prior to each use to ensure safe and proper working conditions.

   c) If tools or equipment are found to be damaged or fail during operation, return them to the designated job site location (tool room) to be red tagged for repair or disposal.

   d) Absolutely no red-tagged equipment or tools shall be returned to service until they have been properly repaired.

   e) Equipment and tools shall be properly maintained at all times to ensure a safe working condition. Properly maintained equipment will benefit everyone.

2. Hand Tools

   a) Conditions of Tools. All hand tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.

   b) Personal Protective Equipment. Employees who use hand tools and are exposed to the hazard of falling, flying, abrasive, and splashing objects, or are exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazard.

   c) Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

3. Power Operated Hand Tools

   a) Condition of Tools. All power operated hand tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.

   b) Guarding. When power operated tools are designed to accommodate guards, they shall be equipped with such guards when in use. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment shall be guarded if such parts are exposed to contact by employees or otherwise create a hazard.

   c) Types of Guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips, and sparks.

   d) Personal Protective Equipment. Employees who use power tools and are exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazard.

   e) Switches
      (1) All hand-held powered platen sanders, grinders with wheels two (2) inches in diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks one-fourth of an inch wide or less may be equipped with only a positive “on-off” control.
      (2) All hand-held powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than two (2) inches in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools shall be equipped with a momentary contact “on-off” control and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.
      (3) All other hand-held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, shall be equipped with a constant pressure switch that will shut off the power when the pressure is released.

Exception: This paragraph does not apply to concrete vibrators, concrete breakers, powered tampers, jackhammers, rock drills, and similar hand operated power tools.

f) Electric Power Operated Tools
   (1) Electric power operated tools shall either be of the approved double-insulated type or grounded.
   (2) The use of electric cords for hoisting or lowering tools shall not be permitted.

g) Pneumatic Power Tools
   (1) Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
   (2) Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
   (3) All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
   (4) The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
   (5) The use of hoses for hoisting or lowering tools shall not be permitted.

h) Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

4. Powder-Actuated Tools

a) The scope of this section provides safety requirements for a powder-actuated fastening system (tool or machine) that propels a stud pin, fastener, or other object for the purpose of affixing it, by penetration, to hard structural material.

b) Definitions
   (1) Angle Control. A safety feature designed to prevent a tool from operating when tilted beyond a pre-determined angle.

(2) Cased Powder Load. A powder load with the propellant contained in a closed case.
(3) Caseless Powder Load. A powder load with the propellant in solid form not requiring closed containment.
(4) Chamber (noun). The location in the tool into which the powder load is placed and in which it is actuated.
(5) Chamber (verb). To fit the chamber according to manufacturer's specifications.
(6) Fasteners. Any pins (headed) or studs (threaded) driven by the powder-actuated tool.
(7) Fixture. A special shield that provides equivalent protection when the standard shield cannot be used.
(8) Head. That portion of the fastener that extends above the work surface after being properly driven.
(9) Misfire. A condition in which the powder load fails to ignite after the tool has been operated.
(10) Powder-Actuated Fastening System. A method comprising the use of a powder-actuated tool, a powder load, and a fastener.
(11) Powder-Actuated Tool. A tool that utilizes the expanding gas from a powder load to drive a fastener.
    (a) Type of Tool
        i) Direct-Acting Tool. A tool in which the expanding gases of the powder load acts directly on the fastener to be driven.
        ii) Indirect-Acting Tool. A tool in which the expanding gas of the powder load acts on a captive piston, which in turn drives the fastener.
    (b) Class of Tool
        i) Low-Velocity Tool. A tool whose test velocity has been measured 10 times while utilizing the highest velocity combination of:
            aa) The lightest commercially available fastener designed for that specific tool
            bb) The strongest commercially available powder load that will properly chamber in the tool
            cc) The piston design for that tool and appropriate for that fastener that will produce an average test velocity from the 10 tests not in excess of 100 meters per second (m/s) with no single test having a velocity of over 108 m/s
        ii) Medium-Velocity Tool. A tool whose test velocity has been measured 10 times while utilizing the highest velocity combination of:

aa) The lightest commercially available fastener designed for the tool
bb) The strongest commercially available powder load that will properly chamber in the tool
cc) The piston design for that tool and appropriate for that fastener that will produce an average test velocity from 10 tests in excess of 100 m/s but not in excess of 150 m/s, with no single test having a velocity for 160 m/s

iii) High-Velocity Tool: A tool whose test velocity has been measured 10 times while utilizing the combination of:
aa) The lightest commercially available fastener designed for the tool
bb) The strongest commercially available powder load that will properly chamber in the tool
cc) The piston designed for that tool and appropriate for that fastener that will product an average velocity from the 10 tests in excess of 150 m/s

(12)Powder Load. The energy source used in powder-actuated tools.
(13)Qualified Operator. A person who meets the requirements of ANSI A10.3-1995 11.1 & 11.2. (See operator qualifications in this section.)
(14)Shall. The word “shall” is to be understood as denoting a mandatory requirement.
(15)Shield. A device that is attached to the muzzle end of the tool and is designed to confine flying particles.
(16)Spalled Area. A damaged and non-uniform concrete or masonry surface.
(17)Test Velocity. The measurement of the velocity of the fastener.

c) Requirements
(1) The tool shall be designed to prevent inadvertent actuation.
(2) Actuation of the tool shall be dependent upon at least two separate and distinct operations by the operator, with at least one operation being separate from the operation of holding to tool against the work.
(3) Each tool shall bear a legible permanent model designation and a manufacturer’s serial number.
(4) A lockable container shall be provided for each tool. The words “powder-actuated tool” shall appear in plain sight on the outside of the container. The following notice shall be attached on the outside over of the container:

WARNING – Powder actuated tool to be used only by a qualified operator and kept under lock and key when not in use.

(5) Each tool shall bear a warning label with the following statement:
WARNING – For use only by qualified operators according to manufacturer's manual.

(6) Each tool shall be supplied with the following:
(a) Operator's instruction and service manual
(b) Powder load and fastener charts
(c) Service tools and accessories

d) Powder Loads

(1) Identification of Cased Powder Loads. Cased powder loads shall be coded to identify powder load levels by case color and powder load color.

(2) Identification of Caseless Powder Loads. Caseless powder loads shall be coded to identify powder load levels by powder load color and number.

Power Level	Color Identification		Lowest Power Level
	Case Color	Load Color	
1	Brass	Gray	↑
2	Brass	Brown	
3	Brass	Green	
4	Brass	Yellow	
5	Brass	Red	
6	Brass	Purple	
7	Nickel	Gray	
8	Nickel	Brown	
9	Nickel	Green	
10	Nickel	Yellow	
11	Nickel	Red	
12	Nickel	Purple	↓
			Highest Power Level

e) Operation

(1) In selecting the proper power level to use for any application, it is important to start with the lowest power level recommended for the tool being used. If the first test fastener does not penetrate to the desired depth, the next higher power level should be tried.

(2) Only qualified operators shall operate tools.
(3) High velocity class tools shall not be used unless specifically authorized, in writing by either a:
  (a) Certified safety professional,
  (b) Registered professional engineer, or
  (c) The manufacturer of the tool
  The authorization shall:
  (a) Contain an expiration date
  (b) Be limited to a specific job site, and
  (c) Be limited to a specific use or application
(4) Approved safety goggles, and/or safety glasses in addition to face shield shall be worn by operators, assistants, and adjacent personnel at all times when the tool is in use or fasteners are being driven. Hearing protection shall also be used.
(5) Prior to use, the operator shall inspect the tool in accordance with the manufacturer's recommended inspection procedures.
(6) Any tool found not to be in proper working condition shall be immediately removed from service and tagged "DEFECTIVE – DO NOT USE."
(7) No tool shall be loaded unless it is being prepared for immediate use. If the work is interrupted after loading, the tool shall be unloaded at once.
(8) Neither loaded nor empty tools are to be pointed at any person.
(9) Hands shall be kept clear of the open barrel end.
(10) In the event of a misfire, the operator shall hold the tool firmly against the work surface for a period of 30 seconds and then follow the explicit instructions set forth in the manufacturer's instruction manual.
(11) Powder loads of different powder levels and types shall be kept separate.
(12) A sign, at least eight inches (8) x 10 inches, using boldface type, not less than one (1) inch in height, shall be posted in plain sight where powder-actuated tools are being used. At a minimum the sign should bear wording similar to the following:

POWDER-ACTUATED TOOL IN USE

f) Limitations of Use
(1) The tool shall not be used in an explosive or flammable atmosphere.

(2) Tools or powder loads shall never be left unattended in a place where they would be available to unauthorized persons.
(3) Fasteners shall not be driven into cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile, most brick, or other very hard or brittle materials.
(4) Fasteners shall not be driven into easily penetrated or thin materials, or materials of questionable assistance, unless backed by material that will prevent the fastener from passing through the other side.
(5) Fasteners shall not be driven closer than ½ inch from the edge of steel except for specific applications recommended by the tool manufacturer.
(6) Fasteners shall not be driven closer than three (3) inches from the unsupported edge of masonry except for specific applications recommended by the tool manufacturer.
(7) Fasteners shall not be driven into concrete unless material thickness is at least three (3) times the penetration of the fastener shank.
(8) Fasteners shall not be driven into any spalled wall.
(9) Fasteners shall not be driven through existing holes unless a specific guide means, as recommended and supplied by the tool manufacturer, is used to ensure positive alignment.

g) Maintenance, Inspection, and Storage
(1) The tool shall be serviced and inspected for worn or damaged parts at regular intervals as recommended by the tool manufacturer. Prior to the tool being put into service, all worn or damaged parts shall be replaced by a qualified person using only parts supplied through the tool manufacturer. A record of this inspection must be maintained utilizing the Powder-Actuated Tool Inspection Log (Appendix 7I-A). This form must be kept with the tool in the tool container.
(2) Instruction manuals, maintenance tools, and accessories supplied with the tool shall be stored in the tool container when not in use.
(3) Powder-actuated tools and powder loads shall be locked in a container and stored in a safe place when not in use and shall be accessible only to authorized personnel.

h) Authorized Instructor. Only persons trained and authorized by the tool manufacturer or by an authorized representative of the tool

manufacturer shall be qualified to instruct and qualify operators for the manufacturer's powder-actuated tools.

i) Qualified Operator
   (1) It is the company's responsibility to ensure that all tool operators are trained for the particular tool being used. All operators shall be trained by an authorized instructor and, after training, shall be familiar with the provisions of these regulations and the instructions provided by the manufacturer. The operators shall also be capable of:
      (a) Reading and understanding the manufacturer's instructional manual
      (b) Cleaning the tool correctly
      (c) Recognizing any visibly worn or damaged parts, or defective operation
      (d) Recognizing the number-color code system used to identify powder load levels
      (e) Using the tool correctly within the limitations of its use and correctly operating the tool in the presence of the instructor
   (2) Each operator shall be required to substantiate their competency by satisfactorily completing a written examination provided by the manufacturer of the tool. The written exam shall be maintained in the employee's personnel file.
   (3) Each employee who meets the requirement of (1) and (2) above, shall receive a qualified operator card, issued and signed by both the instructor and the employee. While using the tool, all operators shall have this card in their possession.

POWDER-ACTUATED TOOL INSPECTION LOG

Make of tool:
_____

Inspected By	Date Inspected	Satisfactory	Unsatisfactory
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

If unsatisfactory, note the problem, the date of inspection, and the correction action taken: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

KEEP THIS DOCUMENT IN THE TOOL STORAGE CONTAINER

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

J. Welding and Cutting

1. General Welding and Cutting

   a) Only experienced persons shall be allowed to do any type of welding or cutting.

   b) No one is to do any type of welding or burning in a hazardous area without proper instructions and a written permit from the proper authority. Safety concerning welding and burning operations is of vital importance. Improper processes can result in loss of life and property by fire and/or explosions. Therefore, it is essential that safety precautions be observed during all phases of welding and burning operations. The use of permits to weld or burn in a hazardous location is one method of reducing a potentially serious situation from developing. As stated above, no one is to do any type of welding or burning in a hazardous area without a written permit. These permits should be issued by either the owner or general contractor on your particular job site. If this service is not available through others, you will have to establish your own permit system. (See Permit for Welding and Cutting with Portable Gas or Arc Equipment – Appendix 7J-A and DANGER Welding-Cutting-Hot Work Permit – Appendix 7J-B in this section for guidelines.)

   c) Do not weld or burn so that hot sparks, hot metal, or severed sections fall on cylinders, hoses, machinery, legs or feet, flammable material, or where they may strike personnel working below.

   d) Welder and helper must always wear the proper personal protective equipment:
      (1) Goggles with proper filter lenses
      (2) Head shield/hood with proper filter lenses
      (3) Fire retardant gauntlet gloves
      (4) Shirts with long sleeves, trousers without cuffs, and high top shoes or boots
      (5) Respirator, when burning material that gives off fumes

e) A fire watch should be established to patrol all exposed areas of the welding or burning operation if the potentials for a fire exist.

f) Mechanical or local exhaust ventilation shall be provided whenever welding or burning is performed in a confined space.

g) Never burn on any closed container that may have held flammable substances without thoroughly purging the container.

h) Portable fire extinguishers shall be located at each worksite.

i) Locate screens around all welding and burning operations (where possible) to protect fellow employees against burns.

j) Any faulty or defective equipment shall be reported to the supervisor, and the use of the equipment shall be discontinued until its safety has been assured.

k) Mechanical ventilation may be required when welding in confined spaces or with fume exposure.

l) Welders shall not wear any jewelry.

2. Gas Welding and Cutting

a) Valve protection caps shall be in place and secured.

b) Oxygen and acetylene cylinders must be stored and secured in an upright position. When in storage, they must be separated by a five (5) foot high, ½-hour fire rated wall or 20 feet in distance.

c) When cylinders are hoisted, they shall be secured on a cradle, sling board, or pallet. They shall not be hoisted by means of magnets or choker slings.

d) Never use matches to light torches. Always use a spark lighter.

e) When cylinders are turned off and not in use, remove gauges and roll up hoses.

f) Always inspect the torch, hose, and regulators prior to use to ensure each is in good working order.

g) Welding lead terminals should be protected from accidental electrical contact.

h) Electrode lead cables should be frequently inspected for wear and damage.

i) Connecting cable lugs shall be insulated adequately for the service conditions.

j) Printed rules and instructions covering operation of equipment supplied by the manufacturers shall be strictly followed.

k) Flashback arrestors should always be installed.

3. Arc Welding and Cutting

a) Only properly designed electrode holders shall be used.

b) Do not overload welding cables or operate with poor connections.

c) All arc welding and cutting cables shall be completely insulated and free from repair or splices within 10 feet from the electrode holder.

d) Never strike an arc on cylinders.

e) Always ensure proper grounding of welding machine.

f) When electrode holders are left unattended, remove electrode and protect holder against electrical contact.

g) Welding lead terminals should be protected from accidental electrical contact.

h) Electrode lead cables should be frequently inspected for wear and damage.

i) Connecting cable lugs shall be insulated adequately for the service conditions.

j) Printed rules and instructions covering operation of equipment supplied by the manufacturers shall be strictly followed.

4. Required PPE/Procedures for Welding Operations

a) Purpose: Performance Abatement Services, Inc. has established this procedure as an overview. Other PAS Policies and Procedures should be reviewed prior to doing any Welding, Cutting, and Hot Work. PAS Fire Protection Plan outlines the duties of Fire Watches and PAS Hot Work Permit Procedure outlines the requirements for Hot Work. Additional requirements may be required by the GC/Owner.

Ensure employees have been trained in welding/cutting and fire watch activities.

b) PRE Task Planning/Set up

1) Inspect welding equipment and gear prior to startup of welding operations.

2) Employees shall wear the following minimum PPE when welding

- Welding helmet/ welding face shield with safety glasses.
- Choose a filter lens shade according to Lens Shade Filter Selector Chart in ANSI Z49.1
- Flame resistant welding jacket either half or full style. When wearing half jacket flame resistant garment or welding apron shall be worn to protect torso.
- Protective flame resistant type gloves such as leather welder's gloves. They should provide the heat resistance and general hand protection needed for welding.
- Do not wear synthetic (man- made) fabrics because they may burn easily, melt, stick to your skin, and cause serious burns.
- Be aware that any cuffs or open pockets can catch flying sparks and start on fire easily. Unroll cuffs and button pockets to prevent spark entry.

3) Remove all flammables, matches, cigarette lighters from pockets including Pre task Plans and other paperwork.

4) Place fire extinguishers within reach in the event of a small fire.

5) Complete “Hot Work” permits when required by the GC/Owner

6) Designate a support person to conduct “Fire Watch” when required by the GC/Owner

c) Arc Welding Activities.

1) Barricade work areas when practical

2) Where practical and when establishing permanent or semi – permanent welding areas, erect welding screens to reduce exposure to arc flash to others. While conducting activities such as welding clips, provide a secure area with caution tape and post signs and/or warn others indicating welding operations are taking place.

3) Inspect welding equipment and PPE prior to beginning welding operations. Replace worn clothing or equipment parts immediately

4) Review equipment manufacturers operator manuals for other safety/operational requirements

5) Establish a “Fire Watch”

6) Mechanical or local exhaust ventilation shall be provided whenever welding or burning is performed in a confined space.

d) Gas Welding and Cutting Procedures

1) Valve protection caps shall be in place and secured on all cylinders when not in use.

2) Oxygen and acetylene cylinders must be stored and secured in an upright position. When in storage they must be separated by a five (5) foot high, half (½) hour fire rated was or 20 feet in distance.

3) When cylinders are hoisted they shall be secured on a cradle, sling board, or pallet. They shall not be hoisted by means of magnets or choker slings.

4) Never use matches to light torches. Always use a spark lighter.

5) When cylinders are turned off and not in use, remove gauges and roll up hoses.

6) Always inspect the torch, hose, and regulators prior to use to ensure each is in good working order.

7) Printed rules and instructions covering operation of equipment supplied by the manufactures shall be strictly followed.

8) Establish a “Fire Watch”

5. Compressed Gas Cylinders Policy

Gas identification should be stenciled or stamped on the cylinder or affixed with a label. No compressed gas cylinder should be accepted for use that does not legibly identify its content by name.

a) Handling

1) Compressed gas cylinders should be handled only by those familiar with the hazards and who understand how to safely handle, transport and store compressed gas cylinders.

2) Cylinders containing compressed gases are heavy and awkward to move. Improper handling of compressed gas cylinders can result in sprains, strains, falls, bruises, or broken bones. Other hazards such as fire, explosion, chemical burns, poisoning, and cold burns could occur if gases accidentally escape from the cylinder due to mishandling.

3) Employees must be trained on the proper use, handling and storage of compressed gas cylinders.

Take the following precautions to prevent injuries caused by the improper handling of compressed gas cylinders.

NEVER

- Drag or slide cylinders, even for short distances.
- Drop cylinders or permit them to strike each other violently.
- Subject cylinders to mechanical shocks that may cause damage to their valves.
- Use cylinders as rollers for moving material or other equipment.
- Tamper with pressure-relief devices.
- Permit oil, grease, or other readily combustible substances to come in contact with cylinders, valves, or other equipment in oxidizer service.
- Remove any product labels or shipping hazard labels.
- Refill compressed gas cylinders. This is to be done only by qualified producers of compressed gases.
- Lift a cylinder by its cap using a sling or a magnet.
- Attempt to catch a falling cylinder.
- Allow cylinders within the 100 Gauss line

ALWAYS

- Move cylinders using a suitable hand truck or cart.
- Leave the valve protection cap and valve seal outlet in place until the cylinder has been secured in place and is ready to be used.
- Secure cylinders when in storage, transit, or use.
- When returning cylinders to the supplier, properly close the cylinder valve, replace and secure any valve outlet seals, and properly install the cylinder cap
- Use a cylinder cage or cradle to lift a cylinder
- Use the proper PPE for cylinder handling (safety glasses, leather gloves and safety shoes).

b) Storage

Take the following precautions to prevent injuries caused by asphyxiation, fire, explosion, high pressure, and improper handling of compressed gas cylinders.

NEVER

- Allow storage temperature to exceed 125°F (52°C).
- Permit smoking or open flames in oxidizer or flammable gas storage areas.
- Expose cylinders to corrosive materials such as ice melting compounds.
- Do not store oxidizing gases near flammable solvents, combustible materials or near unprotected electrical connections, gas flames or other sources of ignition.

ALWAYS

- Store cylinders upright with valve outlet seals and valve protection caps in place (hand tight).
- Secure cylinders when in storage, transit, or use.
- Segregate full and empty cylinders.
- Store cylinders in a dry, cool, well-ventilated, secure area protected from the weather and away from combustible materials.
- Store only the amount of compressed gas required for the specific application.
- Store cylinders away from heavily traveled areas and emergency exits.
- Provide adequate access for cylinder handling.
- Visually inspect stored cylinders on a routine basis, for any indication of leakage or problems.
- Leaking cylinders should be moved to an isolated, well-ventilated area, away from ignition sources. Soapy water should be used to detect leaks. If the lead is at the junction of the cylinder valve and cylinder, do not try to repair it. Contact the supplier and ask for response instructions.
- Protect cylinders from wet or damp ground.
- Separate cylinders containing oxygen or oxidizing gases, e.g., chlorine, (empty or full) from cylinders containing flammable gases by a minimum distance of 20 feet or by a barrier at least 5 feet high having a fire-resistance rating of at least one-half hour, e.g., a concrete block wall.

NEVER

- Insert an object (e.g., wrench, screwdriver, etc.) into valve cap openings to remove a stuck cylinder cap. Doing so may damage

or open the valve, causing a leak to occur. Use an adjustable strap- wrench to remove over-tight or rusted caps.
- Attempt to mix gases in a cylinder.
- Allow any part of a cylinder to be exposed to temperatures exceeding 125°F (52ºC).
- Permit cylinders to become part of an electrical circuit.
- Use oxygen as a substitute for compressed air.
- Strike an arc on a cylinder.
- Return product into a cylinder.
- Introduce another product into a cylinder.
- Use cylinder color as a primary means to identify the contents of a cylinder.
- Heat a cylinder to increase its pressure.
- Discharge the contents from any gas cylinder directly toward any person.
- Refill any non-refillable cylinder after use of the original contents.
- Force cylinder valve connections that do not fit.
- Reduce the residual pressure of a cylinder below the operating pressure of the system.
- Modify, tamper with, paint, deface, obstruct, remove or repair any part of the cylinders

c) Proper Use of Compressed Gases

Take the following precautions to prevent injuries caused by the improper use of compressed gases.

ALWAYS

- Hoses and connections should be inspected regularly for damage. Hoses should be stored in cool areas and protected from damage.
- Know and understand the gases and associated equipment you will be using. Refer to the supplier's MSDS to determine the proper PPE and any other special requirements for the gas being used.
- Secure cylinders when in storage, transit, or use.
- Cylinders must be equipped with the correct regulators. Regulators and cylinder valves should be inspected for grease, oil, dirt, and solvents.

- Use a pressure regulating device where gas is admitted to a system of lower pressure rating than the supply pressure and where, due to the gas capacity of the supply source the system rating may be exceeded.
- Use a suitable pressure relief device to protect a system using a compressed gas where the system has a pressure rating less than the compressed gas supply source and where, due to the gas capacity of the supply source or for any other reason, the system pressure rating may be exceeded.
- Use regulators approved for the specific gas.
- Leak-test lines and equipment with an inert gas before using.
- Use check valves when reverse flow is possible especially in a multi gas system of incompatible gases.
- When a cylinder cap cannot be removed by hand, cylinder shall be tagged “Do Not Use” and returned to the designated storage area for return to vendor.
- Loosen the valve outlet seal slowly when preparing to connect a cylinder.
- Open cylinder valves slowly and carefully after the cylinder has been connected to the process.
- Keep container valve closed when not in use.
- Stand clear of the regulator and valve outlet while opening the valve.
- Prevent sparks and flames from contacting cylinders.
- Discontinue use and contact the supplier if a cylinder valve is difficult to operate. Wrenches should not be used on valves equipped with handwheels. If the valve is faulty, tag the cylinder, identifying the problem, and notify the supplier.
- Close the cylinder valve and release all pressure from the downstream equipment connected to the cylinder anytime an extended non-use period is anticipated.
- Remember, the cylinder label or decal is the only positive way to identify the contents of a cylinder.
- Keep liquid oxygen containers, piping and equipment clean and free of grease, oil and organic materials.

d) Cylinder Gas Receipt and Delivery

1) Incoming/Distribution Location

(a) The driver will check in with the receiving department upon arrival on site. Receiving personnel will tag the cylinders with a

three part status tag (Full, In Use, Empty), stamp the back of the tag with receipt date, enter the requestors name, project code and BM request number and sign the delivery receipt. Driver will deliver cylinders to the requested locations (OPMD Receiving Dock, NMR Receiving Dock or C wing receiving area) and pick up any empties.

2) Delivery/Pick-Up
   (a) Receiving will alert the requestor of their gas delivery via e-mail. The requestor should check that their gas was received. A non-reply to this email within 48 hours confirms receipt. Appropriate cylinder trucks are available at the OPMD Receiving area to safely transport gas to work areas.

e) Empty Cylinders

1) Requestors must assist in keeping control of empty cylinders the status tag “Full” and “In Use” portions should be torn off leaving only the “Empty” portion indicating the cylinder is in fact empty. Empties should be returned to one of the three cylinder storage areas in the sections labeled “Empty Cylinders” (oxidizers properly segregated from flammables) until they can be picked up by the transporter. NHMFL Receiving will contact the gas vendor to arrange pick-up of the accumulated empties, as required to keep the accumulation to a minimum.

PERMIT

FOR WELDING AND CUTTING

WITH PORTABLE GAS OR ARC EQUIPMENT

DATE: _____

BUILDING: _____

DEPARTMENT: _____

WORK TO BE DONE: _____

_____

SPECIAL PRECAUTIONS: _____

_____

IS FIRE WATCH REQUIRED? YES ☐ NO ☐

The location where this work is to be done has been examined, necessary precautions taken, and permission is granted for this work. (See other side.)

PERMIT EXPIRES: _____

SIGNED: _____
(Individual responsible for authorizing welding and cutting)

TIME STARTED: _____ TIME COMPLETED: _____

_____

_____

FINAL CHECK-UP

Work area and all adjacent areas to which sparks and heat might have spread (including floors above and below and on opposite sides of walls) were inspected 30 minutes after the work was completed and were found fire safe.

SIGNED: _____
(Supervisor)

ATTENTION

Before approving any welding and cutting permit, the fire safety supervisor or his appointee shall inspect the work area and confirm that precautions have been taken to prevent fire in accordance with NFPA No. 51B.

PRECAUTIONS

- ☐ Sprinklers in service
- ☐ Welding and cutting equipment in good repair

WITHIN 35 FEET OF WORK

- ☐ Floors swept clean of combustibles
- ☐ Combustible floors wet down, covered with damp sand, metal or other shields
- ☐ No combustible material or flammable liquids
- ☐ Combustibles and flammable liquids protected with covers, guards or metals shields
- ☐ All wall and floor openings covered
- ☐ Covers suspended beneath work to collect sparks

WORK ON WALLS OR CEILINGS

- ☐ Construction noncombustible and without combustible covering
- ☐ Combustibles moved away from opposite side of wall

WORK ON ENCLOSED EQUIPMENT

(Tanks, containers, ducts, dust collectors, etc.)

- ☐ Equipment cleaned of all combustibles
- ☐ Containers purged of flammable vapors

FIRE WATCH

- ☐ To be provided during and 30 minutes after operation
- ☐ Supplied with extinguisher and small hose
- ☐ Trained in use of equipment and in sounding fire alarm

FINAL CHECK-UP

- ☐ To be made 30 minutes after completion of any operation unless fire watch is provided

Signed_____

(Supervisor)

DANGER

WELDING—CUTTING—HOT WORK PERMIT

Date _____ Permit Expires _____

Job Location _____

Work Assigned To_____

Work To Be Done _____

_____

I have personally inspected the area and:

Sprinklers are operative

No flammable vapors or liquids are present

All combustible materials (including paper and cardboard) have been removed or protected with asbestos tarps

Floor and wall openings have been protected to keep out sparks

Fully loaded fire extinguishers and/or water hoses are preset and ready to use

A person has been assigned to watch for dangerous sparks and to maintain a fire watch for ½ hour after job.

SIGNED _____
(Area Supervisor or Welder's Supervisor)

Upon job completion, area was inspected for sparks.

SIGNED _____
(Welder)

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

K. Electrical

1. General Requirements

a) Approval. All electrical conductors and equipment shall be approved.

b) Examination, Installation, and Use of Equipment
   (1) Examination
      (a) The employer shall ensure that electrical equipment is free from recognized hazards.
      (b) Safety of equipment shall be determined on the basis of the following considerations:
         i) Suitability for installation and use - suitability of equipment for an identified purpose may be evidenced by listing, labeling, or certification for that identified purpose
         ii) Mechanical strength and durability
         iii) Electrical insulation
         iv) Heating effects under conditions of use
         v) Arching effects
         vi) Classification by type, size, voltage, current capacity, and specific use
   (2) Installation and Use. Listed, labeled, or certified equipment shall be installed and used in accordance with instructions included in the listing, labeling, or certification.

c) Interrupting Rating. Equipment intended to break current shall have an interrupting rating at system voltage sufficient for the current that must be interrupted.

d) Mounting and Cooling of Equipment
   (1) Mounting. Electric equipment shall be firmly secured to the surface on which it is mounted.
   (2) Cooling
      (a) Electrical equipment, which depends upon the natural circulation of air and convection principles for cooling of exposed surfaces, shall be installed so that room air flow over such surfaces is not prevented by walls or by adjacent installed equipment.

(b) Electrical equipment provided with ventilating openings shall be installed so that walls or other obstructions do not prevent the free circulation of air through the equipment.

e) Splices
(1) Conductors shall be spliced or joined with splicing devices designed for the use or by brazing, welding, or soldering.
(2) All splices and joints and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an insulating device designed for the purpose.

f) Arching Parts. Parts of electric equipment which in ordinary operation produce arcs, sparks, flames, or molten metal shall be enclosed or separated and isolated from all combustible material.

g) Marking
(1) Electrical equipment shall have the following markings:
(a) Manufacturer's name
(b) Trademark
(c) Voltage
(d) Current
(e) Wattage
(f) Other ratings as necessary
(2) The marking shall be durable enough to withstand the environment involved.

h) Identification of Disconnecting Means and Circuits
(1) Each disconnecting means required for motors and appliances shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.
(2) Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident.
(3) The marking shall be durable enough to withstand the environment involved.

i) 600 Volts, Nominal, or Less
(1) Working Clearances
(a) Sufficient access and working space shall be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.

(b) The dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing, or maintenance while alive shall not be less than indicated in Table K-1. In addition to the dimensions shown in Table K-1, workspace shall not be less than 30 inches wide in front of the electric equipment. Distances shall be measured from the live parts if they are exposed or from the enclosure front or opening if the live parts are enclosed.

Table K-1 – Working Clearances

Nominal Voltage To Ground	Minimum Clear Distance for Conditions*		
	(a)	(b)	(c)
	Feet	Feet	Feet
0 - 150	3	3	3
151 - 600	3	3½	4

*Conditions (a), (b), and (c) are as follows:

(a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material.

(b) Exposed live parts on one side and grounded parts on the other side.

(c) Exposed live parts on both sides of the workplace, not guarded as provided in condition (a), with the operator between.

(2) Clear Spaces. Working space shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space shall be guarded.

(3) Headroom. The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers shall be six (6) feet three (3) inches.

(4) Guarding of Live Parts. Live parts of electric equipment operating at 50 volts or more shall be guarded against accidental contact by cabinets or other forms of enclosures, or by any of the following means:

(a) By location that is accessible only to qualified persons

(b) By partitions or screens so arranged that only qualified persons will have access to the space within reach of live parts
(c) By elevation of eight (8) feet or more above the floor or other working surface

(5) Warning Signs. Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

2. Wiring Design and Protection

a) Use and Identification of Grounded and Ungrounded Conductors
(1) A conductor used as a grounded conductor or as an equipment grounding conductor shall be identifiable and distinguishable from all other conductors.
(2) No grounded conductor shall be attached to any terminal or lead so as to reverse designated polarity.
(3) Grounding terminals shall not be used for purposes other than grounding.

b) Outside Conductors and Lamps. 600 volts, nominal, or less and run outdoors as open conductors.
(1) Conductors on Poles. Conductors supported on poles shall provide a horizontal climbing space not less than the following:
(a) Power conductors below communication conductors - 30 inches
(b) Power conductors alone or above communication conductors 300 volts or less - 24 inches; more than 300 volts - 30 inches
(c) Communication conductors below power conductors with power conductors 300 volts or less - 24 inches; more than 300 volts - 30 inches
(2) Clearance from Ground. Open conductors shall conform to the following minimum clearances:
(a) Ten (10) feet above finished grade, sidewalks, or from any platform or projection from which they might be reached
(b) Twelve (12) feet over areas subject to vehicular traffic other than truck traffic
(c) Fifteen (15) feet over areas subject to truck traffic
(d) Eighteen (18) feet over public streets, alleys, roads, and driveways
(3) Clearance from Building Openings. Conductors shall have a clearance of at least three (3) feet from windows, doors, fire escape, etc.

(4) Clearance over Roofs. Conductors above roof space accessible to employees on foot shall have a clearance from the highest point of the roof surface of not less than eight (8) feet vertical clearance for insulated conductors, and not less than 10 feet vertical or diagonal clearance for covered conductors and not less than 15 feet for bare conductors, except that:
   (a) Where the roof space is also accessible to vehicular traffic, the vertical clearance shall not be less than 18 feet
   (b) Where the roof space is not normally accessible to employees on foot, fully insulated conductors shall have a vertical or diagonal clearance of not less than three (3) feet
   (c) Where the voltage between conductors is 300 volts or less and the roof has a slope of not less than four (4) inches in 12 inches, the clearance from roofs shall be at least three (3) feet.
   (d) Where the voltage between conductors is 300 volts or less and the conductors do not pass over more than four (4) feet of the overhang portion of the roof and they are terminated at a through-the-roof raceway or support, the clearance from roofs shall be at least 18 inches

(5) Location of Outdoor Lamps. Lamps for outdoor lighting shall be located below all live conductors, transformers, or other electric equipment, unless such equipment is controlled by a disconnecting means that can be locked in the open position or unless adequate clearances or other safeguards are provided for relamping operations.

c) Services
   (1) Disconnecting Means
      (a) Means shall be provided to disconnect all conductors in a building or other structure from the service-entrance conductors.
      (b) Each service disconnecting means shall simultaneously disconnect all ungrounded conductors.
   (2) Services over 600 Volts Nominal
      (a) Service-entrance conductors installed as open wires shall be guarded to make them accessible only to qualified persons.
      (b) Signs warning of high voltage shall be posted where unauthorized employees might come in contact with live parts.

d) Overcurrent Protection, 600 Volts Nominal, or Less

(1) Conductors and equipment shall be protected from overcurrent in accordance with their ability to safely conduct current. Conductors shall have sufficient ampacity to carry the load.
(2) Except for motor-running overload protection, overcurrent devices shall not interrupt the continuity of the grounded conductor unless all conductors of the circuit are opened simultaneously.
(3) Except for devices provided for current-limiting on the supply side of the service disconnecting means, all cartridge fuses which are accessible to other than qualified persons and all fuses and thermal cutouts on circuits over 150 volts to ground shall be provided with disconnecting means.
(4) Overcurrent devices shall be readily accessible. Overcurrent devices shall not be located where they could create an employee safety hazard by being exposed to physical damage or located in the vicinity of easily ignitable material.
(5) Circuit Breakers
  (a) Circuit breakers shall clearly indicate whether they are in the open (off) or closed (on) position.
  (b) Where circuit breaker handles on switchboards are operated vertically rather than horizontally or rotationally, the up position of the handle shall be in the closed (on) position.
  (c) If used as switches in 120-volt, fluorescent lighting circuits, circuit breakers shall be marked “SWD.”

e) Grounding
  (1) Systems to be Grounded. The following systems which supply premises wiring shall be grounded.
    (a) All three-wire DC systems shall have their neutral conductor grounded.
    (b) Two-wire DC systems operating at over 50 volts through 300 volts between conductors shall be grounded unless they are rectifier-derived from an AC system.
    (c) AC circuits of less than 50 volts shall be grounded if they are installed as overhead conductors outside of buildings or if they are supplied by transformers and the transformer primary supply system is ungrounded or exceeds 150 volts to ground.
    (d) AC systems of 50 volts to 1000 volts shall be grounded under any of the following conditions:
      i) If the system can be so grounded that the maximum voltage to ground on the ungrounded conductors does not exceed 150 volts

ii) If the system is nominally rated 240/120 volt, three-phase, four-wire in which the midpoint of one phase is used as a circuit conductor
iii) If a service conductor is uninsulated

(e) Exceptions. AC systems of 50 volts to 1000 volts are not required to be grounded if the system is separately derived and is supplied by a transformer that has a primary voltage rating less than 1000 volts, provided that **all** of the following conditions are met:
i) The system is used exclusively for control circuits
ii) The conditions of maintenance and supervision assure that only qualified persons will service the installation
iii) Continuity of control power is required
iv) Ground detectors are installed on the control system

(2) Portable and Vehicle-Mounted Generators
(a) Portable Generators. Under the following conditions, the frame of a portable generator need not be grounded and may serve as the grounding electrode for a system supplied by a generator.
i) The generator supplies only equipment mounted on the generator and/or cord- and plug-connected equipment through receptacles mounted on the generator.
ii) The noncurrent-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles are bonded to the generator frame.
(b) Vehicle-Mounted Generators
i) Under the following conditions the frame of a vehicle may serve as the grounding electrode for a system supplied by a generator located on the vehicle:
aa) The frame of the generator is bonded to the vehicle
bb) The generator supplies only equipment located on the vehicle and/or cord- and plug-connector equipment through receptacles mounted on the vehicle or on the generator
cc) The noncurrent-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles are bonded to the generator frame
ii) Neutral Conductor Bonding. A neutral conductor shall be bonded to the generator frame if the generator is a component of a separately derived system.
(c) Grounding Connections

i) For a grounded system, a grounding electrode conductor shall be used to connect both the equipment grounding conductor and the grounded circuit conductor to the grounding electrode. Connections shall be on the supply side of the service disconnecting means.
ii) For an ungrounded service-supplied system, the equipment grounding conductor shall be connected to the grounding electrode conductor at the service equipment. Connections shall be at or ahead of the system disconnecting means.

(d) Grounding Path. The path to ground from circuits, equipment, and enclosures shall be permanent and continuous.

(e) Supports, Enclosures, and Equipment to be Grounded
i) Metal cable trays, metal raceways, and metal enclosures for conductors shall be grounded, except that:
aa) Metal enclosures such as sleeves that are used to protect cable assemblies from physical damage need not be grounded
bb) Metal enclosures for conductors added to existing installations of open wire, knob-and-tube wiring, and nonmetallic sheathed cable need not be grounded if all of the following conditions are met:
(i) Runs are less than 25 feet
(ii) Enclosures are free from probable contact with conductive materials
(iii) Enclosures are guarded against employee contact
ii) Service equipment enclosures shall be grounded.
iii) Exposed noncurrent-carrying metal parts of fixed equipment which may become energized shall be grounded under any of the following conditions:
aa) If within eight (8) feet vertically or five (5) feet horizontally of ground or grounded metal objects and subject to employee contact
bb) If located in a wet or damp location and subject to employee contact
cc) If in electrical contact with metal
dd) If in a hazardous location
ee) If supplied by a metal-clad, metal sheathed, or grounded metal raceway wiring method
ff) If equipment operates with any terminal at over 150 volts to ground

(f) Nonelectrical Equipment. The metal parts of the following nonelectrical equipment shall be grounded:
  i) Frames and tracks of electrically operated cranes
  ii) Frames of nonelectrical driven elevator cars
  iii) Hand-operated metal shifting ropes or cables of electric elevators, and metal partitions, grill work, and similar metal enclosures around equipment of over 1kV between conductors

(g) Methods of Grounding Equipment
  i) Noncurrent-carrying metal parts of fixed equipment, if required to be grounded, shall be grounded by an equipment grounding conductor which is contained within the same raceway, cable, or cord, or runs with or encloses the circuit conductors.
  ii) A conductor used for grounding fixed or movable equipment shall have capacity to conduct safely any fault current which may be exposed on it.
  iii) Electric equipment is considered to be effectively grounded if it is secured to, and in electrical contact with, a metal rack or structure that is provided for its support and the metal rack or structure is grounded.

(h) Bonding. If bonding conductors are used to assure electrical continuity, they shall have the capacity to conduct any fault current which may be imposed.

3. Ground-Fault Protection. Two options are made available to you to comply with the requirements of this program. You may choose to use either one or a combination of the two if job site conditions warrant it.

a) Ground-Fault Circuit Interrupter Option
  (1) The regulation regarding this option is 29 CFR 1926.404(b) (1) (ii) Ground Fault Circuit Interrupters. All 120-volt, single-phase, 15 and 20 ampere receptacle outlets on construction sites, which are not part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire single phase portable or vehicle-mounted generator rated not more than 5KW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters.

(2) Ground-fault circuit interrupter protection at the receptacle is required only when the receptacle is being used by employees for cord and plug connected equipment. The GFCI protection may be provided by a circuit breaker type GFCI or the receptacle type GFCI (portable type GFCI). The latter of the two types of GFCI's is much more practical. However, the employee must remember to unplug the portable GFCI and take it with him when he is finished using his equipment. Each job site should establish a program of control to ensure that all ground-fault circuit interrupters are returned to a designated job site location by the end of each scheduled work shift.

b) Assured Equipment-Grounding Conductor Program Option
(1) The regulation regarding this option, which may be used instead of GFCI's, is 29 CFR 1926.404(b) (1) (iii) Assured Equipment Grounding Conductor Program. The employer shall establish and implement an assured equipment-grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which is available for use or used by employees.
(2) This requirement only applies to cord sets, receptacles, or equipment rated at or used for 15 or 20 ampere, 120-volt, single phase.
(3) Each location shall designate one or more competent persons to implement the requirements of this program.
(4) Equipment-grounding conductors shall be installed and maintained in accordance with the following procedures:
(a) All 120-volt, single phase, 15 and 20 ampere receptacles shall be of the grounded type, and their contacts shall be grounded by connection to the equipment-grounding conductor of the circuit supplying the receptacles in accordance with the applicable requirements of the National Electrical Code
(b) All 120-volt cord sets (extension cords) shall have an equipment-grounding conductor which shall be connected to the grounding contacts of the connector(s) on each end of the cord
(c) The exposed noncurrent-carrying metal parts of the 120-volt cord-and-plug-connected tools and equipment that are likely to become energized shall be grounded in accordance with the applicable requirements of the National Electrical Code

(d) Employees shall be instructed to visually inspect receptacles, flexible cord sets (extension cords), except those that are fixed and not exposed to damage, and equipment connected by cord and plug before each day's use for external defects such as deformed or missing pins or insulation damage and for indication of possible internal damage - Where there is evidence of damage, the damaged item shall be taken out of service and tagged until tested and any required repairs have been made.

(5) All 120-volt, single-phase 15 and 20 ampere receptacles (which are not a part of the permanent wiring of the building or structure), 120-volt flexible cord sets, and 120-volt cord-and-plug-connected equipment required to be grounded shall be tested as follows:
   (a) All equipment-grounding conductors shall be tested for continuity and shall be electrically continuous
   (b) Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment-grounding conductor - The equipment-grounding conductor shall be connected to its terminal.
   (c) Suggested test procedures:
      i) Receptacles - Use receptacle tester to determine correct connections to terminals.
      ii) Cord Sets - First, plug the cord set into a properly wired receptacle which has been tested as above. Then, plug receptacle tester into the cord connector (female device) of cord set to determine both continuity of grounding conductor and correct connections to terminals.
      iii) Cord and Plug Connected Equipment - Use continuity tester. Connect or touch one terminal of continuity tester to the metal frame of the equipment or tool and the other terminal to the grounding prong of the attachment cap plug at the end of the cord. (Although not required by OSHA, it is suggested that this test also be made between the metal frame and each of the outer two prongs of the attachment cap plug.)

(6) The above-required test shall be performed:
   (a) Before first use
   (b) Before equipment is returned to service following any repairs
   (c) Before equipment is used after any incident which can be reasonably suspected to have caused damage
   (d) At intervals not to exceed three (3) months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not to exceed six (6)

months-The test verification shall be by means of color coded marking tape on the receptacle, cord set, or equipment to identify that it passed the test and to indicate the date (month or quarter) in accordance with the following color coding schemes:

January February March	WHITE	White White & Yellow White & Blue
April May June	GREEN	Green Green & Yellow Green & Blue
July August September	RED	Red Red & Yellow Red & Blue
October November December	ORANGE	Orange Orange & Yellow Orange & Blue

Repair or Incident - Brown

Example: An extension cord routinely tested in the month of May would be marked with green and yellow tape and it would need to be routinely retested and remarked in August. If, however, it was damaged and repaired in July, it should be marked with a red tape to indicate the month of test and a brown tape to indicate that repairs were made.

EMPLOYEES SHALL NOT USE ANY EQUIPMENT WHICH HAS NOT MET THE REQUIREMENTS OF THIS PROCEDURE.

4. Equipment for General Use

   a) Fixtures, lampholders, lamps, rosetts, and receptables shall have no live parts normally exposed to employee contact.

   b) Fixtures, lampholders, lamps, rosetts, and receptacles shall be securely supported.

   c) Portable lamps shall be wired with flexible cord and an attachment plug of the polarized or grounding type. In addition, portable handlamps shall comply with the following:

(1) Metal shell, paperlined lampholders shall not be used
(2) Handlamps shall be equipped with a guard
(3) Metallic guards shall be grounded

d) Lampholders of the screw-shell type shall be installed for use as lampholders only and if installed in wet locations, they shall be of the weatherproof type.

e) Fixtures installed in wet or damp locations shall be identified for the purpose.

f) Receptacles, cord connectors, and attachment plugs shall be constructed so they will not accept an attachment plug with a different voltage or current rating than that for which the device is attended.

g) Appliances, other than those in which the current-carrying parts at high temperatures are necessarily exposed, shall have no live parts normally exposed to employee contact.
(1) A means shall be provided to disconnect each appliance.
(2) Each appliance shall be marked with its rating in volts and amperes or volts and watts.

h) Motors, Motor Circuits, and Controllers
(1) If one piece of equipment shall be “in sight from” another piece of equipment, one shall be visible and not more than 50 feet from the other.
(2) A disconnecting means shall be located in sight from the controller location.
(3) The disconnecting means shall disconnect the motor and the controller from all ungrounded supply conductors.
(4) If a motor and the driven machinery are not in sight from the controller location, the installation shall comply with one of the following conditions:
(a) The controller disconnecting means shall be capable of being locked in the open position
(b) A manually operable disconnect switch shall be placed in sight from the motor location
(c) The disconnect switch shall be marked to indicate it is in the open (off) or closed (on) position
(d) The disconnect switch shall be readily accessible

(e) An individual disconnect switch shall be provided for each motor or a group of motors

(5) Motors, motor control apparatus, and motor branch-circuit conductors shall be protected against overheating and short-circuits or ground faults.

(6) Exposed live parts of motors and controllers operating at 50 volts or more shall be guarded against accidental contact by any of the following:
   (a) By installation in a room that is accessible only to qualified persons
   (b) By installation so elevated and arranged as to exclude unqualified persons
   (c) By elevation eight (8) feet or more above the floor

(7) Transformers
   (a) The operating voltage of exposed live parts of transformers shall be indicated by warning signs.
   (b) Dry-type, high fire point liquid-insulated, and askarel-insulated transformers installed indoors and rated over 35kV shall be in a vault.
   (c) Oil-insulated transformers installed indoors shall be in a vault.
      i) Combustible material, fire escapes, doors, and window openings shall be safe guarded from fires which may originate in oil-insulated transformers.
      ii) Transformer vaults shall be constructed so as to contain a fire.
   (d) Any pipe or duct system foreign to the vault installation shall not enter or pass through a transformer vault.
   (e) Materials shall not be stored in transformer vaults.
   (f) All capacitors, except surge capacitors shall be provided with an automatic means of draining the stored charge.
   (g) Capacitors rated over 600 volts, nominal, shall comply with the following:
      i) Isolating or disconnecting switches shall be interlocked with the load interrupting device or shall be provided with caution signs to prevent switching load current.
      ii) For series capacitors the proper switching shall be assured by at least one of the following:
         aa) Mechanically sequenced isolating and bypass switches
         bb) Interlocks
         cc) Switching procedure displayed at the switching location

5. Specific Purpose Equipment and Installations

a) Cranes and Hoist
   (1) Disconnecting Means
      (a) A readily accessible disconnecting means shall be provided between the runway contact conductors and the power supply.
      (b) A disconnecting means, capable of being locked in the open position, shall be provided in the leads from the runway contact conductors on any crane or monorail hoist. If this additional disconnecting means is not readily accessible, means shall be provided at the operating station to open the power circuit to all motors of the crane or monorail hoist.
      (c) The additional disconnect may be omitted if a monorail hoist or hand-propelled crane bridge installation meets all of the following:
         i) The unit is floor controlled
         ii) The unit is within view of the power supply disconnecting means
         iii) No fixed work platform has been provided to service the unit
   (2) A limit switch shall be provided to prevent the load block from passing the safe upper limit of travel of any hoisting mechanism.
   (3) The dimension of the working space in the direction of access to live parts which may require servicing while alive shall be a minimum of two (2) feet six (6) inches.
   (4) All exposed metal parts of cranes, monorail hoists, hoists and accessories including pendant controls shall be metallically joined together into a continuous electrical conductor so that the entire unit will be grounded.

b) Elevators, Escalators, and Moving Walks
   (1) These all shall have a single means for disconnecting all ungrounded main power supply conductors for each unit.
   (2) If control panels are not located in the same space as the drive machine, they shall be located in locked cabinets.

c) Electric Welders-Disconnecting Means
   (1) A disconnecting means shall be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder.

(2) A switch shall be provided by which each resistance welder can be isolated from the supply circuit.

d) Hazardous (Classified) Locations
(1) See 29 CFR 1926.449 for definitions of class locations of hazardous conditions.
(2) Electrical installations in hazardous locations shall be approved intrinsically safe or approved for the hazardous location or safe for the hazardous location.
(3) Requirements for each option is as follows:
(a) Equipment approved as intrinsically safe is permitted in any hazardous (classified) location included in its listing or labeling
(b) Equipment shall be approved not only for the class of location but also for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present - equipment shall not be used unless it is marked to show the class, group, and operating temperature for which it is approved
(4) Equipment which is safe for the location shall be of a type and design which the employer demonstrates will provide protection from the hazards arising from the hazardous location.

6. Safety Related Work Practices

a) Protection of Employees
(1) The company shall not permit an employee to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it, or by guarding it by insulation, or other means.
(2) Before work is begun, the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The company shall post and maintain proper warning signs where such a circuit exists. The company shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

b) Passageways and Open Spaces
   (1) Barriers or other means of guarding shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.
   (2) Working spaces, walkways, and similar locations shall be kept clear of cords to eliminate hazards to employees.

c) Load Ratings
   (1) In existing installations, no changes in circuit protection shall be made to increase the load in excess of the load rating of the circuit wiring.
   (2) Fuses. When fuses are installed or removed with one or both terminals energized, special tools insulated for the voltage shall be used.

d) Cords and Cables
   (1) Worn or frayed electric cords or cables shall not be used.
   (2) Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.

7. Lockout/Tagout

a) General
   (1) This lockout/tagout program has been designed to safeguard PAS employees who have to work on equipment that could be potentially hazardous if energized or activated before their work assignment has been completed.
   (2) This program is to be initiated only if a job site lockout/tagout program by others, which would govern PAS employees, is not in effect.

b) Training
   (1) Training shall be provided to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:
      (a) Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type

and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control

(b) Each affected employee shall be instructed in the purpose and use of the energy control procedure

(c) All other employees whose work operations are or may be in an area where energy control procedures may be utilized shall be instructed about the procedure and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out

(2) When tagout systems are used, employees shall also be trained in the following limitations of tags:

(a) Tags are essentially warning devices affixed to energy isolating devises and do not provide the physical restraint on those devises that is provided by a lock

(b) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated

(c) In order to be effective, tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area

(d) Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace

(e) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program

(f) Tags must be securely attached to energy isolating devises so that they cannot be inadvertently or accidentally detached during use

(3) Employee Retraining

(a) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.

(b) Additional retraining shall also be conducted whenever a periodic inspection reveals or whenever the employer has reason to believe that there are deviations from or inadequacies

in the employee's knowledge or use of the energy control procedures.

c) The following lockout/tagout procedures should be observed for hydraulic, pneumatic, and electrical controlled equipment.
   (1) The supervisor is to oversee lockout/tagout procedures to assure compliance.
   (2) "Locked Out for Safety" and danger tags (Appendix 7K-A) are to be used for all lockout/tagout operations. The danger tags should indicate:
      (a) Supervisor's signature
      (b) Employees doing the job
      (c) Equipment locked out
      (d) Date: initiated _____ removal _____
      These tags should only be removed by the authorized employee. The authorized employee shall be responsible for installing and removing all tamper-proof locks and danger tags. The supervisor will control all master keys.
   (3) Turn off the point-of-operation controls. Disconnected switches should never be pulled while under load, because of the possibility of arching or even explosion.
   (4) Turn the main power controls (switch, breaker, or valve) "OFF." Where high voltages are involved, this responsibility should be assumed by a qualified electrician.
   (5) After the switch has been opened or the valve closed, the supervisor in charge of the employees who are to work on the equipment should place the lock on the control lever or on the multiple lock adapter. At this point, the danger tag should be completed and hung on the lock.
   (6) Try the control to make sure it cannot be moved to "ON."
   (7) Try the machine controls themselves, as a test that the main controls are really "OFF."
   (8) As the employees complete the work assignment, their supervisor and affected employee shall remove the lock and the supplemental "Danger Tag."
   (9) The proper persons should be notified by the supervisor that the work is finished and the equipment is operational.

d) Precautions
   (1) Pulling fuses is not a substitute for locking out. Anyone could replace it.

(2) Locking out one source of power may not be enough. Many machines use a combination of power supplies.
(3) Don't guess at what controls apply to what equipment. Your life may depend on it.
(4) Do not ever assume that the job is too small to merit locking out. Each employee must protect himself and protect others by utilizing proper lockout/tagout procedures. No one other than the person whose signature is on the tag shall remove the safety lock or tag. Violators of this LockOut/TagOut Program will be subject to disciplinary action which may include immediate termination.

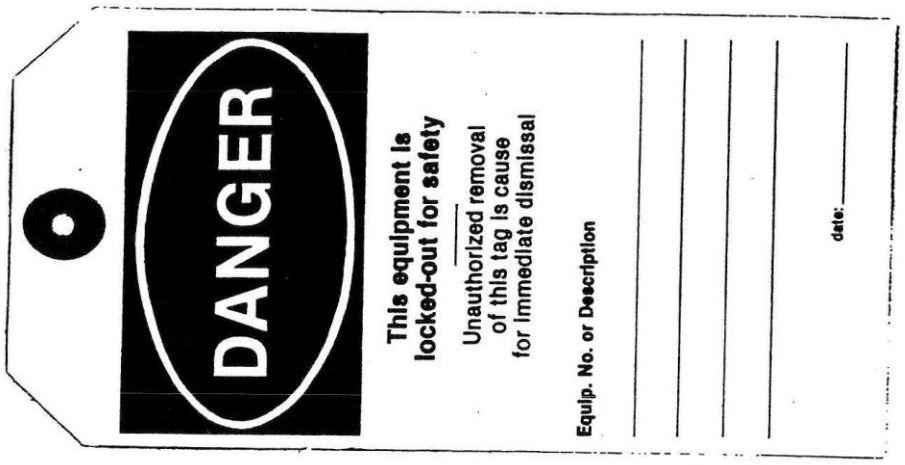
e) Program Review. A periodic inspection of the energy control procedure shall be conducted at least annually to ensure that the procedure and the requirements of this standard are being followed. The periodic inspection is to correct any deviations or inadequacies identified.

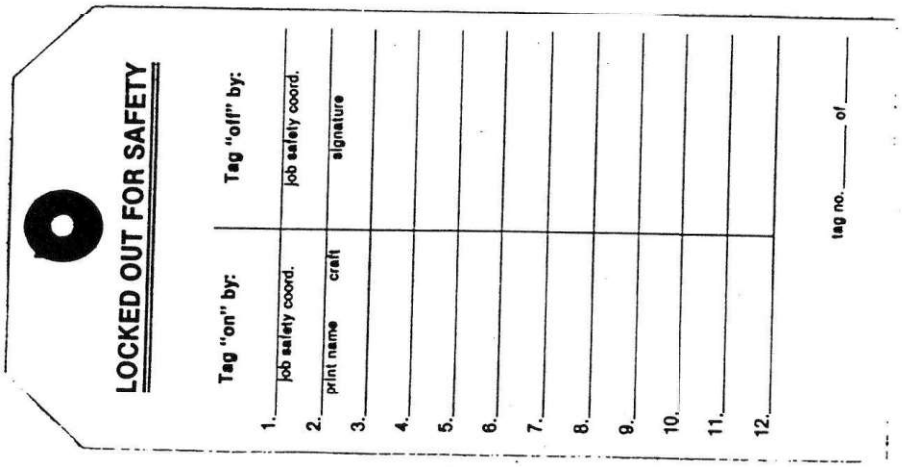
8. Batteries and Battery Charging

a) Batteries of the unsealed type shall be located in enclosures with outside vents or in well ventilated rooms and shall be arranged so as to prevent the escape of fumes, gases, or electrolyte spray into other areas.
(1) Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.
(2) Racks and trays shall be substantial and shall be treated to make them resistant to the electrolyte.
(3) Floors shall be of acid resistant construction unless protected from acid accumulations.
(4) Face shields, aprons, and rubber gloves shall be provided for workers.
(5) Facilities for quick drenching of the eyes and body shall be provided with 25 feet of battery handling areas.
(6) Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection.

b) Battery charging installations shall be located in areas designed for that purpose.
(1) Charging apparatus shall be protected from damage by trucks.

(2) When batteries are being charged, the vent caps shall be kept in place to avoid electrolyte spray.


DANGER
This equipment is locked-out for safety
Unauthorized removal of this tag is cause for immediate dismissal
Equip. No. or Description
date:


LOCKED OUT FOR SAFETY
Tag "on" by:
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SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

L. Scaffolds

1. Purpose and Scope

The purpose of Performance Abatement Services, Inc. (PAS) Scaffolding Procedure is to protect employees from the hazards associated with falls from scaffolds. This program applies to employees who, while performing their duties, are required to erect, and/or use scaffolding. The Occupational Safety and Health Administration's (OSHA) requires Performance Abatement Services, Inc. to develop and implement procedures for safe erecting and use of scaffolds. All Facilities Management departments are required to implement the practices and procedures outlined in this procedure.

2. References

1) OSHA 29CFR 1910.22

2) OSHA 29CFR 1910.28

3) OSHA 29CFR 1926 Subpart L

3. Attachments

1) Scaffolding Inspection Tag (Appendix 7L-A)

4. Definitions

1) Brace - A rigid connection that holds one scaffold member in a fixed position with respect to another member, or to a building or structure

2) Cleat - A structural block used at the end of a platform to prevent the platform from slipping off its supports. Cleats are also used to provide footing on sloped surfaces such as crawling boards

3) Competent Person - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which

are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them

4) Coupler - A device for locking together the tubes of a tube and coupler scaffold

5) Guardrail - A vertical barrier, consisting of, but not limited to, top rails, midrails, and posts, erected to prevent employees form falling off a scaffold platform or walkway to lower levels

6) Lifeline - A component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), which serves as a means for connecting other components of a personal fall arrest system to the anchorage

7) Maximum Intended Load - The total load of all persons, equipment, tools materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time

8) Outrigger - The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold

9) Qualified Person - One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and demonstrated his/her ability to solve or resolve problems related to the subject matter, the work or the project

10) Rated Load - The manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component

11) Scaffold - Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both

12) Single Pole Scaffold - A supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall

13) Three Points of Contact - Term used for a method of safe ladder climbing where between a climber's two hands and two feet, at least

three of them are in contact with the ladder rungs/rails at all times while ascending or descending the ladder

14) Tube and Coupler Scaffold - A supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers, and runner

5. Responsibilities

Everyone working with scaffolding has certain responsibilities. It is very important that every individual is familiar with his/her responsibilities.

1) Branch General Manager/Branch Superintendent

1) Review the PAS Scaffold Procedure with all Branch employees.

2) Monitor compliance with standards set forth in the program by periodic inspections.

3) Assist Foremen by providing training as set forth in procedure.

4) Provide guidance for the proper selection and use of appropriate scaffolding equipment and personnel protective equipment to meet the requirements of this program.

b) Branch Foreman

1) Ensure that all employees required to erect and/or use scaffolding have received the appropriate level of training.

2) Provide necessary personal protective equipment.

3) Ensure that all employees perform their assigned duties as outlined in this procedure.

4) Take appropriate action whenever an employee under his/her direction fails to follow safety precautions outlined in this procedure.

c) Scaffold Erectors

1) Scaffolding Erectors are responsible for installing scaffolding and performing inspections prior to initial use and after any occurrence which may affect the structural integrity of the scaffold.

d) Scaffold Users

1) Receive scaffold user training prior to working on scaffolds.

2) Review Scaffold Inspection Tag for any precaution instructions.

3) Ensure Scaffold has been inspected and inspection is up to date.

4) Use any required personal fall protection/PPE noted on the Inspection Tag.

5) Never attempt to alter or repair any scaffold without first informing the PAS Scaffold Competent Person.

e) Qualified Person

1) A registered professional engineer is responsible for scaffolding design erected over 125 feet high, and pole scaffolds erected over 60 feet high.

6. Training

a) Training Requirements for PAS Scaffold Erectors

1) Training requirements apply to all employees who are involved in erecting, altering, disassembling, moving, repairing or inspecting scaffolds.

2) Each Branch will designate a Branch Scaffold Coordinator.

3) The Branch Scaffold Coordinator will have completed the Scaffold Train the Trainer Course or have at least five (5) years of Scaffold Erector experience.

4) The Branch Scaffold Coordinator and the Branch Superintendent will designate the Branch Scaffold Competent

Person(s) for the Branch on an annual basis. Their names will be put on the Branch Competent Person sheet.

5) Branch Scaffold Competent Person will be capable of identifying existing and predicable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

6) All Branch employees who will be designated as a Scaffold Erector will be trained by a Competent Person.

7) The training for a Scaffold Erector shall include the following topics as applicable:
    (a) The nature of scaffold hazards
    (b) The correct procedures for erecting, altering, disassembling, moving, repairing, and inspecting, the type(s) of scaffold intended to be utilized.
    (c) The design requirements, as well as the maximum intended load-carrying capacity and intended use of the scaffold.
    (d) The proper use of personal fall protection equipment, and fall protection systems.

(a) The training requirements in this procedure will be documented and maintained in the employees safety file.

(b) Branch employees currently designated as Scaffold Erectors will have their training, as outlined in this procedure verified by the Branch Competent Person or the Branch Scaffold Coordinator through the completion of the Scaffold Erector Verification Form (Appendix B). They will also have a hands on review (if required by the Branch Scaffold Coordinator).

(c) New Hire employees who have received the training requirements as outlined in this procedure from an outside source prior to PAS employment will have this training verified by the Branch Competent Person or the Branch Scaffold Coordinator through the completion of the Scaffold Erector Verification Form (Appendix B). They will also have a hands on review (if required by the Branch Scaffold Coordinator).

7. Scaffold Erector Classifications

PAS has developed a Scaffold Erector Classification system. Other Scaffold Erector Classification that meet or exceed the PAS Scaffold Erector Classification system will be considered to be equivalent. Upon Completion of the Scaffold Erector Verification Form, the Branch Scaffold Coordinator and/or the Branch Scaffold Competent Person will designate the PAS employee with one of the following classifications. Scaffold Erector experience will be verified by the Branch Scaffold Coordinator and/or Branch Scaffold Competent Person and documented on the Scaffold Erector Verification Form.

1) PAS will have four(4) classifications of Scaffold Erectors

    1) Scaffold Erector Class A – This classification can erect, alter, disassemble, move, repair or inspect scaffolds. This classification requires that the employee has a minimum of one year of Scaffold erector experience. This classification is eligible for designation as a Scaffold Foreman on a job site.

    2) Scaffold Erector Class B – This classification can erect, alter, disassemble, move, repair or inspect scaffolds. This classification requires that the employee has a minimum of six months Scaffold erector experience. This classification is not eligible for designation of Scaffold Foreman on a job site.

    3) Scaffold Erector Class C – This classification can assist with the erection of scaffolding under the direct supervision of a Scaffold Erector A or B, but is not allowed to erect scaffolding independently. The classification is restricted to material handling duties only with respect to the erection of engineered (boiler) scaffolds. This classification requires that the employee has a minimum of three (3) months scaffold erector experience.

    4) Scaffold Erector Class D – Prior to enrollment in or completion of Scaffold Erector training requirements, this classification is restricted to material handling applications on the ground only. Once this individual is enrolled in or has completed the training requirements outlined in the procedure for scaffold erector training, they will be allowed to assist in the handling and erection of scaffolding for non-engineered scaffolds under the direct supervision of a Scaffold Erector A or B. This

classification is restricted from participating in engineered (boiler) scaffolding projects. Their Scaffold Erector experience will not begin until they have completed the Scaffold Erector training requirements.

b) Scaffold Erector Re-Classification

1) The Branch Scaffold Coordinator will maintain all training records and track PAS Scaffold Erectors months/years experience in each Scaffold Erector Classification.

2) The Branch Scaffold Coordinator will re-classify a Scaffold Erector to a higher classification once they meet the criteria.

3) In the event a Scaffold Erector has incidents, Safety Violations, and/or poor work performance, the Branch Scaffold Coordinator has the option of re-classifying a PAS Scaffold Erector to a lower classification.

8. Training Requirements for <u>Scaffold Users</u>

a) Training requirements apply to all employees who perform work while on a scaffold.

b) Scaffold user training shall be performed by a Qualified Person.

c) The training shall include the following topics as applicable:

1) The proper use of the scaffold, and the proper handling of materials on the scaffold.

2) Scaffold Collapse – from over loading, damaged or defective components, struck by, or improper tie in.

3) Falling object hazards and types of protection to be used.

4) Electrical Hazards – Recognizing electrical hazards and proper safe guards to prevent injury.

5) Fall Protection – Guard rail requirements, PFAS requirements if needed, and recognizing unsafe platforms and planks.

6) Unsafe Access – Proper means of access and egress from scaffolds.

9. Retraining for both Scaffold Erectors and Scaffold Users are required when:

a) When there are changes in the types of scaffolds, fall protection, falling object protection or other equipment or procedures related to the hazards associated with site scaffolding.

b) When there are changes in the worksite that could present new hazards to which the employee has not been previously trained.

c) Retraining shall be conducted every three (3) years for scaffold users or when an employee demonstrates a lack of skill, understanding or where inadequacies in an affected employees work involving scaffolds indicates that the employee has not retained proficiency.

10. Inspection and Storage

a) Inspection

1) The first inspection will be conducted by the scaffold erector immediately after scaffold has been completed. The scaffold erector will place a Green Tag (complete scaffold), Yellow Tag (Caution –special requirements), or Red Tag (Do Not Use).

2) If the scaffold is going to be used during any shift, the scaffold shall be inspected prior to that shift beginning any work on the scaffold by a Scaffold Competent Person.

3) Scaffolds and scaffold components shall be inspected for visible defects by the scaffold user prior to initial use, before each work shift, and after any occurrence which could affect a scaffold's structural integrity. The use of the Scaffold Inspection Checklist in the Foreman Safety Box will be used for documentation of the scaffold inspection.

4) Scaffold users shall read scaffold tags prior to using any scaffold. The instructions or warnings outlined on the tag must be followed.

5) Before erecting and during dismantling, trained scaffold craftsmen shall inspect all scaffold components. Those found with defects must be repaired or replaced immediately.
   (a) Handrails, midrails, cross bracing, and steel tubing shall be inspected for nicks, especially near center span, and indications where a welding arc has struck.
   (b) Scaffold components shall be straight and free from bends, kinks dents, and severe rusting.
   (c) Scaffold frame weld zones shall be inspected for cracks and ends of tubing for splitting or cracking.
   (d) Manufactured decking shall be inspected for loose bolt or rivet connections and bent, kinked, or dented frames. Plywood surfaces should be checked for softening due to rot or wear, and peeling or delaminated layers at the edges. Scaffold boards should be inspected for rot, cracks, notches, and other damage. Also, inspect cleats if used.
   (e) Each quick-connecting device, whether spring, threaded connection, or toggle pin arrangement, should be inspected to see that it operates properly.
   (f) Casters, if used, should be inspected for smooth rolling surfaces, free turning, free acting swivel, and to be sure that the locking mechanism is in good working order.

11. Procedures

a) General Requirements

1) All scaffolds shall be designed by a Qualified Person or manufacturer, and shall be erected, loaded and used in accordance with that design or manufacturer's specifications.

2) All employees using and/or erecting scaffold will have a Pre Task Plan completed prior to performing their task. The Pre Task Plan will be reviewed with all employees and signed by each employee performing any part of the task assigned.

3) Scaffolds shall be erected, altered, moved, or dismantled by trained scaffold erectors. (See Training Requirements)

4) Employees required to perform work on scaffold platforms shall be trained in recognition and the control measures for the hazards associated with the type(s) of scaffold being used. (See Training Requirements for scaffold users.)

5) Scaffolds shall be capable of supporting, without failure, its own weight and at least four (4) times the maximum intended load.

6) Scaffolds with work platforms of six (6) feet or more above the ground or next lower level should have a complete guardrail system. Toeboards are required when there is a risk of material, tools, equipment being incidentally kicked, bumped or otherwise dislodged off the scaffold deck onto personnel below. (See also Fall Prevention and Fall Protection in this procedure.)

7) All scaffold work platforms must be completely decked between the uprights and/or guardrail supports.

8) Scaffold platforms shall be a minimum of 18 inches wide.

9) All scaffold decking shall be Scaffold Grade or equivalent.

10) The footing or anchorage for all scaffolds shall be sound, rigid, and capable of supporting the loaded scaffold without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks will not be used to support scaffolds. Mud sill's 8" X 8" and base plates are required when scaffolds are supported on the ground surface. When using leveling jacks, 3/4 of its length must remain inside the scaffold leg.

11) The poles, legs, or uprights of scaffolds shall be plumb and securely braced to prevent swaying and displacement.

12) Manufactured scaffold components shall not be modified. Scaffold components manufactured by different manufacturers or of dissimilar metals shall not be intermixed unless the components fit together without force, modification and the scaffolds structural integrity is maintained as determined by a Competent Person.

13) Supported scaffolds with a height to base width ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means.
    (a) Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less for scaffolds three (3) feet wide or less; and every 26 feet or less thereafter for scaffolds greater than three (3) feet wide.
    (b) The top guy, tie or brace of completed scaffolds shall be placed no further than 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet.

14) Design drawings must be made prior to erection and kept on site for any scaffold over 125' high. They must be made by a licensed professional engineer competent in this field.

b) Scaffolding Decking (Boards)

1) Scaffold Grade 2" X 10" or 2" x 12" board material only will be used.

2) No paint or material which would affect proper visual board inspection or work surface safety may be applied to scaffold boards. Scaffold boards may be painted 10 to 12 inches on each end to denote use for scaffold decking only.

3) Scaffold boards are not to extend over their end supports more than 12" or less than 6".

4) All decking on platforms shall be overlapped (minimum 12") or secured from movement.

5) Do not use cleated boards with cleats turned up.

c) Scaffolding Tags

The most effective means of communication between the scaffold builder and the scaffold user is a scaffold tag.

1) The crew that erects the scaffold will complete and attach the scaffold tag. (See Appendix 7L-A)

2) The tag should be placed at eye level on or near the access ladder so it is easy to locate and plainly visible.

3) A scaffold erector shall ensure that the scaffold is erected properly and the tag attached is properly and completely filled out.

4) If the scaffold needs to be altered in any way, a scaffold erector must be contacted to authorize the change and a new inspection conducted.

5) An untagged scaffold must not be used.

6) If a scaffold is to be used for an extended period of time it should be inspected before each shift by a Scaffold Competent Person. (See also Inspection and Storage).

d) Tagging Systems

1) A three tag system can be used which includes a red or "Danger" tag in conjunction with the yellow and green tags. Again, any scaffold that is not tagged shall not be used.
   (a) A red tag means the scaffold is being dismantled, not yet completely erected, or for some reason not safe and shall not be used.
   (b) A yellow tag is completed and attached to scaffolds which cannot be erected with all components complete. A yellow tag also informs the user that a fall protection device is required while on a scaffold with incomplete guardrails or deck openings.
   (c) A green tag is completed and attached by the erecting crew to scaffolds which have complete handrails, midrails, toeboards, and decking. A green tag informs all users that the scaffold is safe to use.

e) Access to Scaffold Platforms

1) When employees work from a scaffold deck more than 18 feet above the lowest level, they must access the platform via on of the following methods:
    (a) Direct access from existing structure.
    (b) A stair tower attached to the scaffold.
    (c) A ladder from inside the scaffold itself, commonly called a trap door ladder.
    (d) If the scaffold cannot be accessed by one of the preceding methods, then the General Manager/ Branch Superintendent will need to contact a regional safety representative for a documented variance.

2) When scaffold platforms are more than two (2) feet above or below a point of access, an attached ladder or other approved ladder/stair system must be used by scaffold users to reach the platform.

3) Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level.

4) Access ladders must extend 36” above the platform being accessed, or equivalent safe access shall be provided.

5) Scaffold bracing shall not be used for access or climbing. Integral prefabricated scaffold access frames must be specifically designed and constructed for use as ladder rungs and may be used for access to platforms.

6) Hook-on and attachable ladders shall be broken with rest platforms at 35-foot maximum vertical intervals.

7) Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold being used.

8) Rungs must be uniformly sized and spaced with a maximum interval between rungs of 16-3/4 inches.

9) Rungs must be at least 11-1/2 inches long.

f) Scaffold Use

1) Scaffolds shall not be loaded in excess of their maximum intended loads or rated capacities.

2) Debris shall not be allowed to accumulate on platforms.

3) Do not stack brick, tile, block, or similar material higher than 24" on the scaffold deck.

4) Makeshift devices, such as boxes and barrels shall not be used on top of scaffold platforms to increase the working level height.

5) Ladders shall not be used to increase the working level height.

6) Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.

7) Scaffolds shall never be altered or moved while they are in use or occupied.

8) Scaffolds shall not be moved or dismantled without first removing all loose tools, materials, and equipment resting on the scaffold deck.

9) Employees shall not work on scaffolds during storms or high winds.

10) Employees shall not work on scaffolds which are covered with ice or snow, unless involved in removing ice or snow from scaffold.

11) The clearance between scaffolds and power lines shall be as follows: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might get closer to exposed and energized lines than as follows:

Insulated Line (VOLTAGE)	MINIMUM DISTANCE
Less than 300 Volts	3 Feet
330 Volts to 50 KV	10 Feet
More than 50 KV	10 Feet Plus 4 Inches for

	each 1 KV over 50 KV Or 2 times the length of the Line insulator but never less than 10 Feet

Uninsulated Line (VOLTAGE)	**MINIMUM DISTANCE**
Less than 50 KV	10 Feet
More than 50 KV	10 Feet plus 4 inches for
More than 50 KV	10 Feet Plus 4 Inches for each 1 KV over 50 KV Or 2 times the length of the Line insulator but never less than 10 Feet

12. Fall Prevention and Fall Protection

a) Each Employee on a scaffold more than 6 feet above the ground or next lower level shall be protected from falling to that lower level by means of a complete guardrail system (*fall prevention)* or approved *personal fall protection*. This requirement applies to both scaffold users and scaffold erectors/dismantles. Also see the Fall Protection Procedure.

b) Fall Prevention

1) All scaffold guardrail systems must meet the design/performance requirements set forth in this Section and by OSHA standards.

2) Guardrail systems shall be installed along all open sides and ends of platforms.

3) Guardrail systems shall be completely installed before the scaffold is released for use other than erection and dismantling crews.

4) Guardrail systems shall be surfaced to prevent injury to employees such as punctures or lacerations.

5) Top edge height of top rails or equivalent member shall be installed between 39 and 45 inches.

6) Each top rail or equivalent member shall be capable of withstanding, without failure, a force applied in any downward or outward direction of at least 200 pounds.

7) Rope, No. 9 wire, banding material, etc., shall not be used as a top rail or midrail.

8) Midrails shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface. When intermediate members are used as a midrail, they shall not be more than 19 inches apart.

9) Each midrail or equivalent member shall be capable of withstanding, without failure, a force applied in any downward or outward direction of at least 150 pounds.

10) Where guardrail systems are incomplete, missing, or moved to allow access for work, personal fall protection shall be used on the affected platform(s).

11) In some cases a building, structure, equipment, or piping may prevent the proper installation of a complete scaffold guardrail, a Competent Person can determine whether these obstructions meet or exceed the applicable guardrail requirements; to be used instead of the scaffold guardrail system. The Competent

Person should use the Scaffold Tag to indicate when these conditions are acceptable.

c) Personal Fall Protection

1) Approved personal fall protection is required any time employees work on, or erect a scaffold:
   (a) Which is not protected by a complete deck and guardrails, and six (6) feet or more above the ground or next lower level
   (b) Anytime on a suspended scaffold platform.
   (c) Working as stated above means while traveling, stationary, or at anytime exposed to a fall hazard.

2) Personal fall protection used on scaffolds shall be attached by a lanyard to a vertical lifeline, horizontal lifeline or approved scaffold structural member.

3) Personal fall protection is not required while using a designed ladder or access system, provided “three points of contact” are maintained when ascending or descending a scaffold ladder (access way), and the requirements of this procedure and applicable OSHA standards for ladders and stairways are met.

4) Employees may not climb any ladder with anything in their hands. Tools and materials may be carried on their person, hoisted up/down by rope or other devices.

d) Falling Object Protection

1) If a falling object hazard is present each employee working in the area shall be provided with a hard hat. Additional protection from falling hand tools, materials, debris and other small objects through the installation of toeboards, barricades, mesh/screens, debris nets, or catch platforms/canopies shall be provided as warranted.

2) Where there is a hazard of tools, materials, or small objects falling from the surface of scaffold platforms and striking pedestrians below, the area below the scaffold to which objects can fall shall:

(a) Be barricaded at an appropriate distance with tape identifying the area a *"Hazard Area"*. Where the job is in short duration, a second employee stationed on the ground directing individuals away from the hazard can serve as an acceptable alternative.

(b) Have a 2" X 4" (nominal) toeboard shall be erected along all edges of scaffold platforms more than 6 feet above lower levels.

(c) Where tools and materials are stacked above the height of the toeboard, the following additional protective measures should be considered:

(1) Higher toeboards, or

(2) Mesh/screen put up against the guardrail with openings small enough to contain materials on the platform.

(3) All employees will review and sign the Falling Object Safe Practices Guidelines (Appendix 7L-C) prior to erecting/working on any scaffold.

3) In some cases, due to the nature or configuration of the scaffold/work area, debris nets, catch platforms or canopy structures may be erected to protect pedestrians from falling objects, rather than the protective mechanisms listed above.

(a) If used these structures must be strong enough to withstand the impact forces of the potential falling objects, and shall be erected over the pedestrians below.

4) When potential falling objects are too large, heavy or massive to be contained by any of the above listed measures, those materials shall be placed away from edges and further secured from falling.

e) Mobile (Rolling) Scaffolds

1) Mobile scaffolds shall be used only on level, smooth surfaces free of major defects.

2) Mobile scaffolds shall be braced by cross, horizontal, or diagonal braces, or a combination thereof, to prevent racking or collapse of the scaffold and to ensure scaffolds remain plumb,

level and squared at all times. All brace connections shall be secured.

3) Out-rigger frames, when used, are installed on both sides of the scaffold, and would be included in the base/height limit calculations.

4) No one is to ride on any part of a scaffold that is being moved.

5) All casters used with mobile scaffolding shall be provided with a positive locking device to hold the scaffold in position when the scaffold is stationary or while employees are on the scaffold.

6) Caster stems and wheel stems shall be pinned or otherwise secured in scaffold legs or adjustment screws.

7) Manual force used to propel the scaffold shall be applied as close to the base as possible, and never more than five (5) feet above the supporting surface.

8) Power systems used to propel mobile scaffolds shall be designed for such use. Forklifts, trucks or other similar motorized vehicles shall not be used to move scaffolds, unless the scaffold is specifically designed to be moved in this manner.

13. Two-Point Adjustable Suspension Scaffolds

a) The requirements for two-point adjustable suspension scaffolds are as follows:
   1) A competent person must evaluate all direct connections prior to use to confirm that the supporting surfaces are able to support the imposed load;

   2) All suspended scaffolds must be tied or otherwise secured to prevent them from swaying, as determined by a competent person;

   3) A competent person must inspect the ropes for defects prior to each work shift and after every occurrence that could affect a rope's integrity;

4) When lanyards are connected to horizontal lifelines or structural members on two-point adjustable scaffolds, the scaffold must have additional independent support lines equal in number and strength to the suspension lines and have automatic locking devices; and

5) Emergency escape and rescue devices must not be used as working platforms, unless designed to function as suspension scaffolds and emergency systems.

b) Counterweights

Counterweights used to balance adjustable suspension scaffolds must be able to resist at least four (4) times the tipping movement imposed by the scaffold operating at either the rated load of the hoist or one and one-half (minimum times) the tipping movement imposed by the scaffold operating at stall load of the hoist, whichever is greater.

Only items specifically designed as counterweights must be used. Counterweights used for suspended scaffolds must be made of materials that cannot be easily dislocated. Counterweights must be secured by mechanical means to the outrigger beams. Vertical lifelines must not be fastened to counterweights.

Flowable material either in an open or closed container, such as water, cannot be used. Materials such as sand, gravel or roofing felt shall not be used as counterweights.

c) Suspension Ropes

Suspension ropes must be long enough to allow the scaffold to be lowered to the level below without the rope passing through the hoist. Drum hoists must contain no less than four (4) wraps of the rope at the lowest point. Suspension Rope must:

1) Be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to the rope. This includes connecting hardware used on non-adjustable suspension scaffolds or

2) Be capable of supporting two (2) times (minimum) the stall load of the hoist, whichever is greater. The stall load of any scaffold shall not exceed three (3) times its rated load.

3) Wire rope shall be replaced when one or more of the following conditions exist:
   (a) Kinks;
   (b) Six randomly broken wires in one strand
   (c) One third of the original diameter of the outside wires is lost;
   (d) Heat damage;
   (e) Evidence that the secondary brake has engaged the rope
   (f) Any other physical damages that impair the function and strength of the rope.
   (g) Repaired wire rope shall not be used under any circumstance.

   Suspension ropes supporting adjustable suspension scaffolds shall be a diameter large enough to provide sufficient surface area for the functioning of the brake and hoist mechanisms. When suspension ropes are near heat-processes, the ropes shall be shielded from the heat.

d) Power-Operated Suspension Scaffold Hoists

All power-operated hoists used to raise or lower a suspended scaffold must be tested and listed by a qualified testing laboratory. The stall load of any scaffold hoist must not exceed three (3) times its rated load. The stall load is the load at which the motor engine of a power-operated hoist stalls or the power to which is automatically disconnected.

An automatic braking and locking device, in addition to the operating brake, must engage when a hoist makes an instantaneous change in movement or an accelerated overspeed.

e) Manually Operated Suspension Scaffold Hoists

Manually operated hoists used to raise or lower a suspended scaffold must be tested and listed by a qualified testing laboratory. These hoists require a positive crank force to descend.

f) Welding from Suspension Scaffolds

Welding can be performed from suspended scaffolds when:

1) A grounding conductor is connected from the scaffold to the structure and is at least the size of the welding lead;

2) The grounding conductor is not attached in series with the welding process or the work space;

3) An insulating material covers the suspension wire rope and extends at least four (4) feet above the hoist;

4) Insulated protective covers cover the hoist;

5) The tail line is guided, retained, or both, so that it does not become grounded.

6) Each suspension rope is attached to an insulated thimble; and

7) Each suspension rope and any other independent lines are insulated from grounding.

g) Increase Working Level Height on Suspended Scaffolds

No materials or devices shall be used to increase the working height on a suspension scaffold.

h) Guardrails

All scaffolds more than six (6) feet above the lower level, must protect employees with guardrails on each open side of the scaffold. Guardrails shall be installed along the open sides and ends before releasing the scaffold for use by the employees, other than erection or dismantling crews.

1) Guardrails are not required:
   (a) When the front end of all platforms are less than 14 inches from the face of the work
   (b) When outrigger scaffolds are three (3) inches or less from the front edge;

(c) When employees are plastering and lathing 18 inches or less from the front edge.

2) Materials such as steel or plastic banding shall not be used for top rails or mid rails.

i) Specific Requirements

1) The platforms shall not be more than 36 inches wide unless designed by a qualified person;

2) The platform shall be securely fastened to hangers by u-bolts;

3) The blocks for fiber or synthetic ropes shall consist of at least one double and one single block. The sheaves of all blocks shall fit the size of the rope used;

4) Platforms shall be of the ladder-type, plank-type, or light-metal type. Light-metal type platforms having a rated capacity of 750 pounds or less and platforms 40 feet or less in length shall be tested and listed by a nationally recognized testing laboratory;

5) Two-point scaffolds shall not be bridged or otherwise connected one to another during raising and lowering operations, unless the bridge connections are articulated (attached), and the hoists properly sized; and

6) Passage may be made from one platform to another only when the platforms are at the same height, are abutting, and walk-through stirrups specifically designed for this purpose are used.

j) Multi-level Suspended Scaffolds

All Multi-Level Suspended Scaffolds shall be constructed in accordance with the counterweights, suspension ropes, power-operated suspension scaffold hoists, manually operated suspension scaffold hoists, welding from suspension scaffolds, increased working level height on suspended scaffolds, guardrail, and platform requirements for Two-Point Adjustable Suspension Scaffolds

1) The requirements for multi-level suspended scaffolds are as follows:

(a) A competent person must evaluate all direct connections prior to use to confirm that the supporting surfaces are able to support the imposed load;
(b) All suspended scaffolds must be tied or otherwise secured to prevent them from swaying, as determined by a competent person;
(c) A competent person must inspect the ropes for defects prior to each work shift and after every occurrence that could affect a rope's integrity;
(d) When lanyards are connected to horizontal lifelines or structural members on single-point adjustable scaffolds or two-point adjustable scaffolds, the scaffold must have additional independent support lines equal in number and strength to the suspension lines and have automatic locking devices;
(e) Emergency escape and rescue devices must not be used as working platforms, unless designed to function as suspension scaffolds and emergency systems;
(f) Scaffolds shall be equipped with additional independent support lines, equal in number to the number of points supported, and of equivalent strength to the suspension ropes, and rigged to support the scaffold in the event the suspension rope(s) fail;
(g) Independent support lines and suspension ropes shall not be attached to the same points of anchorage; and
(h) Supports for platforms shall be attached directly to the stirrup and not to disturb other platforms.

14. Rolling Towers/Mobile Scaffold

a) Purpose

The purpose of Performance Abatement Services, Inc. (PAS) Rolling Towers/ Mobile Scaffold Procedure is to protect employees from the hazards associated with rolling towers/mobile scaffolds. This program applies to employees who while performing their duties, are required to erect, and/or use rolling towers/mobile scaffolds. All Facilities Management departments are required to implement the practices and procedures outlined in this procedure.

b) Scope

The most common type of rolling tower/mobile scaffold is simply a single bay supported scaffold tower with casters. Mobile scaffolds may be constructed using tube and coupler scaffold, fabricated frame scaffold or modular type scaffold. As with any supported scaffold, however, it can be configured in many different ways.

c) References

1) OSHA 29CFR 1910.22

2) OSHA 29 CFR 1910.29

3) OSHA 29CFR 1926 Subpart L

d) Definition

A powered or unpowered portable, caster or wheel-mounted supported scaffold.

e) Worksite Inspection

1) Users of rolling tower scaffold must walk around the area in which they will work. Remove any materials that may be a hazard to workers as the scaffolds are introduced onto the site.

2) Particular care must be made to note floor hazards such construction debris, holes in the floor, etc.

3) Debris should be removed.

4) Holes should be repaired or workers must work in areas free of such hazards.

5) Rolling Tower scaffold must only be used on solid (concrete, etc.), flat floor surface.

f) Equipment Inspection

1) The materials used in mobile ladder stands and scaffolds shall be standard manufacture and conform to standard specifications of strength, dimensions, and weights, and shall be selected to safely support the design working load.

2) The user of rolling tower/mobile scaffold must thoroughly inspect the scaffold prior to use.

3) All rolling tower/mobile scaffold over 4' from the ground level shall have mid-rails and top rails. (Note: when working close to walls only one side is required.

4) All components must be complete, functioning properly and correctly assembled.

5) Any incomplete part, missing part, or ill-fitting part should be replaced prior to use.

6) Do not inter-mix components from different manufactures.

7) Scaffold casters and wheels shall be locked with positive and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold is used in a stationary manner.

8) No more than 12" of the screw jack shall extend between the bottom of the adjusting nut and the top of the caster.

9) Brackets or other platform extensions should not be used without compensating for the overturning effect.

10) The top platform height as measured from the rolling surface of the rolling scaffold must not exceed four (4) times the smallest base dimensions. (Certain government agencies require a stricter ratio of (3:1). Check with your local agency for compliance.

11) Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent racking or collapse.

12) The Rolling Tower/ Mobile scaffold must be plumb, level, and squared with all brace connections securely fastened. All brace connections shall be secured.

13) Casters must have positive wheel and swivel locks to prevent movement while in use.

14) Platforms shall not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.

g) Equipment Maintenance

1) Platforms

(a) Must be checked for loose or missing edge banding, holes or thin spots where plywood has been worn.
(b) Worn or damaged boards must be discarded and replaced.
(c) Platform exposed to excessive heat should be immediately removed from service, destroyed and replaced.
(d) Do not use acids or other corrosive substance on platform boards.
(e) Platforms shall not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
(f) The minimum platform width for any work level shall not be less than 20 inches for mobile scaffolds (towers).

h) During Use

1) The manual force to move the scaffold must be applied as close to the base as possible, but not more than 5 feet above the supporting surface.

2) Keep the platform free from trip hazards.

3) Do not over reach. Keep your body within the boundaries of the guardrail and scaffold section.

4) Do not allow loose objects and debris to accumulate on the platform.

5) Do not stand on guardrail or use any components of the guardrails to gain additional standing height.

6) Do not jump onto planks or platforms.

7) Do not use ladders, chairs, boxes or makeshift devices to increase working height.

8) Make sure the unit is free from paint, mud, grease or other slippery or hazardous materials.

9) Never leave the scaffold unattended. If you do leave the scaffold unattended, re-inspect the scaffold prior to using the unit again.

10) Never over load. Follow manufacturer's safe working load recommendations.

11) Exercise caution when entering or leaving a work platform.

12) Power systems used to propel mobile scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel scaffolds unless the scaffold is designed for such propulsion systems.
    (a) When power systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of 1 foot per second (.3 mps)
    (b) No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.

13) Employees shall not be allowed to ride on scaffolds unless the following conditions exist:
    (a) The surface on which the scaffold is being moved is within 3 degrees of level, and free of pits, holes, and obstructions.
    (b) The height to base width ratio of the scaffold during movement is two to one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements.
    (c) Before scaffold is moved, each employee on the scaffold shall be made aware of the move.

PERFORMANCE ABATEMENT SERVICES

SCAFFOLD ERECTOR VERIFICATION

SCAFFOLDING INSPECTION TAGS

RED **YELLOW** **GREEN**

SCAFFOLD ERECTOR VERIFICATION

Scaffold Training Verification

This is to verify Scaffold Erector Training for new employees. The following was used to verify Training:

Does Employee have a Scaffold Erector Training Card:

Yes _____ No _____ (if Yes put copy in file)

Does Employee have a Scaffold Training verification letter from previous employer?

Yes _____ No _____ (if Yes put copy in file)

Does Employee have any documentation of Scaffold Training verification?

Yes _____ No _____ (if yes list below):

Type of Scaffold Training Verification:

1. _____
2. _____
3. _____

If employee has Scaffold Training verification of any type, but the training was not given by PAS, then the employee will be required to take the PAS Scaffold Knowledge Test (Appendix C). The Test is not a Pass or Fail, but a verification of Competency for Scaffold Erection. Based on the level of Competency and verification of Scaffold Erector Experience (below) the Branch Scaffold Coordinator and/or Branch Scaffold Competent Person will determine the employee's Scaffold Erector Classification.

Date of PAS Scaffold Knowledge Test administered: _____

SCAFFOLD ERECTOR VERIFICATION

Verification of Scaffold Experience

This is to verify Scaffold Erection experience for new employees. The following was used to verify experience.

Scaffold Work Experience:

1. Company:_____
   Years' Experience:_____

   Supervisor's Name: _____
   Was previous employer contacted? Yes _____ No _____

2. Company: _____

   Years' Experience:_____
   Supervisor's Name: _____
   Was previous employer contacted? Yes _____ No _____

3. Company: _____

   Years' Experience:_____
   Supervisor's Name: _____
   Was previous employer contacted? Yes _____ No _____

   Based on the above verification this employee is being credited with:

   _____ Years _____ Months of Scaffold Experience.

Employee Name: _____

Hire Date: _____

Check which Scaffold Erector Classification is being given to this employee:

A _____ B _____ C _____ D_____

_____ _____

Branch Scaffold Coordinator (print name) | Branch Scaffold Coordinator (signature)

_____ _____

Branch Scaffold Competent Person (print name) | Branch Scaffold Competent Person (signature)

SCAFFOLD ERECTOR VERIFICATION

PAS will have four (4) classifications of Scaffold Erectors:

A. Scaffold Erector Class A – This classification can erect, alter, disassemble, move, repair or inspect scaffolds. This classification requires that the employee has a minimum of one year of Scaffold erector experience. This classification is eligible for designation as a Scaffold Foreman on a job site.

B. Scaffold Erector Class B – This classification can erect, alter, disassemble, move, repair or inspect scaffolds. This classification requires that the employee has a minimum of six months Scaffold erector experience. This classification in not eligible for designation of Scaffold Foreman on a job site.

C. Scaffold Erector Class C – This classification can assist with the erection of scaffolding under the direct supervision of a Scaffold Erector A or B, but is not allowed to erect scaffolding independently. The classification is restricted to material handling duties only with respect to the erection of engineered (boiler) scaffolds. This classification requires that the employee has a minimum of three (3) months scaffold erector experience.

D. Scaffold Erector Class D – Prior to enrollment in or completion of Scaffold Erector training requirements, this classification is restricted to material handling applications on the ground only. Once this individual is enrolled in or has completed the training requirements outlined in the procedure for scaffold erector training, they will be allowed to assist in the handling and erection of scaffolding for non-engineered scaffolds under the direct supervision of a Scaffold Erector A or B. This classification is restricted from participating in engineered (boiler) scaffolding projects. Their Scaffold Erector experience will not begin until they have completed the Scaffold Erector training requirements.

Safe Practices for Falling Object Protection

Prior to erecting, dismantling, and/or working off of any scaffold, sufficient overhead protection shall be installed for workers on the ground level. Where this in not practical, the area beneath the scaffold will be completely barricaded for workers on the ground level.

Barricade tape is to be installed to prevent other craft from accessing the work area of every scaffold being erected or dismantled.

A thorough inspection of all deck levels is to be completed before dismantling of any scaffold and any debris or small tools are to be removed.

During daily inspections of existing scaffolds, all deck levels are to be checked for debris and small tools.

Toe boards and netting (where applicable) on the scaffold are to be completely removed prior to dismantling the other components of the scaffold.

All scaffold will be dismantled one level at a time starting from the top. No parts are to be loosened or taken off below the deck being dismantled.

Time should be taken in the pre-job safety meeting to identify the scaffold being erected and dismantled and should cover proper handling and passing of material to co-workers. Emphasis should be put on the fact that a piece of material shouldn't be released to the co-worker until he is ready to receive same. Communication is key!

On Area and Boiler scaffolds netting will be used as falling object protection. Area being worked will still be barricaded until its completion.

Whenever possible, during the erection and dismantle phases of work, the pass line will be contained inside the scaffold. Additionally, a minimum of two boards shall be in place for the worker to stand on. Mid rails can also be added to the open side of the scaffold as an additional tie off point.

Care should be taken that we put the right people in the right place during erection and dismantling of the scaffold. Different types of scaffold require different skill sets of employees.

Prior to starting scaffolding in an area (erecting or dismantling), communicate with the other crafts to insure there is no other work going on that would affect any worker's safety.

During scaffold inspections, insure that no scaffold has been modified and parts left lying on the decks. Immediately, tag the scaffold as not for use, and then proceed to correct the deficiencies.

Maintain control of all scaffold materials. Scaffolding materials are not to be used or altered by other crafts or contractors under any circumstances without prior approval.

All of the above items have been reviewed with our craft as part of our Pre-Task Plan/JSA.

Foreman Name: _____ Date: _____

Employee Name: _____ Employee Signature: _____

SCAFFOLD KNOWLEDGE TEST

1. All scaffolds and scaffold components shall be capable of supporting:
    a. Two times the maximum load
    b. Three times the maximum load
    c. Four times the maximum load
    d. Six times the maximum load

2. The space between platform planks shall be no wider than:
    a. 1 inch (2.54cm)
    b. 6 inches (15.24cm)
    c. ¼ inch (0.64cm)
    d. The width of a persons foot

3. If the last plank will not fit, the space between the last plank and the posts shall be no greater than:
    a. One plank
    b. 6 inches (15.24cm)
    c. 9 ½ inches (24.13cm)
    d. Whatever width necessary

4. If it is impossible to make the platform at least two boards wide:
    a. Make it as wide as possible and use personal fall arrest
    b. Post a sign “Do Not Use”
    c. Remove the superheater tubes or other obstruction
    d. Contact a structural engineer

5. The minimum width of scaffold platform is:
    a. 24 inches (60.96cm)
    b. 60 inches (152.40cm)
    c. 18 inches (45.72cm)
    d. 30 inches (76.20cm)

6. Unless the guardrail systems and/or personal fall arrest systems are used the maximum distance between the platform and the face of the work surface is:
    a. 8 inches (20.32cm)
    b. 14 inches (35.56cm)
    c. 12 inches (30.48cm)
    d. 20 inches (50.80cm)

7. Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least:
    a. 12 inches (30.48cm)
    b. 18 inches (45.72cm)
    c. 3 inches (7.62cm)
    d. 6 inches (15.24cm)

8. Unless planks are nailed or otherwise restrained from movement the overlap must be at least:
    a. 6 inches (15.24cm)
    b. 18 inches (45.72cm)
    c. 12 inches (30.48cm)
    d. 14 inches (35.56cm)

9. Scaffold components of different manufactures shall not be intermixed unless:
    a. They can be attached using minimal force
    b. They have been approved by the company
    c. The components fit together without force
    d. No other equipment is available

10. Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the:
    a. 3 to 1 height to base ratio
    b. 4 to 1 height to base ratio
    c. 2 to 1 height to base ratio
    d. 6 to 1 height to base ratio

11. Above the first tie, scaffolds that are wider than 3 feet (0.91m) can have a maximum vertical distance between ties of:
    a. 12 feet (3.68m)
    b. 16 feet (4.88m)
    c. 20 feet (6.10m)
    d. 26 feet (7.92m)

12. When eccentric loads such as cantilevered platforms are applied or transmitted to a scaffold, the tipping forces must be compensated for by adding:
    a. Ties, guys, braces, or outriggers
    b. More planks
    c. Outriggers only
    d. Pallets of bricks on the opposite side

13. Scaffolds shall bear on adequate firm foundations such as:
    a. Boxes, barrels
    b. Bricks
    c. Base plates set on mudsills
    d. Loose materials piled high enough to achieve level

14. Footings that scaffolds rest on shall be:
    a. Level, sound, and rigid
    b. Capable of supporting the loaded scaffold without setting or displacement
    c. Constructed of a minimum 31 inch (78.74cm) long 2" x 10" (5.08cm x 25.40cm) lumber
    d. Both a & b

15. Supported scaffold poles, legs, posts, frames, and uprights shall be:
    a. Erected together as a unit
    b. Shall be placed into service only when connected with horizontals
    c. Plumb and braced to prevent swaying and displacement
    d. Shall not be intermixed to gain additional height

16. Ladders or other means of acceptable access must be provided to scaffold platforms whenever the point of access is greater than:
    a. 22 inches (55.88cm)
    b. 2 feet (.61m)
    c. 16 ¾ inches (42.55cm)
    d. 14 inches (35.56cm)

17. When hook-on or attachable ladders are used as access, a rest platform must installed at maximum intervals of:
    a. 26-foot (7.92m)
    b. 35-foot (10.66m)
    c. 30-foot (9.14)
    d. 6-foot 6-inch (2m)

18. Scaffold frames can be used as a means of access only if they:
    a. Are specifically designed by the manufacturer and constructed for use as ladder rungs
    b. Have no loose parts that could interfere with the act of climbing
    c. Have coupling pins that align the frames
    d. Have cross braces fully installed

19. Cross braces can only be used as a means of access or egress when:
    a. No other means if access and egress is feasible
    b. Employees have been trained in cross brace climbing
    c. The ladder access is more than 50 feet (15.24m) away
    d. Cross braces should never be used for access and egress

20. Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads as follows:
    a. Light duty is no more than 25 PSF (125kg/m^2), four platforms maximum at the same time
    b. Medium duty is no more than 50 PSF (250kg/m^2), two platforms maximum at the same time
    c. Heavy duty us no more than 75 PSF (375kg/m^2), one platform maximum at a time
    d. All of the above

21. Scaffold and scaffold components shall be inspected for visible defects by a competent person:
    a. Before each work shift, and after any occurrence which could affect a scaffold's structural integrity
    b. At the employers discretion
    c. Every thirty days
    d. At regular intervals

22. When a scaffold is damaged or weakened to the point that it cannot support 4 times the intended load it shall be:
    a. Immediately repaired or replaced
    b. Braced to meet those provisions
    c. Removed from service
    d. a, b or c

23. The clearance between scaffolds and uninsulated power lines of less than 50 kv shall be:
    a. 3 feet (.91m)
    b. 26 feet (7.92m)
    c. 10 feet (3.05m)
    d. 6 feet 6 inches (1.98m)

24. Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of:
    a. More than one person
    b. A foreman
    c. A competent person qualified in scaffold erection, moving, dismantling or alteration using only trained erectors
    d. A person experienced in scaffold erection, moving, dismantling or alteration

25. Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except:
    a. When the scaffold has to be dismantled at once
    b. Only on the night shift
    c. As necessary for removal of such materials
    d. When the condition is a recurring problem

26. Where swinging loads are being hoisted onto or near a scaffold such that the loads might contact the scaffold:
    a. The loads shall be no more than 10 feet (3.05m) long
    b. The loads shall be double strapped
    c. A tag line or equivalent measures to control the load shall be used
    d. Employees should be warned to watch out for sway action

27. Employees on a scaffold must be protected from falling when the distance between the platform and the lower level is more than:
    a. 6 feet 6 inches (2m)
    b. 12 feet (3.66m)
    c. 6 feet (1.83m)
    d. 10 feet (3.05m)

28. Effective September 2, 1997, employers are required to provide fall protection for employees erecting and dismantling supported scaffold:
    a. Where the installation and use of such protection is feasible
    b. Where employees are not working from a planked level'
    c. Where the installation and use of such protection does not create a greater hazard
    d. Both a and c

29. The top guardrail of all scaffolds manufactured or placed in service after January 1, 2000 must be between:
    a. 38 inches and 45 inches in height (96.52cm and 114.30cm)
    b. 45 inches and 42 inches in height (114.30cm and 106.68cm)
    c. 36 inches and 45 inches in height (91.44cm and 114.30cm)
    d. 24 inches and 48 inches in height (60.96cm and 121.92cm)

30. Midrails must be installed at a height:
    a. Of 16 ¾ inches (42.55cm)
    b. Approximately midway between the platform and the toprail
    c. Of 22 inches (55.88cm)
    d. Other than that of the toprail

31. The top guardrail shall be capable of withstanding a force applied in any downward or horizontal direction of at least:
    a. 400 pounds (1779.20N, 181.60kg)
    b. 200 pounds (889.60N, 90.80kg)
    c. 50 pounds (222.40N, 22.70kg)
    d. 300 pounds (1334.40N, 136.20kg)

32. Midrails shall be capable of withstanding a force applied in any downward or horizontal direction of:
    a. 50 pounds (222.40N, 22.70kg)
    b. 150 pounds (667.20N, 68.10kg)
    c. 300 pounds (1334.40N, 136.20kg)
    d. 100 pounds (444.80N, 45.40kg)

33. Employees below the platform must be protected from materials or equipment piled high than the top edge of the toeboard by:
    a. Paneling or screening from the platform to the toprail
    b. Warning signs
    c. #3 orange warning flags or flashing lights
    d. 12” (30.48cm) high toeboards

34. Toeboards must be capable of withstanding a force applied in any downward or horizontal direction of:
    a. 200 pounds (889.60N, 90.80kg)
    b. 150 pounds (667.20N, 6810kg)
    c. 75 pounds (333.60N, 34.05kg)
    d. 50 pounds (222.40N, 22.70kg)

35. Toeboards shall be at least:
    a. 4 inches (10.16cm) in height
    b. 3 ½ inches (8.89cm) in height
    c. 6 inches (15.24cm) in height
    d. 9 ½ inches (24.13cm) in height

36. The distance between the bottom of the toeboard and the platform shall be no more than:
    a. 1 inch (2.54cm)
    b. ¼ inch (.64cm)
    c. 1/60 of the span
    d. 3 ½ inches (8.89cm)

NOTE: The following questions 37-41 apply only to frame scaffold

37. When moving platforms to the next level, the existing platform shall be left undisturbed until the new end frames have been:
    a. Placed on pins
    b. Passed up
    c. Set in place and braced
    d. Removed

38. All brace connections shall be:
    a. Painted
    b. Not if dissimilar metals
    c. Secured
    d. Bolted

39. Frames and panels shall be joined together vertically by:
    a. Coupling pins
    b. Stacking pins
    c. Equivalent means
    d. a, b, or c

40. Where uplift may occur frames or panels shall be:
    a. taped at the joints
    b. welded together
    c. locked together
    d. damped

41. Brackets shall be used to only support personnel, unless:
    a. The scaffold has been designed for other loads by a qualified engineer
    b. The bracket is less than ½ the width of the scaffold
    c. The scaffold has been built to withstand the tipping forces caused by other loads being placed on the bracket-supported section of the scaffold
    d. Both a and c

NOTE: The following questions 42-46 apply only to rolling towers

42. Mobile scaffolds shall be properly braced to prevent:
    a. Movement
    b. Racking or collapse
    c. Excessive speeds
    d. Use or slopes

43. Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold:
    a. Is being used inside of a building only
    b. Is being used for painting only
    c. Is used in stationary manner
    d. Is being moved to a new work area

44. Where leveling of the scaffold is necessary, _____ or equivalent means shall be used to level the scaffold.
    a. Stabilized blasting sand
    b. Pump jacks
    c. Screw jacks
    d. Inflatable casters

45. Caster stems and wheel stems shall be pinned or otherwise secured:
    a. In scaffold legs or adjustment screws
    b. To each other at all times
    c. To prevent theft
    d. Before installation

46. Before any scaffold is moved it is mandatory that all persons on the scaffold:
    a. Dismount scaffold
    b. Tie off to the scaffold
    c. Sit down on the platform
    d. Be made aware of the move

NOTE: The following questions 47-50 apply to employee training

47. All persons involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold shall be trained to recognize any hazards associated with work in question by a:
    a. Competent person
    b. OSHA representative
    c. State representative
    d. Unskilled person

48. All persons involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold shall be trained in:
    a. The nature of scaffold hazards
    b. The correct procedures for erecting, disassembling, moving, operating, repairing, maintaining, or inspecting the type of scaffold in question
    c. The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold
    d. All of the above and any other pertinent requirements of subpart “L”

49. The maximum intended load for a light duty tube and coupler scaffold is:
    a. 25 p.s.f. (125kg/m^2)
    b. 50 p.s.f. (250kg/m^2)
    c. 75 p.s.f. (375kg/m^2)
    d. 100 p.s.f. (479kg/m^2)

50. The maximum intended load for a medium duty tube and coupler scaffold is:
    a. 25 p.s.f. (125kg/m^2)
    b. 50 p.s.f. (250kg/m^2)
    c. 75 p.s.f. (375kg/m^2)
    d. 100 p.s.f. (479kg/m^2)

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

M. Fall Protection

(The provisions of this section do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.)

1. Definitions

   a) Anchorage. A secure point of attachment for lifelines, lanyards, or deceleration devices.

   b) Body Harness. Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.

   c) Buckle. Any device for holding the body harness closed around the employee's body.

   d) Connector. A device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or dee-ring sewn into a body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

   e) Controlled Access Zone (CAZ). An area in which certain work may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems, and access to this zone is controlled.

   f) Dangerous Equipment. Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

g) Deceleration Device. Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

h) Deceleration Distance. The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

i) Equivalent. Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials, or designs specified in the standard.

j) Failure. Load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

k) Free Fall. The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

l) Free Fall Distance. The vertical displacement of the fall arrest attachment point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

m) Guardrail System. A barrier erected to prevent employees from falling to lower levels.

n) Hole. A gap or void two (2) inches or more in its least dimension in a floor, roof, or other walking/working surface.

o) Infeasible. It is impossible to perform the construction work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.

p) Lanyard. A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

q) Leading Edge. The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as a deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

r) Lifeline. A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

s) Low-Slope Roof. A roof having a slope less than or equal to 4 in 12 vertical to horizontal.

t) Lower Levels. Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

u) Mechanical Equipment. All motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mopcarts.

v) Opening. A gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition through which employees can fall to a lower level.

w) Personal Fall Arrest System. A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a

body harness, and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

x) Positioning Device System. A body harness system rigged to allow an employee to be supported on an elevated vertical surface such as a wall and work with both hands free while leaning.

y) Roof. The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

z) Roofing Work. The hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

aa) Rope Grab. A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

bb) Safety-Monitoring System. A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

cc) Self-Retracting Lifeline/Lanyard. A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

dd) Snaphook. A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are of the locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection.

ee) Steep Roof. A roof having a slope greater than 4 in 12 (vertical to horizontal).

ff) Toeboard. A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

gg) Unprotected Sides and Edges. Any side or edge (except at entrances to points of access) of a walking/working surface (e.g., floor, roof, ramp, or runway) where there is no wall or guardrail system at least 39 inches high.

hh) Walking/Working Surface. Any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

ii) Warning Line System. A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge and which designates an area in which roofing work may take place without the use of guardrail, body harness, or safety net systems to protect employees in the area.

jj) Work Area. That portion of a walking/working surface where job duties are being performed.

2. Duty to Have Fall Protection. Circumstances for which fall protection shall be provided, except for ladders and scaffolding, are as follows:

   a) PAS shall determine if the walking and working surfaces on which its employees are to work have the strength and structural integrity to support employees safely.

   b) Each employee on a walking/working surface six (6) feet or more above lower levels shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems. When using a personal fall arrest system on a walking/working surface and the anchor point is 18 feet or less above lower levels, employees

shall use a self-retracting lanyard (yo-yo, inertial reel). A written fall protection program (Site Fall Protection Plan - Appendix 7M-A) shall be developed, implemented, and posted (where feasible) to satisfy this requirement.

c) Each employee who is constructing a leading edge six (6) feet or more above lower levels shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems. When using a personal fall arrest system on a leading edge and the anchor point is 18 feet or less above lower levels, employees shall use a self-retracting lanyard (yo-yo, inertial reel).

EXCEPTION: When PAS can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of 29 CFR 1926.502(k). (Use Site Fall Protection Plan II – Appendix 7M-B.)

3. Fall Protection System Criteria and Practices. All guardrail systems and their use shall comply with the following provisions:

a) Top edge height of top rails or equivalent guardrail system members, shall be 42 inches plus or minus three (3) inches above the walking/working level. (When conditions warrant, the height of the top edge may exceed 45 inches, provided the guardrail system meets all other criteria.)

b) Midrails, screens, mesh intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at 21 inches high.

c) Midrails shall be installed at a height midway between the top edge of the guardrail system and the walking/working surface.

d) Screens and mesh, when used, shall extend from the top rail to the walking/working surface.

e) Intermediate members when used between posts shall be no more than 19 inches apart.

f) Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within two (2) inches of the top edge, in any outward or downward direction, at any point along the top edge.

g) When a 200-pound test load is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working surface.

h) Midrails shall be capable of withstanding without failure a force of at least 150 pounds applied in any downward or outward direction.

i) Guardrail systems shall be so surfaced as to prevent injury from punctures or lacerations.

j) If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material. Top rails and midrails shall be at least ¼-inch nominal diameter.

k) When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

l) Manila, plastic, or synthetic rope being used for top rails or midrails shall be inspected as frequently as necessary to ensure that it continues to meet the strength requirements.

4. Safety Net Systems. If a safety net system is required, contact Corporate Safety for specific requirements.

5. Personal Fall Arrest Systems. Personal fall arrest systems and their use shall comply with the provisions set forth below:

   a) Full body harness with shock absorbing lanyards are required.

   b) Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

c) Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

d) Dee-rings and snaphooks shall have a minimum tensile strength of 5,000 pounds and proof tested to a minimum tensile load of 3,600 pounds without cracking, breaking or taking on permanent deformation.

e) Only locking type snaphooks shall be used.

f) On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

g) Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two (2).

h) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds when vertical lifelines are used; each employee shall be attached to a separate lifeline.

i) Lifelines shall be protected against being cut or abraded.

j) Self-retracting lifelines and lanyards which do not limit free fall distance to two (2) feet or less, ripstitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds with the lifeline or lanyard in the fully extended position.

k) Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached.

l) Personal fall arrest systems, when stopping a fall shall:
   (1) Limit maximum arresting force on an employee to 1,800 pounds when used with a body belt
   (2) Be rigged such that an employee can neither free fall more than six (6) feet [CA – four (4) feet] nor contact any lower level

(3) Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet

m) The attachment point of the body harness shall be located in the center of wearer's back near shoulder level, or above the wearer's head.

n) Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

o) Personal fall arrest systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

p) Personal fall arrest systems shall not be attached to guardrail systems nor shall they be attached to hoists.

q) When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working service.

6. Positioning Device Systems. Positioning device systems and their use shall conform to the following:

a) Positioning devices shall be rigged such that an employee cannot free fall more than two (2) feet.

b) Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds whichever is greater.

c) Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

d) Connecting assemblies shall have a minimum tensile strength of 5,000 pounds.

e) Dee-rings and snaphooks shall be proof tested to a minimum tensile load of 3,600 pounds.

f) Only locking type snaphooks shall be used.

g) Positioning device systems shall be inspected prior to each use for wear, damage or deterioration, and defective components shall be removed from service.

7. Warning Line Systems. Warning line systems and their use shall comply with the following provisions:

a) The warning line shall be erected around all sides of the roof work area.

b) When mechanical equipment is not being used, the warning line shall be erected not less than six (6) feet from the roof edge.

c) When mechanical equipment is being used, the warning line shall be erected not less than six (6) feet from the roof edge which is parallel to the direction of the mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of the mechanical equipment operation.

d) Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.

e) When the path to a point of access is not in use, a rope, wire, chain, or other barricade shall be placed across the path.

f) Warning lines shall consist of ropes, wires, or chains and supporting stanchions erected as follows:
(1) The rope, wire, or chain shall be flagged at not more than six (6) foot intervals with high-visibility material
(2) The rope, wire, or chain shall be rigged and supported in such a way that its lowest point is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface
(3) After being erected, the stanchions shall be capable of resisting a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge

(4) The rope, wire, or chain shall have a minimum tensile strength of 500 pounds.
(5) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

g) No employee shall be allowed in the area between the roof edge and the warning line unless the employee is performing roofing work in that area.

h) Mechanical equipment on roofs shall be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

8. Controlled Access Zones. Controlled access zones and their use shall conform to the following:

a) When used to control access to areas where leading edge and other operations are taking place, the controlled access zone shall be defined by a control line or by any other means that restricts access.

b) When control lines are used, they shall be erected not less than six (6) feet nor more than 25 feet from the unprotected or leading edge, except when erecting precast concrete members.

c) When erecting precast concrete members, the control line shall be erected not less than six (6) feet nor more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.

d) The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected leading edge.

e) The control line shall be connected on each side to a guardrail system or wall.

f) Control lines shall consist of ropes, wires, tapes, or equivalent materials and supporting stanchions as follows:
   (1) Each line shall be flagged at no more than six (6) foot intervals with high visibility material
   (2) Each line shall be rigged and supported in such a way that its lowest point is not less than 39 inches from the walking/working surface and its highest point is not more than 45 inches from the walking/working surface
   (3) Each line shall have a minimum breaking strength of 200 pounds

9. Safety Monitoring System. Safety monitoring systems and their use shall comply with the following provisions.

   a) The employer shall designate a competent person to monitor the safety of other employees, and the employer shall ensure that the safety monitor complies with the following requirements:
      (1) The safety monitor shall be competent to recognize fall hazards
      (2) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner
      (3) The safety monitor shall be on the same walking/working surface and within clear visual sighting distance of the employee being monitored
      (4) The safety monitor shall be close enough to communicate orally with the employee
      (5) The safety monitor shall not have other responsibilities which could take his/her attention from the monitoring function.

   b) No employee, other than an employee engaged in roofing work (on low-slope roofs) or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitor.

   c) Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

10. Covers. Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements.

    a) Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.

    b) All other covers shall be capable of supporting, without failure, at least twice the weight of employers, equipment, and materials that may be imposed on the cover at any one time.

    c) All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.

    d) All covers (except cast iron manhole covers or steel grates used on streets) shall be color-coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard.

11. Protection from Falling Objects. Falling object protection shall comply with the following provisions.

    a) Toeboards, when used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.

    b) Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard.

    c) Toeboards shall be a minimum of 3-½ inches in vertical height and be installed in such a manner as not to have more than ¼-inch clearance above the surface on which they are installed.

    d) Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the toeboard to the top of the midrail or top rail.

    e) No materials or equipment except masonry and mortar shall be stored within four (4) feet of the working edge.

f) Canopies, when used as falling object protection, shall be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

12. Fall Protection Plan

a) A written fall protection plan is required on all jobs. The Site Fall Protection Plan checklist (Appendix 7M-A) is to be used to satisfy this requirement.

b) In those events where the site competent person can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment and procedures, the competent person may develop an independent plan that conforms to the following provisions. The Site Fall Protection Plan II (Appendix 7M-B) is to be used to satisfy this requirement. (This site-written plan would be necessary regardless of the size of the job.)
   (1) The fall protection plan shall be prepared by a competent person and it must be site specific. This plan must be maintained up-to-date to reflect changing site conditions.
   (2) All changes in the program must be approved by the competent person.
   (3) A copy of the plan shall be maintained and posted (if feasible) at the job site.
   (4) The implementation of the plan shall be under the supervision of a competent person.
   (5) The plan shall document the reasons why the use of conventional fall protection systems, fall arrest systems, or safety net systems are infeasible or why their use would create a greater hazard.
   (6) The plan must explain the other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.
   (7) The plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones.
   (8) The plan shall include the names of each employee who is designated to work in controlled access zones.
   (9) In the event an employee falls, the company shall investigate the circumstances to determine if the fall protection plan needs to be changed.

13. Training Requirements

a) The company shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed to minimize these hazards.

b) The company shall assure that each employee has been trained by a competent person qualified in the following areas:
   (1) The nature of fall hazards in the work area
   (2) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection system
   (3) The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and any other protection systems that might be used
   (4) The role of each employee involved in a safety monitoring system
   (5) The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
   (6) The contents of this program

c) Certification of Training. This training shall be certified by using the Safety Meeting Report (Appendix 9-A) form for documented evidence as required by the standard.

d) Retraining. When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the employer shall retrain such employee. Circumstances where retraining is required include, but are not limited to:
   (1) Changes in the workplace render previous training obsolete
   (2) Changes in types of fall protection systems or equipment to be used render previous training obsolete
   (3) Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite skill or understanding

14. Appendix A, B, C, D, and E (Non-Mandatory). The following are links to 29 CFR 1926.501 non-mandatory appendices:

    a) Appendix A – Determining Roof Widths

    b) Appendix B – Guardrail Systems

    c) Appendix C – Personal Fall Arrest Systems

    d) Appendix D – Positioning Device Systems

    e) Appendix E – Sample Fall Protection Plan

SITE FALL PROTECTION PLAN

BRANCH _____ DATE _____

JOB NAME _____ JOB NO. _____

JOB ADDRESS _____

NAME OF COMPETENT PERSON RESPONSIBLE TO IMPLEMENT PLAN:

_____

NAME OF PERSON(S) RESPONSIBLE FOR EQUIPMENT INSPECTIONS:

_____

The following fall protection plan identifies fall hazards of six (6) feet or more recognized to be present at the above referenced job site. Means and methods of fall protection for the hazards identified are addressed in Performance Abatement Services, Inc.'s (PAS) Fall Protection Program, from Section Seven of the *PAS Accident Prevention Plan*. It shall be implemented by the competent person named above.

Prior to permitting PAS employees into areas where fall hazards exist, the competent person shall ensure that the employees are trained and instructed on the following topics: (The training is to be documented on the Safety Meeting Report form (Appendix 9-A) and retained on site as part of the fall protection plan.)

- Nature of fall hazards on this job
- Correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection system(s)
- Use and operation of guardrail and personal fall arrest systems - (Use of safety net systems, warning line systems, safety monitoring systems, and controlled access zones require written approval from the General Manager.)
- Correct procedures for the handling and storage of all site equipment and materials
- Correct procedures for providing overhead protection for workers passing under/through the area

Materials list: (Indicate initial quantities required)

Harnesses	_____	Lanyards	_____
Ladders	_____	Ropes	_____
Cables	_____	Rope grab devices	_____
Retracting lifelines	_____	Caution tape	_____
Warning tape	_____	Warning signs	_____
Scaffold tags	_____		

Accident Prevention Plan

Instructions:

1. Check the box next to the fall hazards recognized as present at this job site. If a hazard is not applicable, mark the item N/A.
2. Place a check on the line next to the method(s) of fall protection to be used. Refer to the Fall Protection Program in Section Seven of the *PAS Accident Prevention Plan* (APP) for a description of the fall protection methods chosen. If a hazard is not applicable to this job site, mark the item N/A.

_____ **LADDERS**
- _____ FALL ARREST

_____ **MANUALLY PROPELLED SCAFFOLD TOWERS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **TUBULAR FRAME SCAFFOLDS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **SUSPENDED SCAFFOLDS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **SCISSORS LIFTS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **FORKLIFT/CRANE/ELEVATING PLATFORM**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST
- _____ PLATFORM SECURELY SECURED

_____ **BOOM LIFTS (JLG's)**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **STAIRWAYS, SHAFTS, HATCHES, SKYLIGHTS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST

_____ **FLOOR PERIMETERS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST
- _____ WARNING LINE
- _____ SAFETY MONITOR

_____ **ROOF PERIMETERS**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST
- _____ WARNING LINE
- _____ SAFETY MONITOR

_____ **LEADING EDGES**
- _____ STANDARD GUARDRAIL
- _____ FALL RESTRAINT
- _____ FALL ARREST
- _____ WARNING LINE
- _____ SAFETY MONITOR

_____ **WORK ABOVE OTHERS**
- _____ SCREEN GUARDRAIL
- _____ BARRICADE AREA BELOW
- _____ WARNING SIGNS

RESCUE OF INJURED WORKER

Phone #s for PAS Rescue Personnel: _____ _____

Names of First Aid/CPR trained persons:

_____ _____

_____ _____

Equipment Available for Rescue (such as scissor-lift, boom lifts, ladders)

Type	Location(s)	Quantities:

Other equipment or methods to perform a prompt rescue (within 15 minutes)

_____

_____

Answer Yes or No:

Local EMTs notified of high risk work (example: elevator shaft work) that may need prompt rescue? **Y N**

Trauma Straps available in gang boxes? **Y N**

Has all Fall Protection Gear been inspected and documented before use? **Y N**

Has this fall rescue plan been reviewed with all PAS site personnel? **Y N**

PREPARED BY: _____

DATE: _____

SITE FALL PROTECTION PLAN II

BRANCH _____ DATE _____

JOB NAME _____ JOB NO. _____

JOB ADDRESS _____

NAME OF COMPETENT PERSON RESPONSIBLE TO IMPLEMENT PLAN:

_____

Reasons why conventional fall protection systems are infeasible: _____

_____

_____

_____

Other measures taken to reduce or eliminate the fall hazard: _____

_____

_____

_____

Specific site location where conventional fall protection cannot be used: _____

_____

_____

_____

Specific site locations where a safety monitoring system is implemented: _____

_____

_____

_____

Accident Prevention Plan

Names of employees designated to work in controlled access zones:

_____ _____ _____
_____ _____ _____
_____ _____ _____

Injured worker rescue:

Emergency Telephone No: _____

Stretcher Location: _____

List of First Aid Trained Personnel: _____

_____

_____

_____

Describe any other specific hazards not addressed above, and describe fall protection methods for each: _____

_____

_____

_____

Prepared By: _____ Date: _____

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

N. Cranes, Derricks, Hoists, Elevators, and Conveyors

1. 29 CFR 1926 Subpart N establishes the requirements for cranes, derricks, hoist elevators, and conveyors.

2. Only certified crane operators shall be permitted to operate any crane. All designated personnel are required to be certified by a third party approved by the NCCCO (National Commission for the Certification of Crane Operators) and who by training and/or experience are able to recognize the hazards inherent in a job and have full authority to expend resources and take corrective action to mitigate identified and/or known hazards." These certified, designated personnel are required to be identified in writing.

3. Due to the hazards associated with crane operations and the extensive knowledge required to provide safe operations, no PAS personnel shall be designated as certified without the completion of a crane operator certification course and approval of the Safety Department.

4. A *Qualified Signaler* is a signaler who meets the criteria for a qualified person. Employers must determine whether a person is qualified to perform specific signaling tasks. Each *Qualified Signaler* may have different credentials or experience.

5. A *Qualified Signaler* is a person that:
    - possesses a recognized degree, certificate, or professional standing, or
    - has extensive knowledge, training, and experience, and
    - can successfully demonstrate the ability to solve problems

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

O. Reserved

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

P. Excavation and Trenching

1. Policy

Performance Abatement Services, Inc. company policy is that employees should not enter a trench or excavation unless it is absolutely necessary. If entry is to be made into a trench or excavation greater than four (4) feet deep, specific precautions detailed in this procedure must be taken. Excavation work activities shall be conducted safely with associated exposures eliminated and/or controlled.

Note: This policy covers minimum performance standards applicable to all associates, employees and locations. Local practices requiring more detailed or stringent rules or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

2. Purpose

To ensure that every employee involved in excavation work is protected against foreseeable hazards.

3. Scope

Applies to all Performance Abatement Services, Inc. branches and job work sites, i.e. offices, client job sites, etc., where construction and service work activities require excavation.

4. Definitions

a. General Definitions

Approved - for the purpose of this section, authorized by company associates, tested and certified by the manufacturer or any recognized national testing laboratory to possess the strength requirements specified in this section.

Competent Person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Construction Work - work for construction, alteration, and/or repair to new underground utilities.

Defect - any characteristic or condition that tends to weaken or reduce the strength of the tool, object, or structure of which it is a part.

Employee - every laborer regardless of title or contractual relationship.

Service Work - work for alteration and/or repair of existing underground utilities.

Work Area - that portion of a walking/working surface where work activities are being performed.

b. General Excavation Definitions

Aluminum Hydraulic Shoring - a pre-engineered shoring system comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Benching (Benching system) - a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in - the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Cross braces - the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

Distress – soil that is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and raveling (i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation).

Excavation - any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Faces or sides - the vertical or inclined earth surfaces formed as a result of excavation work.

Failure - the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Hazardous atmosphere - an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Kick out - the accidental release or failure of a cross brace.

Maximum allowable slope - the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise.

Protective system - a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp - an inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

Registered Professional Engineer - a person who is registered as a professional engineer in the state where the work is to be performed.

Sheeting - the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield (Shield system) - a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with this manual section. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

Shoring (Shoring system) - a structure such as a metal hydraulic or mechanical shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Short term exposure - a period of time less than or equal to 24 hours that an excavation is open.

Sloping (Sloping system) - a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Stable rock – a natural solid mineral material (not soil) that can be excavated with vertical sides and will remain intact while exposed.

Structural ramp - a ramp built of steel or wood, usually used for vehicle access.

Support system - a structure such as underpinning, bracing, or shoring which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Trench (trench excavation) - a narrow excavation (in relation to its length) made below the surface of the ground.

Trench box or trench shield - See **Shield**.

Uprights - the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

Underground Installations - utility installations such as sewer, telephone, fuel, electric, water lines, fiber optic, etc.

Wales - horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

c. Soil Definitions

Cemented soil - a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive soil - clay (fine grained soil) or soil with a high clay content which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil - soil that does not exhibit visible signs of moisture content.

Fissured - a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil - gravel, sand or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system - two or more distinctly different soil or rock types arranged in layers.

Moist soil - a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic - a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil - a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

Soil classification system - for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.

Stable rock - a natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil - soil which is underwater or is free seeping.

Type A - cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if any of the following are noted:
the soil is fissured; or the soil is subject to vibration from heavy traffic, pile driving, or similar effects; or the soil has been previously disturbed; or the soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or the material is subject to other factors that would require it to be classified as a less stable material.

Type B - cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam. Previously disturbed soils except those which would otherwise be classed as Type C soil. Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or dry rock that is not stable; or material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C - cohesive soil with an unconfined compressive strength of 0.5 tsf (48kPa) or less; or granular soils including gravel, sand, and loamy sand; or submerged soil or soil from which water is freely seeping; or submerged rock that is not stable, or material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined compressive strength - the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil - soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

5. Requirements

a. Risk Assessment

A Competent Person shall prepare a Site Safety Plan and follow Subsurface Investigation procedure prior to and during excavation work activities. Performance Abatement Services, Inc., in accordance with OSHA, requires that a Competent Person be on site during trenching/excavation activity or employee entry into the trench or excavation.

A Competent Person must have the following qualifications:

1) Be able to identify and predict trenching/excavation hazards.
2) Have authority to eliminate hazards and stop work if necessary.
3) Understand, implement, and meet the requirements of the standard.
4) Be able to evaluate shoring systems.
5) Be able to perform soil classification tests.

b. Written Work Plan (>5 Ft. in depth)

A Competent Person shall develop a written work plan for every excavation exceeding five feet in depth based on the Site Safety Plan, Subsurface Investigation and the other requirements of this section. The written Excavation Work Safety Plan shall include:

- Identification of hazard in the work area related to excavation equipment
- Describe the excavation protection system(s) to be provided
- Describe the soil type and the correct procedures for the selection, fit, use and maintenance of the excavation protection systems
- Describe procedures for excavation
- Describe the method of prompt, safe removal of injured workers

- Be available on the job site
- Signature of the Competent Person

c. Training

Initial training of employees shall occur during orientation for employees who foreseeable will be engaged in excavation work. Hazard recognition and excavation protection systems shall be included in the training site specific training shall occur before the start of excavation work activities, including hazards and controls noted in the Site Safety Plan and the other provisions of the written plan.

d. Inspections

When employee exposure in an excavation is reasonably anticipated, an inspection shall be conducted by a Competent Person:

- Prior to the start of work each day
- As needed throughout the shift
- After every rainstorm or water accumulation
- When an unusual occurrence affects the integrity of the excavation

Note: Where the Competent Person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

e. Personal Protective Equipment

Minimum Personal Protective Equipment shall consist of:

- Approved Hardhats
- Approved Safety Glasses
- Approved Safety-toe Boots
- If exposed to vehicular traffic, employees shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of high-visibility material (and be reflective if working in dim light or at night)

6. Specific Engineering Control Options

a. Required Registers Professional Engineer

Excavation protection system configurations requiring development by a Registered Professional Engineer:

- Excavations greater than twenty (20) feet in depth
- Any excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees
- Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations

Designs shall be in written form and will include at least the following:

- The protective system configurations that were determined to be safe for the particular project
- The identity and stamped seal of the Registered Professional Engineer approving the design

At least one copy of the design shall be maintained at the jobsite.

b. Sloping and Benching Systems (excavation depth >5 Ft,<20 Ft)

Note: Suitable sloping or benching shall occur at >4 feet in depth for unstable soil (Type C).

1) Classifying Soil
Soil and rock deposits shall be classified in accordance with Classifying Soil portion of this section (g.)

2) Maximum Allowable Slope
The maximum allowable slope for a soil or rock deposit shall be determined.

When additional weight loads to the system are present from stored material or equipment, operating equipment, or traffic, a Competent Person shall determine the degree to which the slope must be reduced below the maximum allowable slope, and will assure that such reduction is achieved.

Employees must not be positioned under loads handled by lifting or digging equipment and must stand clear of loads being loaded or unloaded so they will be safe in the event of the load spilling or slipping.

When mobile equipment (trucks, etc.) is being operated adjacent to the excavation, or when similar equipment must approach the edge of the excavation and the operator does not have clear view of the edge, a warning system (barricades, stop logs, hand signals) must be in place.

3) Prohibition

Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

c. Shielding Systems (excavation depth >5 Ft,<20 Ft)

1) General

Installation of a support system shall be closely coordinated with the excavation of trenches.

Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

Employees shall not be allowed in shield systems when shields are being installed, removed, or moved vertically.

Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields. This means that the access and egress methods shall be included from within the protection of the shielding system.

Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a shield system shall be permitted.

2) Materials and Equipment

Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer.

When material or equipment that is used for protective systems is damaged, a Competent Person shall examine the material or equipment and evaluate its suitability for continued use. If the Competent Person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service. Manufactured material or equipment, in this case, shall be evaluated and approved by the manufacturer or a Registered Professional Engineer before being returned to service.

Designs for shoring in trenches shall be determined in accordance with the conditions and requirements set forth in Classifying Soil section (g.) and with the Aluminum Hydraulic Shoring for Trenches. Other manufactured shoring systems that meet or exceed these tables are permitted.
Note: Aluminum Hydraulic Shoring is preferred to Timber Shoring. However, if Timber Shoring is more feasible or practical, it shall be utilized in accordance with OSHA CFR 29 1926 Subpart P.

d. Combination Systems (excavation depth >5 Ft,<20 Ft)

If the excavation is of a depth whereby the shielding system is not of sufficient height, sloping/benching shall be utilized in combination.

e. Installation and Removal of Support

Members of support systems shall be securely connected together to prevent sliding, falling, kick outs, or other predictable failure.

Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.

Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

Backfilling shall progress together with the removal of support systems from excavations.

f. Specific Excavation Hazard Controls

1) Access and Egress

Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a Competent Person. Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement. Structural members used for ramps and runways shall be of uniform thickness.

Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

Structural ramps used in lieu of steps shall be provided with cleats or other surface treatment on the top surface to prevent slipping.

A means of egress from trench excavations shall always be maintained. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.

Employees shall not utilize mechanical equipment to access or egress from trench excavations.

2) Exposure to Falling Loads

Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations.

Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

Whether inside or outside of an excavation no employee shall be a permitted underneath load handled by lifting or digging equipment. Employees shall stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

Operators of such vehicles being loaded or unloaded are required to remain out of the cabs of vehicles during loading or unloading.

3) Hazardous Atmospheres

Where oxygen deficiency (atmospheres containing less than 19.5% oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are or had previously been stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

No company employee shall enter a trench or excavation containing an explosive atmosphere (greater than 10% of the lower explosive limit) or an oxygen enriched atmosphere (greater than 23.5% O_2). Likewise, personnel shall not enter if the atmosphere is oxygen deficient (less than 19.5%) unless equipped with a self-contained breathing apparatus or air-line respirators equipped with emergency escape air packs.

The use of such respiratory equipment must comply with provisions of the company Respiratory Protection Procedure section. **Employees entering excavations containing levels of toxic gases or vapors may require the use of respiratory protection and other means of protection and must be addressed on a case by case nature depending upon the contaminant.**

Ventilation of the excavation or other similar measures should be implemented to eliminate oxygen deficient/enriched, flammable, or toxic atmospheres prior to entry. When these measures are in place, testing of the atmosphere shall be conducted as often as necessary to ensure that the atmosphere remains safe.

In addition to air monitoring, emergency rescue equipment must be readily available where hazardous atmospheric conditions exist or can reasonably be expected to exist. This equipment, such as a breathing apparatus, a safety harness or line, etc. shall be attended by an employee trained in its use.

See the Confined Space section in the Performance Abatement Services, Inc. Accident Prevention Plan for more information.

4) Mobile Equipment

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a

warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs.

5) Underground Installations

Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.

When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the work may proceed, provided the employees do so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.

While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees. Reference section (33) Subsurface Investigation Procedures for specific information.

6) Water Accumulation

Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.

The precautions necessary to protect employees include special support or shield systems to protect from cave-ins and/or water removal to control the level of accumulating water.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a Competent Person to ensure proper operation.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation.

7) Protection of Employees from Loos Rock, Soil, Equipment and Materials

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection can consist of:

- Scaling to remove loose material
- Installation of protective shields / barricades at intervals as necessary on the face to stop and contain falling material
- Or other means that provides equivalent protection

No company employee shall enter an excavation that approaches five feet or more in depth without proper protection from cave-in.

Under no circumstances should bracing or shoring be omitted, regardless of the length of time the trench will be open.

Such rock, soil and materials and equipment shall additionally be kept at least 2 feet (.61 m) from the edge of excavations.

8) Fall Protection

If employees or equipment are required to cross over excavations, walkways or bridges with standard guardrails shall be provided.

Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a full-body harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

Excavations shall be barricaded to prevent employees and others from falling into them. When an excavation must be left open for the duration of the construction work, barricades and warning signs shall be used. Upon completion of the work, excavations, pits, etc. should be backfilled.

See the Fall Protection section in the Performance Abatement Services, Inc. Accident Prevention Plan manual for more information.

g. Classifying Soils

1) Classification of Soil and Rock Deposits

Each soil and rock deposit shall be classified by a Competent Person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions within this section.

The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a Competent Person using tests described within this section.

In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a Competent Person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

2) Acceptable Visual and Manual Test

a) Visual Tests

Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil fall off a vertical side, the soil could be fissured. Small falls are evidence of moving ground and are indications of potentially hazardous situations.

Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

Observe the opened side of the excavation to identify layered systems.

Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

b) Manual Tests

(1) Plasticity

Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter for a length of at least 2 inches. Cohesive material can be successfully rolled into threads without crumbling.

(2) Dry Strength

If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt).

If the soil is dry and falls into clumps that break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered un-fissured.

(3) Thumb Penetration

The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure.

This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences.
If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

(4) Other Strength Tests

Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shear vane.

(5) Drying Test

The basic purpose of the drying test is to differentiate between cohesive material with fissures, un-fissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry, then:

- If the sample develops cracks as it dries, significant fissures are indicated
- Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an un-fissured cohesive material and the unconfined compressive strength should be determined
- If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material.

To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

7. References

OSHA 29 CFR 1926 Subpart P (Excavations)

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

Q. Reserved

R. Reserved

S. Reserved

T. Reserved

U. Reserved

V. Reserved

W. Reserved

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

X. Ladders

1. General. All employees who work on ladders should be trained on the ladder standards listed below, in addition to the nature of fall hazards. (See Fall Protection Plan, Section Seven M.)

   The attached "Ladder Safety" Quiz (Appendix 7X-A-1) should be administered for ladder safety competency for all employees who work on ladders.

2. Ladder Types. There are three (3) main types of ladders that we typically use.
   a) Step Ladders. A-frame construction, self-supporting, for general purpose work.

   b) Straight Ladders. Not self-supporting, typically used to access another working level or access a tight work area.

   c) Job-Made Ladders. Typically used to access another level and not intended to be moved.

3. Ladder Standards. The following requirements apply to all ladders as indicated, including job-made ladders:
   a) Ladders shall be capable of supporting the following loads without failure:
      (1) Each self-supporting portable ladder - at least four (4) times the maximum intended load, except that each extra heavy duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load
      (2) Each portable ladder that is not self-supporting - at least four (4) times the maximum intended load, except that each extra heavy duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load

   b) Inspect all ladders before use - Do not use a ladder that appears unsafe, that has broken or missing rungs, steps, side rails, or damaged hardware.

c) Do not use metal ladders near electrical circuits, fixtures, or power lines

d) Use ladders safely - Place them with care. Do not lean them against a movable object. Make sure they are not placed on a loose object or uneven footing. Do not place ladders too close to a wall. The horizontal distance from a wall to the foot of the ladder should never be less than ¼ the length, and the top of the ladder should at least be 36 inches above the landing.

e) All movable ladders in use should be equipped with safety shoes and should be tied, blocked, or otherwise secured to prevent their being displaced

f) Only one person at a time on a ladder

g) Always face the ladder and grasp the side rails or rungs with both hands when ascending and descending - Do not carry tools or materials when going up and down ladders. Use buckets, bags, etc., on a rope to haul or lower them.

h) If it is necessary to place a ladder near a door or aisle through which there is traffic, warning signs and barricades should be posted, and someone should be assigned to hold the ladder

i) Do not paint ladders as paint can hide cracks, breaks, and other defects

j) All job-made ladders shall be constructed to the specifications of the 29 CFR 1926.1053(b).

k) Stepladders should not be over 20 feet long

l) Do not use a stepladder as a straight ladder

m) Do not stand on the top step of a stepladder

n) When not in use, all types of ladders should be stored under suitable cover for protection from the weather

Ladder Safety
QUIZ

Name:_____ Date:_____

1. If using a straight ladder to reach a roof, at least how many rungs should extend beyond the roof edge for proper support?

   - ☐ **2**
   - ☐ **3**
   - ☐ **4**

2. What is the correct relationship between a ladder's distance away from the wall verses its "working length"?

   - ☐ **3 to 1**
   - ☐ **4 to 1**
   - ☐ **5 to 1**

3. When climbing a ladder, how many "contact points" (hands and feet) should be touching the ladder at all times?

   - ☐ **2**
   - ☐ **3**
   - ☐ **4**

4. Which rungs of a step ladder are not safe to stand on?

   - ☐ **Top two rungs**
   - ☐ **Top rung**
   - ☐ **Top three rungs**

5. True or False... The safest way to pull materials up the ladder is by hauling them up as you go?

   - ☐ **True**
   - ☐ **False**

6. At a minimum, how many rungs of an extension ladder should overlap in the center when it is extended?

   - ☐ **3**
   - ☐ **4**
   - ☐ **5**

Ladder Safety
QUIZ

PRESENTER'S COPY...WITH ANSWERS

1. If using a straight ladder to reach a roof, at least how many rungs should extend beyond the roof edge for proper support?

   ☐ **2**
   ☒ **3**
   ☐ **4**

2. What is the correct relationship between a ladder's distance away from the wall verses its "working length"?

   ☐ **3 to 1**
   ☒ **4 to 1**
   ☐ **5 to 1**

3. When climbing a ladder, how many "contact points" (hands and feet) should be touching the ladder at all times?

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   ☒ **3**
   ☐ **4**

4. Which rungs of a step ladder are not safe to stand on?

   ☒ **Top two rungs**
   ☐ **Top rung**
   ☐ **Top three rungs**

5. True or False... The safest way to pull materials up the ladder is by hauling them up as you go?

   ☐ **True**
   ☒ **False**

6. At a minimum, how many rungs of an extension ladder should overlap in the center when it is extended?

   ☒ **3**
   ☐ **4**
   ☐ **5**

SECTION SEVEN
SAFETY REGULATIONS AND PROCEDURES

Y. Reserved

Z. Reserved

SECTION EIGHT
EMERGENCY PLAN

A. Fire

The following six (6) emergency fire procedures all require planning and should be established in advance. The basic concepts are applicable to an office, warehouse, fabrication shop, or job site.

1. Make sure everyone knows what to do the instant a fire is discovered.

   The first step is to SOUND THE ALARM. Different situations will have different procedures. The person who discovers the fire is supposed to:

   a) Pull an alarm box?

   b) Call the fire department?

   c) Notify the in-house or job site fire brigade?

   d) Report to his superior?

   e) Call the switchboard operator?

   Whatever it is, make sure everyone knows exactly how the alarm is to be given.

2. Make sure everyone knows what to do after sounding the alarm.

   a) After giving the alarm – **and not before** – the individual has to make the decision whether to fight the fire. The wisdom of doing so depends on the circumstances. If it does seem feasible to try to extinguish the blaze, the individual should know what equipment is available to him and how to use it. It is important that everyone know where fire extinguishers are located or whether or not there is a hand hose line nearby.

   b) If the individual discovering the fire can put it out or get it under control, there is one thing every employee should be made aware of – **no one should try to fight a fire alone.** He should have at least one other person with him in case the fire gets beyond him. If he is weakened by

the heat, smoke, or exertion, or if the extinguisher is exhausted before the flames are out, he will need help, and fast. The second individual can come to his rescue and perhaps attack the fire with another extinguisher.

c) Wherever possible, each employee should have the opportunity to witness or personally practice the operation of an extinguisher or hose line and learn their capabilities and limitations.

3. Evacuation

a) Proper planning for an emergency includes the designation of an individual to be responsible for emergency evacuation operations. He could be the branch or office manager, the safety director, a fire brigade chief, foreman, or some other person.

b) The important thing is that you have an individual who knows that, should an emergency develop, he will have the responsibility for the personal safety of everyone on the premises. He must be able to account for every person, employee, or visitor who may be in the emergency area.

c) All employees must know their recommended evacuation route and an alternative in case the fire blocks their primary route. They must know the designated assembly area so that head counts can be taken to account for all personnel. The designated person responsible for the evacuation plan must have the authority to carry out all phases and must have an alternate or alternates who are thoroughly familiar with the plan.

d) Where practical, the plan should provide for regular fire drills to test the emergency procedures. Also, at frequent intervals, simple questions should be directed to the employees by their supervisor to check on their understanding of the established procedures.

4. Cooperation with the Fire Department

a) The efforts of your personnel and the public fire department must be coordinated so that the fastest, most efficient fire extinguishing operation can be executed.

b) How will your in-house fire brigade (if established) work with the fire department? Who will guide the fire department through the premises to the source of the trouble? When should your personnel do nothing except stay out of the way? These questions should be considered and answered before a fire breaks out.

c) In the case where we are responsible and control the use of the facility, communication should be established between our management and the fire department. Fire department officers should be invited to inspect the premises to familiarize themselves with the location for various operations and hazards, access to the property and buildings, location of hydrants, etc.

5. Salvage Operations

a) Begin salvage operations as soon as the fire is out. Be prepared to use protective tarps, if needed, to cover materials and equipment.

b) Arrange for temporary office or storage facilities if required.

c) Know who to call for debris removal, odor removal, and other salvage services you may need.

d) During extended salvage operations, your personnel will need relief. Plan for it.

6. Communications

a) If an emergency has occurred, it is important that your employees, customers, and suppliers be told, as soon as possible, what effect the emergency will have on your operations.

b) Don’t make them depend on the news media for this information. If you tell the story, not only will the facts be straight, but your public image will be enhanced. Assign an individual in your operation to be responsible for communication during and after the fire emergency. His responsibilities should include contact with the media as well as communication to employees and customers. All communication with news media and other outside people shall be coordinated through the corporate office in Lenexa. This should be done prior to any releases.

c) Finally, the plan should be in writing to insure its continued existence when personnel changes occur. As conditions change, it is vital that emergency plans be updated at regular intervals. Also the Job Site Emergency Procedures document (Appendix 8-A) must be completed for each job and posted. Again, all employees must be made aware of these procedures, and documentation of the training session (Safety Meeting Report – Appendix 9-A) must be maintained.

B. Serious Injury

For serious injury emergency procedures, see Section Six – Emergency Medical Treatment.

C. Natural Disaster

For specific natural disasters that are common to your geographic area, you should contact your local fire department, weather service, or police department to obtain specific information to develop a procedure.

D. Emergency Notification Procedures

There are times where it is extremely important that certain key individuals within the company are notified immediately via telephone or in person in the event certain situations occur. Many of these occurrences pertain to issues involving accidents, injuries, emergencies, or other instances that require immediate attention and detailed follow up by management, such as:

a) Death, serious accident, or jobsite catastrophic event
b) Emergency, natural disaster, act of violence, or theft
c) Employment issues, media visit, or contact
d) Major company property damage
e) Jobsite accident or injury
f) OSHA visit, investigation, citation, or request
g) Company vehicle accidents or damage

In situations such as these it is extremely important that the company Emergency Notification Procedures be followed quickly and thoroughly. These procedures, which are found separately in Corporate Information, are to be made available, in a conspicuous location, at each branch office and at every jobsite location.

DATE: _____

JOB SITE EMERGENCY PROCEDURES

Branch: _____ Prefix No. _____ Job No. _____

Current Location: _____ Phone No.: _____

EMERGENCY TELEPHONE NUMBERS:

FIRE _____

POLICE _____

AMBULANCE _____

HOSPITAL (w/address & directions) _____

_____

LOCAL CLINIC (w/address & directions) _____

_____

IN CASE OF FIRE:

- Call the fire department
- Exit the building using the evacuation route
- Go immediately to the assembly point

EVACUATION ROUTE:

_____

_____

ASSEMBLY POINT: _____

IN CASE OF SERIOUS INJURY:

- Immediately contact first-aid trained personnel
- Call for medical assistance

Job site first-aid trained personnel:

_____

_____

_____

Trained personnel will take immediate charge of the emergency situation (supervision to perform accident investigation per *PAS Accident Prevention Plan* Section Four – Accident Investigation).

In case of natural disaster: (check)

☐ Tornado: Seek inside shelter, preferably underground. Stay away from windows. If outside, move away from the tornado's path at a right angle, or lie flat in a ditch or ravine.

☐ Earthquake: Evacuate the building and go directly to the designated assembly point for instructions.

☐ Other: _____

SECTION NINE
TRAINING AND MOTIVATION

A. General

A vast majority of work related injuries can be attributed to an unsafe act committed by a person, as opposed to an unsafe condition at the work site. A comprehensive training program is the most effective way to educate people to not commit unsafe acts and recognize unsafe conditions.

1. There are countless reasons why people commit unsafe acts, such as because they:

   a) Do not recognize that a hazard exists.

   b) Lack the knowledge or inclination to do the job properly and safely.

   c) Are unaware that what they are doing is not correct.

   d) May never have learned to do the job the right way.

   e) May perform safely under normal conditions but not fully realize the dangers of certain unsafe acts under unusual job conditions.

   f) Do not believe in the effectiveness of the safety procedure.

   g) Believe their individual skill will allow them to successfully perform the task without the safety procedure.

   h) Have a bad attitude about safety.

2. It cannot be assumed that people will:

   a) Recognize the hazards they will encounter.

   b) Know policy, rules, and procedures.

   c) Follow the policy, rules, and procedures.

   d) Use "*Common Sense*".

3. Under the federal law, the employer is responsible to:

   a) Instruct each employee in the recognition and avoidance of unsafe conditions.

   b) Instruct each employee in the regulations applicable to their work environment.

   c) Control or eliminate any hazards or other exposures to illness or injury.

4. Good instruction on a regular basis is extremely important to safety. It cannot be taken for granted that everyone knows how to do their job in a safe manner, or to expect them to learn the hard way. An effective training program is the best tool to ensure that people do not commit unsafe acts, or work in unsafe conditions.

B. Safety Meetings

1. Safety meetings are the most direct and effective means to provide safety instruction and to communicate safety awareness to employees.

2. For all jobs, the meetings should be:

   a) Done at the start of the job.

   b) Held weekly thereafter.

   c) Scheduled on a specified day, time, and place, preferably first thing each Monday morning.

   d) Well planned.

   e) Controlled and need not last more than 30 minutes.

   f) When there is a change in conditions.

   g) When there is a change in hazards.

h) Held daily if the job is of sufficient scope and hazard to justify increasing this schedule.

i) Documented using either the Safety Meeting Report form (Appendix 9-A) or the Tailgate/Toolbox Safety Training form (Appendix 9-B).

3. For all jobs, the branch will take steps to ensure that each employee receives a safety meeting and their names are documented for verification. This can be accomplished by:

   a) Having employee's still conduct regular safety meetings as described above.

   b) Instituting a "mail-out" safety meeting program by mailing out pre-printed safety meeting topics to each employee that is not expected to participate in a regular safety meeting as described above. The following documentation shall be required and should be established and maintained as a separate file for this information:
   (1) Date topics were distributed.
   (2) What topics were distributed.
   (3) Who the employees were that received the topics.

4. Selecting topics for a safety meeting should be done by the foreman or other qualified persons. The goal is to get employees involved in the discussion for a free exchange of information to prevent accidents, identify hazards, and recommend improvements. Suggested ideas that have merit can be acted upon immediately. Any timely topics that relate to safety can be discussed, such as:

   a) Near misses that could have been serious accidents.

   b) Incidents that have happened on the job.

   c) Items found on the job site inspections.

   d) Material Safety Data Sheets.

   e) Inspection of personal fall arrest system equipment (harnesses and lanyards).

f) Seasonal topics – cold or hot temperatures, thunderstorms and lightning, ice and snow, mud and water, hurricanes, tornadoes, etc.

g) Newly identified job hazards.

h) Instruction on the use of personal protective equipment, reviewing their capabilities, limitations, and maintenance requirements.

i) Reviewing the job emergency plan for fire, serious injury, and natural disaster.

j) Reviewing standards for each piece of equipment used on the job.

k) Reviewing rules for ladders and scaffolding.

l) Reviewing medical emergency plan for transporting a seriously injured worker to a hospital.

m) Reviewing job safety and work rules.

However, every initial site safety meeting must include emergency procedures.

C. Brochures/Posters/Publications

1. There are many brochures and publications available on safety matters relating to job site hazards, proper use of tools and equipment, etc. Appropriate materials of this type can be used as hand-outs to employees in a continuing effort to increase their safety awareness.

2. Posters are also available on a wide range of subjects. A good technique in the use of posters is not to leave them up for long periods of time. After it is felt the message has been seen by the workers, remove it. Workers become immune to posters that are never changed.

   The above materials are available from many sources.

D. Manager/Superintendent/Foreman Educational Programs

1. Manager/Superintendents and Appointed Field Safety Personnel. As a foundation for the corporate safety training program, each manager/superintendent/safety person must read and be thoroughly familiar with the *PAS Accident Prevention Plan*.

2. Foremen

   a) Job foremen have extensive responsibilities related to the proper supervision of safety on all job sites. Requirements starting from the general duty clause, to numerous OSHA regulations, to specific PAS safety program requirements make safety an integral part of their daily job duties. PAS has developed, under a separate document, a Foreman Safety Training syllabus. The module contents provide a comprehensive curriculum and authoritative source of information needed by foremen to properly perform and supervise their safety duties.

   b) Delivery of Training. Foremen training meetings shall be held on a monthly basis and documented using the Safety Meeting Report form (Appendix 9-A). A portion of each meeting shall be utilized for safety training. While it is the responsibility of the General Manager to ensure performance of the training, the labor superintendent is normally the primary instructor. Management is encouraged to utilize members of their staff or proficient foremen as additional training resources to add variety and value to the training program. In addition, Regional Corporate Safety Representatives will provide comprehensive safety training to foremen and supervisors on a quarterly basis. It is important for management to attend all foremen safety meetings to communicate the importance the company places on safety.

   c) Topic Selection - There are a multitude of places that foremen training topics may be selected from, for example:

      (1) The *Foreman Safety Training Modules.* Tests must be administered and graded for modules that have exams. The following modules must be completed every 24-months: Accident Reporting, Hazard Communication, Safety Box, and Tool Box Safety Meetings.

(2) The *Accident Prevention Plan*
(3) Outside sources often train:
  (a) First aid and CPR
  (b) Fall Protection
  (c) Confined Spaces
  (d) Lead
  (e) Asbestos
  (f) Workers' Compensation

(4) Regional Corporate Safety Representatives can always assist in topic selection.

d) OHSA 10 and 30 hour certifications are often a requirement by owners or general contractors.
  (1) Give the foremen a broad safety knowledge base.
  (2) Can be taught by the Corporate Safety.
  (3) Are highly recommended.

E. Motivational Programs

1. Maintaining an interest in safety is necessary even if the workplace has been engineered for safety, when procedures have been made as safe as possible, and all employees have been thoroughly trained. Even with these optimum work conditions, accident prevention basically depends upon the desire of people to work safely. The goal is to develop "safe" attitudes.

2. One of the techniques used to maintain safety interest is a program utilizing safety objectives and awards. There are numerous types of programs with various safety objectives available for use.

F. Documentation

When safety training is given or received by the branch or job site personnel, documentation of the training is required to be maintained. (Use the Safety Meeting Report – Appendix 9-A.)

The documentation must include as a minimum:

1. Attendance list

2. Date

3. Subject matter

4. Instructor's name

G. Competent Person Program

1. Background

a) Certain construction activities possess an inherent degree of hazard to warrant a level of extraordinary supervision and caution. OSHA recognizes this, and therefore requires the identification of competent persons. OSHA requires this identification in the following work categories:
(1) Fall Protection
(2) Scaffold Erection
(3) Scaffold Inspection
(4) Crane and rigging operations
(5) Trenching and shoring
(6) Confined space entry
(7) Asbestos abatement
(8) Lead abatement
(9) Ladders

Note: GC's and/or Clients might require Competent Person in other Disciplines not noted above.

b) The competent person for the applicable category must be documented. This documentation can include training in the discipline that they are being designated as a Competent Person, Experience, work history, etc. The General Manager and/or Branch Superintendent are responsible for ensuring this documentation is in the employees file prior to being designated a Competent Person for any discipline. This documentation shall be available for review by the Branch Regional Safety representative. This identification requirement will be complied with by using the Competent Person Designation form (Appendix 9-C)

2. Definition of Competent Person. One who is capable of identifying existing and predictable hazards in the surroundings or working conditions

which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

3. Procedure

   a) Each General Manager is responsible for maintaining a current written list of the branch's competent persons who have the training, knowledge, and experience in each relative discipline. (See Competent Person Designation form – Appendix 9-C). This responsibility may be delegated to the Branch Superintendent but not passed to any lower level.

   b) The Competent Person Designation form must be completed every January (as a minimum) and maintained in a current file. Also send a copy to the regional safety representative. This form must be updated throughout the year when changes occur. Examples:
   (1) Competent person leaves our employ
   (2) Procedure/equipment change that would require additional training
   (3) Adding additional competent persons
   (4) Engaging in a competent person category not previously involved in

4. Monitoring

   a) Long term tracking for compliance shall be accomplished via the Corporate Safety Assessment program.

   b) The regional safety representative will also monitor compliance on an annual basis.

H. Behavior Based Observation

1. Purpose. PAS has established this program for identifying and correcting Behavior Safety.

   a) The six parts of the program are as follows:
      1) Common Goals – Both employee and supervision involvement in the process
      2) Definition of what is expected – Specification of target behaviors derived from safety assessments
      3) Observational data collection

4) Decisions about how best to proceed based on the data
5) Feedback to employees being observed
6) Review with employees and supervision

2. Procedure

The PAS Branch Superintendent and/or Branch Site Foreman are responsible for implementing this procedure. The Proactive/Reactive data sheet will be used for observations of Behavior Safety at each job site on a weekly basis.

a) The Branch Superintendent and/or Site Foreman will assign each employee to complete a Proactive/Reactive Data Sheet once per week.
b) The Branch Superintendent and/or Site Foreman will train each employee assigned to the job site in the proper completion of the Proactive/Reactive Data Sheet. (See Appendix 9-D)
c) Each employee completing the Proactive/Reactive Data sheet will review their observation with the employee observed and request feedback from the observed employee.
d) All At Risk Observations will be entered in the comment section on the bottom of the data sheet with what corrective action was taken to eliminate the At Risk Behavior from reoccurring.
e) The information on the data sheets will be collected and reviewed by the Superintendent and/or Site Foreman.
f) The Superintendent and/or Site Foreman will develop appropriate action plans to address the At Risk Behaviors observed on the Proactive/Reactive Data sheet. The Site Foreman is responsible for implementation of these action plans at their job site.
g) The Branch Superintendent is responsible for conducting follow up at each job site to ensure that the Action Plans are being completed. The Branch Superintendent should conduct these follow ups at least once a month.
h) The data will be entered into the Proactive/Reactive Data Sheet and a percent of Safe Observations and At Risk Observations will be developed.
i) This information will be used for upcoming Weekly Safety Meetings on the job site and reviewed with the employees.

This Program will be reviewed annually by the PAS Corporate Safety Department.

I. Access to Employee Medical and Exposure Records Policy

1. Purpose

   PAS has established this procedure to insure right of access to relevant exposure and medical records to employees, their designated representatives, and/or OSHA. PAS employees are informed of this policy and all provisions of recordkeeping on the first day of hire and annually thereafter.

2. Authority & Reference

   Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1020

3. Application

   All employers who maintain medical records and/or exposures records which document that employees are or were exposed to toxic substances and/or harmful physical agents must comply with OSHA Standard 29 CFR 1910.1020.

   This section applies to all employee exposure and medical record, and analysis thereof, made or maintained in any manner, including on an in-house or contractual (e.g., fee-for-service) basis. This standard requires that these records be made available to employees, former employees, and any designated employee representative or OSHA in accordance with the following procedures.

   a) Upon written request, an employee, former employee, designated representative and/or OSHA has the right to examine and receive copies of medical records, exposure records, and any analysis based on these records. An employee may designate any individual or organization by means of a written authorization to exercise the right of access to such records. (See Appendix 9E-1).

   b) Recognized collective bargaining agents who have statutory authority to represent the interests of the employees within the bargaining unit are automatically considered designated representatives. While these representatives do not have the right to secure individual medical records without written consent of the

employee, they have the right of access to employee exposure records and analysis without employee consent. However, union representatives must show an occupational health need when seeking access to employee exposure records for which the employee's written consent has not been given.

c) OSHA Compliance Officers can request these records for any reason relative to their statutory authority and for any purpose.

4. Definitions

a) Access the right and opportunity to examine and copy.

b) Analysis of exposure or medical records means any compilation of data, and research, or other studies based, at least in part, on information collected from individual employee exposure or medical records or other sources including information from health insurance claim forms provided that either the analysis must have been reported to the employer or no further work is being done by the person responsible for preparing the analysis.

c) Designated representative will mean any individual or organization to whom an employee gives written authorization to exercise a right of access. For the purposes of access to employee exposure records and analyses using exposure or medical records, a recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

d) An exposure record contains any of the following kinds of information concerning employee exposure to various substances or physical agents used in the workplace.

1) Workplace monitoring or measuring of a toxic substance or harmful physical agent including personal, area, grab, wipe, or other forms of sampling and includes related collection and analytical methods, calculations and other background data relevant to interpretation of results obtained.

2) Biological tests which directly assess absorption of a toxic substance or harmful physical agent into the body. A

biological test which assesses the effect of the body would be a medical record.

3) A Material Data Safety Sheet indicating that the material may pose a hazard to human health.

4) Any other record which identifies a toxic substance or physical agent as potentially toxic or harmful and reveals where and when it was used.

e) Medical record is any record concerning the health status of an employee made or maintained by a doctor, nurse, or other health care professional or technician. This includes:
   1) Medical and employment questionnaires or histories including past descriptions and occupational exposures.

   2) The results of any medical exam (pre-employment, pre-assignment, periodic or episodic), and any laboratory tests (x-ray and all biological monitoring).

   3) Medical opinions, diagnosis, progress notes and recommendations.

   4) Description of treatments and prescriptions.

   5) First aid records.

   6) Employee medical complaints.

NOTE: The following will not be considered a medical record.

1) Physical specimens, such as blood or urine samples, which are routinely discarded.

2) Health insurance claims, accident investigation reports and other non-medical correspondence if maintained separately from the medical file.

3) The record of any voluntary employee assistance program (alcohol, drug, etc.) if maintained separately.

4) Records created solely in preparation for litigation which are privileged from discovery under applicable rules of procedure or evidence.

f) Specific Written Consent means a written authorization containing the following:

1) The name and signature of the employee authorizing the release of medical information.

2) The date of the written authorization.

3) The name of the individual or organization that is authorized to release the medical information.

4) The name of the designated representative (individual or organization) that is authorized to receive the released information.

5) A general description of the medical information that is authorized to be released.

6) A general description of the purpose for release of the medical information.

7) A date or condition upon which the written authorization will expire (if less than one year).

g) Toxic substance or harmful physical agent is defined as any chemical substance, biological agent (bacteria, fungus, virus, etc.) or physical stress (noise, heat, cold, ionizing radiation or non-ionizing radiation, hypo or hyperbaric pressure, etc.) which:

1) Is regulated under federal law or rule due to a hazard to health.

2) Is listed in the National Institute of Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS).

3) Shows positive evidence of acute or chronic health hazard in human, animal or other biological test by or known to the employer.

4) Has a Material Safety Data Sheet indicating that the substance may pose hazard to human health.

5. Access Procedure

PAS will maintain applicable medical and exposure records for all employees. All requests to access medical and exposure records and analysis based on those records must be submitted to using the forms provided for that purpose.

a) PAS will assure access of each employee and/or their designated representative, to all exposure and medical records concerning the employee's work conditions or workplace within 15 working days from the day request is made. If the records cannot be provided within 15 working days, the employee or designated representative requesting the record shall be informed with the reason(s) for the delay and the earliest date when the record(s) can be made available.

b) Personal identifiers (name, address, social security number, payroll number etc.) will be removed from records before access is granted.

c) Except for a recognized collective bargaining agent, any designated representative must have the employee's written permission for access to exposure records and analyses. It is necessary however, for the union representative to specify the occupational need for access to records absent the employees consent. Union representatives must have the employee's written permission to access medical records.

d) Employees or their representatives will be provided with one copy of the records at no cost or free use of a copying machine. There will also be no charge for the first request for information by a recognized collective bargaining agent, even if the employee has previously received a copy of the same record. Additional copies will be provided at a cost of five cents per copy. Each copy provided will be stamped with the word COPY. At no time will

original records and/or x-rays be loaned out to enable the requesting party to make a copy.

e) Any review of medical or exposure records by an employee or union representative shall be done on his or her own time, outside of normal working hours, at a time mutually agreeable to the parties. The review will be conducted in person with the individual requesting access to the records.

f) The employee is entitled access to his or her medical records except when a physician determines that this knowledge would be detrimental to the employee's health as in such cases of terminal illness or psychological conditions. However, if the employee provides a designated representative with specific written consent, access to medical records must be provided even if the physician has denied the employee access to the records.

g) PAS will provide the OSHA Compliance Officer with immediate access to employee exposure and medical records. In most cases, OSHA must provide a written access order which must be posted for 15 days before personally identifiable medical records are copied. A copy of the written access order will be provided to the union if applicable.

h) The authorized physician, nurse or other responsible health care personnel maintaining employee’s medical records may delete the identity of anyone who has provided confidential information concerning the employee's health status but cannot withhold the information itself.

i) When an analysis of medical records identifies the employee, a physician may remove direct or indirect personal identification. If this cannot be done, the personally identifiable portions need not be provided to the person seeking such information.

j) Employees and their designated representatives will be permitted upon request access to past and present exposure data to toxic substances or harmful physical agents.

k) Copies of exposure records of other employees with past or present job duties or working conditions like or similar to those of the employee will also be provided upon request.

l) Any employee or designated representative is also permitted access to any record of exposure information which pertains to a new workplace or condition(s) to which the employee is being assigned or transferred.

6. Written Retention

a) Employee Medical Records, except first aid records of minor scratches, cuts, bums, etc. and separately maintained health and workers' compensation claim records, shall be maintained for at least the duration of employment plus 30 years.
b) If PAS ceases to do business PAS will transfer all records subject to this policy to the successor employer. If there is no successor then the records will be transferred to the Director of the National Institute for Occupational Safety and Health if so required by a specific occupational safety and health standard.

c) Employee exposure records shall be preserved and maintained for at least thirty (30) years, except that:

1) Background data to environmental (workplace) monitoring or measuring, such as laboratory reports and worksheets, need only be retained for one (1) year as long as the sampling results, the collection methodology, (sampling plan), a description analytical and mathematical methods used, and a summary of other background data relevant to interpretation of the results obtained are retained for at least thirty (30) years; and

2) Material Safety Data Sheets and any other records concerning the identity of a substance or agent need not be retained for any specified period as long as some record of the identity (chemical name if known) of the toxic substance or harmful physical agent, where it was used, and when it was used is retained for at least thirty (30) years.

3) Any analysis of medical records or exposure records will be retained for thirty (30) years.

4) Only chest x-rays must be kept in the original form. All other records may be retained in any retrievable form.

5) Biological monitoring results designated as exposure records by specific occupational safety and health standard shall be preserved and maintained.

7. Employee Information

a) PAS will provide each new employee and all current employees the following information:

1) The existence of, location and availability of covered records.

2) The name of the individual maintaining and providing access to these records.

3) The right of every employee to access these records.

b) The Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020) will be readily available for review by employees upon request.

c) PAS will distribute to all current employees <u>any</u> new informational material pertaining to this standard.

d) A copy of the employee notice that will be used to comply with the employee information requirements is included with policy (See Appendix 9E-2). This notice will be posted on those bulletin boards where other notices normally appear.

SAFETY MEETING REPORT

Date: _____

Branch:_____ **Job Site:**_____ **Job No.**_____

Meeting conducted by: _____

MSDS covered (required monthly): _____

Subjects discussed: _____

_____

_____

Review last Job Site Inspection: _____

_____

Inspect PFAS: _____

_____

Persons in attendance:

Print Name	Signature

Tailgate/Toolbox Safety Training

Safety Services Company-Safety Meeting Division, PO Box 6408 Yuma, AZ 85366-6408 Toll Free (866) 204-4786

Company Name: _____ Job Site Location: _____

Date: 6/4/2007 Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Topic 9: Beat the Heat

Introduction: In order to work safely and effectively during long, hot summer workdays, certain precautions must be taken. Over-exposure to high temperature and humidity levels during prolonged physical exertion may result in heat disorders such as Heat Cramps, Heat Exhaustion, or Heat Stroke. Hyperthermia is the medical term used to describe the over-heating of the human body's core temperature to dangerous levels. Common sense and thoughtful scheduling is the best way to prevent heat related illnesses but sometimes the situation calls for first aid to get a person cooled-down before serious injury or illness occurs.

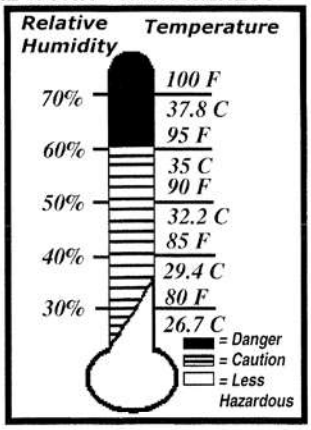
Operations involving very hot environments or poorly ventilated work-spaces should be avoided during the peak heat hours of the day. Fluids and salts (electrolytes) lost through heavy sweating must be continuously replaced. Commercially available sports drinks such as Gatorade contain the extra salts. Drinking plenty of these kinds of fluids and doing everything needed to keep your core body temperature within manageable levels is imperative. Let's take a look at the progressions of the three primary categories of Hyperthermia.

- ***HEAT CRAMPS "Phase I" (also includes heat syncope)***
  This condition results from over-exertion and heavy sweating. Heat Cramps are severe muscle spasms that often begin suddenly in the hands, calves, or feet; they are painful and disabling. This is caused from salt depletion as sweat losses are replaced by water alone. The muscles become hard, tense, and difficult to relax.
- ***HEAT EXHAUSTION "Phase II" (also called heat prostration)***
  This condition results from prolonged exposure to extreme heat for many hours. This causes excessive fluid loss from heavy sweating, leading to increased fatigue, weakness, anxiety, drenching sweats, low blood pressure, faintness, and sometimes collapse. The over-heating is due to the electrolytic fluid loss that reduces blood volume, which lowers blood pressure and the pulse.
- ***HEAT STROKE "Phase III" (sometimes called sunstroke)***
  DANGER — MEDICAL EMERGENCY — This life threatening condition is caused by over-exertion and over-exposure in extreme heat environments. Heat Stroke is imminent when the core body temperature approaches 106F (41C); any higher may result in coma, or even death. The symptoms are dizziness, weakness, emotional instability, nausea/vomiting, confusion, delirium, blurred vision, convulsions, collapse, and unconsciousness. The skin is flushed, hot to the touch, and at first may be covered with sweat that soon dries. Be aware of these warning signals.

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, serious heat illnesses may occur. The most severe heat – induced illnesses are heat exhaustion and heat stroke. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and death.



When it is determined a person is suffering from Hyperthermia, it is vitally important to reduce the victim's core body temperature immediately and then control the secondary effects. This must be done before permanent injury to the internal organs occurs. Hyperthermia is an emergency situation, with death being a possibility! Contact Emergency Medical Services immediately and get the person out of the heat. Place cool damp towels over the head, on the neck, between the thighs, and under the armpits.

Conclusion: Although electrolyte loss is the root cause, it is not recommended that salt tablets be made generally available without supervision. Avoid directing workers into extreme heat environments. Proper conditioning, appropriate clothing such as a head covering, wet bandana around the neck, continuous re-wetting of clothing, and frequent water breaks are simple, but effective methods to prevent Hyperthermia.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

_____

Personnel Safety Violations: _____

Material Safety Data Sheets Reviewed: _____ (Name of Chemical)

Employee Signatures: ***(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)***

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Foreman/Supervisor's Signature: _____

The first aid information provided is intended to be general in nature and is based upon the "best available" guidelines. No results either general or specific are represented or guaranteed. These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.

COMPETENT PERSON DESIGNATION

BRANCH: _____ DATE: _____

General Manager:_____ Branch Supt.:_____

The following foremen are designated competent persons for the discipline noted and documentation as required in this policy is filed in the employee(s) file

Fall Protection

_____ _____
_____ _____
_____ _____

Scaffold Erection

_____ _____
_____ _____

Scaffold Inspection

_____ _____
_____ _____

Crane and rigging operations

_____ _____
_____ _____

Trenching and Shoring

_____ _____
_____ _____

Confined Space

_____ _____
_____ _____

Asbestos Abatement

_____ _____
_____ _____

Ladders

_____ _____
_____ _____

Lead Abatement

_____ _____
_____ _____

The above personnel have been selected as competent persons for the designated operations by reason of their combination of training, practical work experience, and observed performance.

Behavior Based Observation – Proactive/Reactive Data Sheet

Location/Foreman:_____ Date:_____

					Area				Total			
Potential Hazard	**Safe PAS**	**At-Risk PAS**	**Safe Other**	**At-Risk Other**	**Safe PAS**	**At-Risk PAS**	**Safe Other**	**At-Risk Other**	**Safe PAS**	**At-Risk PAS**	**Safe Other**	**At-Risk Other**
PPE Gloves												
Hard Hat												
Eye Protection												
Hearing Protection												
Shoes												
Face Shield												
Other PPE Observed												
Housekeeping												
Fire Protection												
Tools- Hand/Power												
Electrical												
Cords and Leads												
Material Handling												
Scaffolding												
Stairs & Ladders												
Fall Protection												
Manlifts												
Vehicles-other												
Welding & Cutting												
First Aid												
Signs & Barricades												
MSDS/SDS												
Other												
Totals												
% Safe												

Comments:_____

_____

_____

_____

AUTHORIZATION LETTER FOR THE RELEASE OF EMPLOYEE MEDICAL RECORDS

I, _____hereby authorize _____
(Full name of employee) (Name of Organization)

to release to _____ (individual or organization authorized to receive the medical information)

the following medical record(s):_____

_____
(Give **specific** description of the information to be released)

I give my permission for the medical information to be used for the following purpose(s):

_____

_____

I do **not** give permission for any other use or reason.

I understand that this authorization expires twelve **(12)** months from today's date unless I

specify a particular date less than twelve months which is _____

_____ _____
Signature of employee or his/her legal representative

Date of Signature

Reviewed on: _____ with: _____
(Date) (Signature of Organization's Representative)

Copies given: Yes _____ No _____

ACCESS TO MEDICAL/EXPOSURE RECORDS NOTICE

Federal Regulation 29 CFR 1910.1020 requires us to inform you that Performance Abatement Services, Inc. does keep records designated as Employee Exposure and Employee Medical Records.

The above regulation gives you the right to review those records with certain exceptions.

The records are maintained in the PAS Branch Office and/or Branch Clinic and the Branch Superintendent is responsible for the records.

A copy of CFR 1910.1020 is available for viewing at the PAS Branch Office

_____ _____

Signature – Branch Supt Date

***Note**: This notice must be posted annually.*

SECTION TEN
VEHICULAR SAFETY

A. Trucks

1. General

   a) It is a requirement of Performance Abatement Services, Inc., that all highway vehicles be maintained and operated in the safest possible manner. Each General Manager will be responsible to ensure compliance with this requirement.

   b) Any person operating a PAS vehicle must comply with all state and local laws and regulations which govern the operation of the vehicle.

   c) Each truck must be registered, licensed, and inspected as required by applicable state laws.

   d) Occupant restraint usage is required. Vehicle operators are responsible for utilization of occupant restraints for themselves and passengers.

   e) Vehicle operators are prohibited from picking up hitchhikers.

   f) All vehicle accidents must be reported to the manager of Risk and Insurance at the corporate office in Lenexa. (See Auto Claim Reporting Procedures in the *Claims Manual*.)

2. Inspection Procedures

   a) The vehicle operator shall be designated as the person responsible to perform the scheduled safety inspections on his/her assigned vehicle.

   b) A formal (written) safety inspection must be performed on each truck at least once per month. The PAS Truck Inspection Checklist (Appendix 10-A) can be used for this purpose.

   c) A formal (written) safety inspection must also be performed prior to any truck being put back into service after an accident that resulted in

physical damage. Again, the PAS Truck Inspection Checklist can be used for this inspection.

d) A visual inspection must be conducted daily on all trucks prior to being placed into service.

e) Do not operate unsafe vehicles.

B. Standards for Powered Industrial Truck (Forklift) Operation

1. General Requirements

a) When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheel chocks are required when parked on a grade.

b) The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with powered industrial trucks.

c) Fixed jacks may be necessary to support a semitrailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.

d) Wheel stops shall be provided to prevent railroad cars from moving during loading and unloading operations.

e) A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle which remains in his view or whenever the operator leaves the vehicle and it is not in his view.

f) If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the lift shall be taken out of service until it has been restored to a safe operating condition.

g) All cab glass must be safety glass and free of cracks that could distort the operator's vision.

h) Unauthorized passengers shall not be permitted to ride on lift trucks.

i) Inspections shall be performed on a regularly scheduled basis. (See inspection requirement of this section.)

j) Modifications and/or additions which affect capacity or safe operation shall not be permitted.

k) Powered industrial truck nameplates and markings shall be affixed in place and maintained in legible condition.

l) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock or platform.

m) An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.

n) Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

2. Do's and Don'ts

a) All traffic regulations must be observed.

b) Driver should always face the direction of travel.

c) Yield the right of way to pedestrians.

d) Ascend or descend grades slowly.

e) Do not indulge in stunt driving or horseplay.

f) Do not exceed the manufacturer's load ratings.

g) Do not operate unsafe vehicles.

h) Use low gear going down ramps or steep grades.

i) Always operate with forks as low as possible.

j) Keep your feet and legs inside the vehicle when in operation.

k) Do not drive over objects lying on the floor.

l) Do not speed.

m) Do not permit anyone to stand under a load that is being hoisted or lowered.

n) When ascending or descending a steep incline, load must always be uphill.

o) Do not drive up to anyone standing in front of a bench or other fixed object.

p) Ensure there is sufficient headroom under overhead installations, lights, pipes, sprinkler systems, storage racks, etc.

q) Ensure fire aisles, access to stairways, and fire equipment are kept clear.

r) Slow down and sound the horn at cross aisles and other locations where vision is obstructed.

s) Drive in reverse if the load being carried obstructs forward view.

t) Do not fuel tanks while the engine is running.

3. Operator Qualifications and Training

a) The branch shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this section.

b) Trainees may operate a powered industrial truck only under direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence, and

where such operation does not endanger the trainee or other employees.

c) Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

d) Powered industrial truck operators shall receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace:
   (1) Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate
   (2) Differences between the truck and the automobile
   (3) Truck controls and instrumentation - where they are located, what they do, and how they work
   (4) Engine or motor operation
   (5) Steering and maneuvering
   (6) Visibility (including restrictions due to loading)
   (7) Fork and attachment adaptation, operation, and use limitations
   (8) Vehicle capacity
   (9) Vehicle stability
   (10) Any vehicle inspection and maintenance that the operator will be required to perform
   (11) Refueling and/or charging and recharging of batteries
   (12) Operating limitations
   (13) Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate
   (14) Surface conditions where the vehicle will be operated
   (15) Composition of loads to be carried and load stability
   (16) Load manipulation, stacking, and unstacking
   (17) Pedestrian traffic in areas where the vehicle will be operated
   (18) Narrow aisles and other restricted places where the vehicle will be operated
   (19) Hazardous (classified) locations where the vehicle will be operated

(20)Ramps and other sloped surfaces that could affect the vehicle's stability
(21)Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust
(22)Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation

e) Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by the above paragraph to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely. Refresher training in relevant topics shall be provided to the operator when:
(1) The operator has been observed to operate the vehicle in an unsafe manner
(2) The operator has been involved in an accident or near-miss incident
(3) The operator has received an evaluation that reveals that the operator is not operating the truck safely
(4) The operator is assigned to drive a different type of truck
(5) A condition in the workplace changes in a manner that could affect safe operation of the truck
(6) An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years

f) Avoidance of Duplicative Training. If an operator has previously received training and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

g) Certification**.** The branch shall certify that each operator has been trained and evaluated. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

h) License. Issuance of an internal company license is required after the completion of training and reevaluation.

4. Inspection and Maintenance

   a) Maintenance. Maintenance of all powered industrial trucks shall be performed in conformance with the manufacturer's recommendations. A scheduled preventive maintenance and lubrication program shall be followed.

   b) Safety Inspections. The powered industrial truck operator shall be designated as the person responsible to perform the scheduled safety inspection on their assigned powered industrial truck.
      (1) Daily. A daily visual safety inspection shall be performed prior to being placed into service giving special attention to:
         (a) Tires
         (b) Warning devices
         (c) Lights
         (d) Battery
         (e) Brakes
         (f) Lift and tilt systems
         (g) Steering mechanisms

         This visual inspection shall be performed prior to operation of the powered industrial truck.
      (2) Monthly
         (a) A monthly written safety inspection shall be completed on the powered industrial truck inspection checklists. The Powered Industrial Truck Inspection Checklist (Gas/Propane) (Appendix 10-B) and Powered Industrial Truck Inspection Checklist (Electric/Battery) (Appendix 10-C) can be used for this purpose.
         (b) A formal (written) safety inspection must also be performed prior to any powered industrial truck being put back into service after an accident that resulted in physical damage. Again the powered industrial truck inspection checklists can be used for this inspection.

5. Elevating Personnel. Whenever a powered industrial truck is used to elevate personnel for any reason, the following precautions shall be taken for the personnel being elevated:

   a) Use a safe platform secured to the lifting carriage and/or forks -If the platform is not constructed with appropriate handrails, then personal fall protection must be provided and its use required.

b) There shall be an operator in the control position on the truck at all times

6. Changing and Charging Storage Batteries for Electric Powered Industrial Trucks

a) Battery charging areas shall be designated for this purpose.

b) Battery charging areas shall be ventilated to ensure diffusion of the gases from the battery to prevent the accumulation of explosive mixtures.

c) When charging batteries, make certain vent caps are functioning. Vent caps shall be kept in place to avoid electrolyte spray, and covers shall be open to dissipate heat.

d) Smoking and open flames are prohibited. Signs shall be displayed prohibiting smoking and open flames.

e) Fire protection must be provided.

f) Personal protective equipment shall be provided for employees handling acids and batteries.
(1) Face shield
(2) Aprons
(3) Rubber gloves

g) Facilities for quick drenching of the eyes and body shall be provided within 25 feet of the battery charging area.

h) Tools and other metallic objects shall be kept away from the top of uncovered batteries.

C. Operation of Aerial Work Platforms

1. **PURPOSE**

   To outline the safe operating procedures of AWP's, which include aerial work platforms, aerial ladders, articulating boom platforms, vertical towers, ladder trucks, or a combination of such devices used to elevate PAS employees to job sites above ground and to prevent serious accidents from occurring while operating these devices. This procedure applies to the above devices owned by Performance Abatement Services, Inc., leased by Performance Abatement Services, Inc., or borrowed by Performance Abatement Services, Inc., which are operated by PAS employees or sub-contractors.

2. **DEFINITIONS**

   Aerial Work Platform (referred to in this procedure as AWP) - A manually propelled, or vehicle mounted device that has an adjustable position platform, supported from ground level by a structure or vehicle. (Note: AWP's acquired for use on or after Jan. 22, 1973 shall be designed and constructed in accordance with the applicable requirements of ANSI A92.2-1969 including appendix. AWP's acquired before Jan. 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after Jan. 1, 1976, unless they have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2-1969.)

   Authorized Personnel - PAS employees certified to operate an AWP and assigned to perform a specific type of duty or duties at a specific location or locations at a work site.

   AWP Train the Trainer – Individual who is authorized to perform AWP General Operator Training.

   AWP Training Center – Authorized Company to perform AWP Train the Trainer and/or AWP Operator training. (Company has to be approved by

the Regional Safety Manager)
Base - The relevant contact points of the AWP that form the stability fulcrum (e.g., wheels, casters, outriggers, stabilizers, etc.)

Chassis - The integral part of the AWP that provides mobility and support for the elevating assembly.

Competent Person - A PAS employee who, because of training and experience, is capable of identifying hazardous or dangerous conditions in use of Aerial Work Platforms.

Configuration - All positions in which an AWP or any part thereof can be placed within its intended operating limits.

Elevating Assembly - The mechanisms used to position the platform relative to the AWP chassis.

Guardrail System - A vertical barrier intended to prevent PAS Employees from falling to lower levels.

Hazardous Location - Any location that contains, or has the potential to contain, an explosive or flammable atmosphere.

Instability - the quality or state of being unstable, likely to tip over.

Insulated Platform - A platform designed and tested to meet the specific electrical insulation ratings consistent with the manufacturer's identification plate.

Interlock - A control or mechanism that, under specific conditions, automatically allows or prevents the operation of another control or mechanism.

Lanyard - a flexible line or rope, wire rope, or strap which is used to secure the body harness to a deceleration device, lifeline or anchorage.

Modification/Modified - to make a change(s), temporary or permanent, to an AWP that affects the operation, stability, safety factors, rated load or safety of the AWP in any way.

AWP Operator - A PAS Employee who has completed the AWP General Operator Training requirements and who controls the movement of the AWP.

Outriggers - Devices that increase the stability of the AWP and that are capable of lifting and leveling the AWP.

Platform - the portion of the AWP intended to be occupied by PAS Employees with their necessary tools and materials.

Platform Height - The vertical distance measured from the floor of the platform to the surface upon which the machine is supported.

Qualified Person – A PAS employee who by reason of knowledge, experience, and training is certified and familiar with the operation to be performed and the hazards involved.

Rated Work Load - the designed carrying capacity of the AWP as specified by the manufacturer.

Shall - The word "shall" is to be understood as mandatory.

Stability - The quality, state of being stable, firmly anchored, not likely to tip over.

Stabilizers - Devices that increase the stability of the AWP but are not capable of lifting or leveling the AWP.

3. **RESPONSIBILITIES**

PAS Superintendent - Responsible for the overall implementation of this procedure.

PAS Foremen –

- Ensure that the necessary training is acquired by all PAS employees performing maintenance or inspections on, working on or operating AWP's/lifts, extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers, ladder trucks, tower trucks, or any combination of such devices.

- Ensure that all PAS employees assigned to this type of work are properly trained and certified to perform the duties assigned.

Branch Safety Manager/Regional Safety Manager - Responsible to ensure that all provisions of this procedure are kept updated according to the latest OSHA requirements, that training is available for PAS Employees, and notifying management if written reports are not received.

PAS Employees - Are not to operate any AWP without having been properly trained for AWP's and have a current AWP Operator's Card. AWP Operators shall perform familiarization training and document this training on the AWP Pre-Operation Checklist. AWP Operators shall be familiar on the details of this procedure and the operating manual of the specific model aerial lift to be operated.

4. **PROCEDURE**

a) ONLY PAS employees with a current AWP Operator Card shall operate an AWP/lift, extensible boom platform, aerial ladders, articulating boom platforms, vertical towers, ladder trucks, tower trucks, or any combination of such devices. (See Training section for requirements for AWP Operator Card)

b) Each PAS branch will designate at least one employee to be the AWP Branch Coordinator.

c) AWP Branch Coordinator will complete the AWP Train the Trainer course and be the branch AWP Operator Trainer.

d) AWP Operators will perform a PAS AWP Pre-Operation Checklist prior to use each day on the AWP(s) they operate. (if two different operators operate an AWP, then there shall be two AWP Pre-Operation Checklist completed) (See Appendix 10-D)

e) AWP Operators will complete the "Familiarization before Use" on the AWP Pre-Operation Checklist prior to operating the AWP. This section shall be completed each time the AWP Pre-Operation Checklist is completed. (See Appendix 10-D)

f) AWP Operators will ensure that the AWP Operating Manual for the type of AWP they are operating and the ANSI manual are located on the AWP and they are familiar with each.

g) AWP Operators will perform an operation check of all the controls (operating and emergency) prior to operating the AWP. (This includes Emergency decent and auxiliary power).

h) All AWP's will have a reverse signal alarm audible above the surrounding noise level. In the case where the aerial lift does not have a reverse signal alarm an AWP Spotter will be used whenever the aerial lift is backing up.

i) AWP's operated in congested areas will have an AWP Spotter with the aerial lift anytime it is moving.

j) The AWP Operator will train any PAS Employees working in the area of the AWP Equipment in the "Other Training Requirements" listed on the AWP Pre-Operation Checklist. (See Appendix 10-D). This training will be documented on a PAS Safety Meeting Sign In sheet and kept with the AWP Pre-Operation Checklist.

k) The AWP Operator will ensure that the AWP Spotter is trained in accordance with the "Other Training Requirements" listed on the AWP Pre-Operation Checklist. (See Appendix 10-D). Spotter(s) name and signature will be put on the AWP Pre-Operation Checklist.

l) The AWP Operator will ensure that all occupants of the AWP will be trained in accordance with the "Occupant Training" listed on the AWP Pre-Operation Checklist. (See Appendix 10-D). Occupant(s) name and signature will be put on the AWP Pre-Operation Checklist.

m) PAS employees who are scheduled to perform routine maintenance, inspections, or to repair any aerial lift shall have received training on this procedure and on the operating manual of the specific device

PRIOR to performing any work on that device.
Note: Operating and maintenance manuals should be obtained from the manufacturer of the AWP.

n) A copy of the AWP operating manual, ANSI AWP Manual and the log of inspections shall be kept with each AWP. These documents are considered an integral part of the AWP and are vital to communicate necessary safety information to users and operators.

o) Aerial lift boom and basket load limits specified by the manufacturer shall not be exceeded.

p) NO AWP shall be modified or altered without the modifications or alterations being approved and certified in writing by the manufacture. Records of all approved modifications and alterations, including written authorization from the manufacturer for the modification or alteration, shall be kept with the AWP as part of the operating and maintenance manual. The altering or disabling of interlocks or other safety devices is prohibited.

q) ALL MANUFACTURER'S SAFETY BULLETINS shall be complied with as received from the manufacturer or dealer and copies of them kept with the AWP as part of the operating and maintenance manuals.

r) MAINTENANCE - A preventive maintenance program shall be established for each AWP in use in accordance with the manufacturer's recommendations and based on the environment and the severity of use of the AWP.

s) INSPECTIONS shall be performed by a trained AWP Operator

    1) An inspection shall be made prior to use using the PAS AWP Pre-Operation Checklist.

    2) These inspections shall be made by a person familiar with the specific make and model of the AWP.

3) The inspection shall include all items specified by the manufacturer for a frequent inspection and items listed on the PAS AWP Pre-Operation Checklist. This inspection shall include, but not be limited to the following:

   (a) All functions and their control for speed(s), smoothness, and limits of motion.

   (b) Emergency lowering mechanism.

   (c) All chain and cable mechanisms for adjustment and worn or damaged parts.

   (d) All emergency and safety devices.

   (e) Lubrication of all moving parts, inspection of filter element(s), hydraulic oil, engine oil, and coolant, as specified by the manufacturer.

   (f) Visual inspection of structural components and other critical components, such as fasteners, pins, shafts, and locking devices.

   (g) Placards, warnings, and control markings.

   (h) Items specified by the manufacturer.

   (i) Correction of all malfunctions and problems identified and further inspection, if necessary, shall be performed before the AWP is returned to service.

   (j) Written documentation of all monthly inspections shall be kept at the job site and a copy forwarded to the PAS branch superintendent.

4) Annual inspections shall be made by a person qualified as a mechanic on the specific make and model of the AWP. The inspection shall include all items specified by the manufacturer for an annual inspection.

   NOTE: This annual inspection is usually a part of the service contract on the AWP and is performed by a manufacturer's/vendors representative.

5) AWP's that are not in proper operating condition shall be removed from service until repaired. A warning tag stating "DO NOT USE" shall be attached to the control panel of the AWP.

6) Written records of all inspections shall include the deficiencies found, corrective action taken, the date of the inspection and the date of the corrective action along with the name of the person(s) performing the inspection and the corrective action. Written records shall be kept with the AWP as part of the operating and maintenance manual and a copy sent to the PAS branch superintendent.

t) MAINTENANCE SAFETY PRECAUTIONS - Before adjustments and/or repairs are started on an AWP, the following precautions shall be taken as applicable:

   1) The platform shall be lowered to the full down position, if possible, or otherwise secured by blocking and cribbing to prevent dropping.

   2) All controls shall be in the "off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.

   3) The power plant shall be stopped and "Locked Out" to prevent inadvertent starting.

4) Hydraulic oil pressure shall be relieved from all hydraulic circuits before loosening or removing hydraulic components.

5) Safety props or latches shall be installed where applicable as described by the manufacturer.

6) Any additional precautions specified by the manufacturer shall be followed.

u) REPLACEMENT PARTS - When parts or components are replaced, they shall be identical or equivalent to the original AWP parts or components.

v) AWP PRE-OPERATION CHECKLIST - Before use each day or at the beginning of each shift and change of Operator the PAS AWP Operator shall visually inspect the AWP, Complete the AWP Pre-Operation Checklist and conduct a functional test (See Appendix 10-D)

w) BEFORE OPERATION - Before authorizing a PAS employee to operate an AWP the PAS foreman shall:

1) Ensure that the employee who is to operate the AWP has a current AWP Operator card. Ensure that all others who will be working from the AWP have been properly trained on this procedure, the operating manual of the particular type of AWP to be used, and that this training has been properly documented.

2) Determine that the purpose for which the AWP is to be used is within the scope of the intended applications defined by the manufacturer.

3) Provide approved fall protection devices and other safety gear for all PAS employees who will be working on the platform.

4) Check the area in which the AWP is to be used for possible hazards such as, but not limited to:

   (a) Drop-offs or holes.

   (b) Bumps or floor obstructions.

   (c) Debris.

   (d) Overhead obstructions and high voltage conductors.

   (e) Hazardous locations.

   (f) Inadequate surface and support to withstand all load forces imposed by the AWP in all operating configurations.

   (g) Wind and weather conditions.

   (h) Presence of unauthorized persons.

   (i) Other possible unsafe conditions

x) DURING OPERATION - The AWP shall be operated in accordance with this procedure. The AWP operator shall ensure the following before each elevation of the platform:

   1) That the AWP is operated on a surface within the limits specified by the manufacturer.

   2) That the outriggers, stabilizers, extendable axles, or other stabilizing methods are used as required by the manufacturer.

   3) That guardrails are installed and access gates or openings are closed per manufacturer's instructions.

4) That the load and its distribution on the platform and any platform extension are in accordance with the manufacturer's rated capacity for that specific configuration.

5) That there is adequate clearance from overhead obstructions.

6) That the minimum safe approach distances to energized power lines are 10 feet.

7) That all safety precautions defined in this procedure and the Operating and Maintenance Manual for the particular model of AWP being used are followed during the operation of the AWP.

8) That all PAS employees maintain a firm footing, with both feet, on the platform floor while working thereon. The use of planks, ladders, or any other device on the AWP for achieving additional height or reach is prohibited.

9) Special precautions shall be taken when other moving equipment or vehicles are present to comply with local ordinances or safety standards established for the workplace. Warnings such as but not limited to: flags, roped off areas, flashing lights, and barricades shall be used.

y) REPORTING PROBLEMS OR MALFUNCTIONS - The PAS operator shall immediately report any problems or malfunctions that become evident during operation of the AWP to the supervisor. Any problems or malfunctions that affect the safety or operation of the AWP shall be repaired prior to continued use of the AWP.

z) ENTANGLEMENT - Care shall be taken to prevent rope, electric cords, hoses, etc., from becoming entangled in the AWP.

aa) CAPACITY LIMITATION - AWP rated capacities shall not be exceeded when loads are transferred to the platform at any height.

bb) WORK AREA - the PAS operator shall ensure that the area surrounding the AWP is clear of personnel and equipment before lowering the platform.

cc) FUELING - The engine shall be shut down while fuel tanks are being filled. Fueling shall be done in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

dd) BATTERY CHARGING - Batteries shall be charged in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

ee) PLATFORM POSITIONING - the AWP shall not be positioned against another object to steady the platform.

ff) MIS-USE AS A CRANE - The AWP shall not be used as a crane.

gg) OPERATING AREA - The AWP shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment, unless the application is approved in writing by the manufacturer.

hh) TRAVEL CONDITIONS - Under all travel conditions, the operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, locations of personnel, and other factors causing hazards of collision or injury to personnel.

ii) UNAUTHORIZED USE - Means shall be used to protect against use by unauthorized person(s).

jj) SHUTDOWN OF THE AWP - The PAS operator shall cease operation of the AWP in case of any suspected malfunctions, any hazard, or potentially unsafe condition that may be encountered. The AWP and/or the work area shall then be inspected and any malfunction or problem shall be corrected before further operation of the platform.

5. TRAINING

a) All PAS employees who are going to operate AWP Equipment shall be trained on this procedure and received AWP General Operator Training/ AWP Operator Card from one of the following means:

- Branch AWP Train the Trainer
- Union AWP Train the Trainer
- JLG Training center
- Sunbelt Training Center
- United Rental Training Center
- Genie Training Center
- Any other Authorized AWP Train the Trainer or Training Center (the Regional Safety Manager has to approve “Any other” before the training can be performed.

b) AWP Operator shall become familiarized with the AWP Equipment prior to use. The Familiarization Before Use will be documented on the AWP Pre-Operation Checklist and this Familiarization shall be completed on each different model of AWP equipment prior to use.

c) Only properly trained and authorized PAS employees shall be permitted to operate any AWP.

d) Only properly trained PAS employees shall be permitted to perform inspections and required maintenance of AWP’s.

e) Written records of AWP training for PAS operators shall include the PAS employees’ name, date of training, and trainer's name, topics covered and the original written test or tests taken. These records shall be maintained for three years by the PAS superintendent.

f) Re-training shall take place every three years, or when a PAS employee demonstrates less than proficiency in the operation or maintenance of AWP's.

6. **RECORD RETENTION**

a) The following records shall be maintained for a minimum of four years by the PAS superintendent at the branch main office :

1) Records of the PAS employees trained as operators of each model of AWP.

2) Records of each PAS employee trained to perform maintenance and inspections on each model of AWP.

b) The following records shall be maintained for a minimum of three years by the PAS superintendent at the branch main office:

1) Written records of the frequent and annual inspections on each AWP owned or rented by PAS. These records shall include the date of the inspection, model and serial number of the AWP platform, name and company of the person performing the inspection, any deficiencies found, and the corrective action recommended.

2) Written records of all repairs accomplished on each AWP owned or rented by PAS, including the date of the repair, a description of the work accomplished, the work order number, model and serial number of the AWP, and the identification of the person(s) performing the work.

3) Written records of inspections, repairs, modifications, alterations, and statements of manufacturer's approval for any modifications and alterations shall be maintained for three years after sale or other disposition of the AWP.

7. AWP EVALUATIONS

Aerial Work Platform Operators and Spotters will have written evaluations conducted by the Branch AWP Coordinator as outlined below.

a) AWP Operator evaluations shall be performed for each PAS AWP Operator at a minimum: (See Appendix 10-E)

- Annually
- After employee has left PAS employment for more than 6 months
- After an incident involving the operation of an AWP piece of equipment

b) AWP Spotter Evaluations shall be performed for each PAS AWP Spotter at a minimum: (See Appendix 10-F)

- Annually
- After employee has left PAS employment for more than 6 months
- After an incident involving the AWP piece of equipment that the PAS employee is performing the duties of a AWP Spotter

c) The Branch AWP Coordinator will perform an AWP Operator Evaluation on New PAS employees who received their AWP General Operating Card prior to PAS employment. If the employee does not satisfactorily pass the AWP Operator Evaluation they shall be re-trained.

8. AWP PROCEDURE REVIEW

Review of this procedure will occur annually during the PAS Corporate Safety Department Annual Policy/Procedure review meeting.

D. Fleet Passenger Vehicles

1. General. The operation of motor vehicles is primarily a miscellaneous part of our business. However, along with the operation of these vehicles comes a tremendous amount of responsibility for the safety of the driver, passengers, and the motoring public. Vehicle accidents account for needless injury and property damage. It is our intent to assure that only qualified, safe drivers operate company vehicles. Vehicle loss prevention is the responsibility of all management personnel, supervisors, and drivers.

2. Inspection Procedures

    a) The vehicle operator shall be designated as the person responsible to perform the scheduled safety inspections on his/her assigned vehicle.

    b) A formal (written) safety inspection must be performed on each vehicle at least once per month. The PAS Passenger Vehicle Inspection Checklist (Appendix 10-G) can be used for this purpose.

    c) A formal (written) safety inspection must also be performed prior to any vehicle being put back into service after an accident that resulted in physical damage. Again, the PAS Passenger Vehicle Inspection Checklist (Appendix 10-G) can be used for this inspection.

    d) A visual inspection must be conducted daily on all vehicles prior to being placed into service.

    e) Do not operate unsafe vehicles.

3. Driver Qualification

    a) All drivers must be at least twenty-one (21) years of age.

    b) All drivers must possess a valid driver's license.

    c) All drivers must have a good driving record based on their personnel MVR (Motor Vehicle Record). Motor Vehicle Records will be checked on an annual basis by the Corporate Fleet Department.

4. Driver Regulations

   a) All drivers are required to wear seat belts while operating a fleet vehicle. Also, the driver is responsible to ensure that passengers wear their seat belts.

   b) Drivers shall obey all traffic rules, drive courteously, and practice defensive driving techniques.

   c) Drivers shall maintain a valid driver's license and shall not allow other employees to use their vehicle until they verify the employee has a valid driver's license.

   d) Drivers shall notify management of:
      (1) Any change in driver's license status including suspension, revocation, or restriction
      (2) Any and all accidents that occur in a company vehicle

   e) No employee will possess a firearm in their vehicle.

   f) Drivers will not operate a company vehicle after having consumed alcohol and/or drugs including legal drugs which may impair their ability to operate the vehicle.

5. Accident Reporting

   a) Stop immediately. If possible, pull off the traveled portion of the roadway.

   b) Warn other motorists. Set out emergency flares, warning devices, etc.

   c) Check for injuries and render assistance only if immediate danger to life and health.

   d) Call the police.

   e) Get the names and addresses of witnesses.

   f) Exchange driver and vehicle information with other involved parties.

   g) Do not argue or make statements as to who is at fault.

h) Notify management immediately.

i) All vehicle accidents must be reported to the manager of Risk and Insurance at the corporate office in Lenexa. (See Auto Claim Reporting Procedures in the *Claims Manual*.)

j) The company is self-insured for physical damage. Therefore, if an employee who is assigned a fleet vehicle or driving a pool vehicle is involved in an accident where he/she is determined to be "at fault," the employee is responsible to pay the following deductible:
(1) 1st offense - $250.00
(2) 2nd Offense - $500.00
(3) 3rd Offense - $1,000.00

E. Powered Cart/Golf Cart

1. General

a) Anyone operating a powered cart must be aware of and observe safe driving rules. All drivers must be aware of vehicle operating limitations and safety protocol to prevent injuries to themselves and others.

b) Always bring the vehicle to a complete stop before operating the forward/reverse switch to change the direction of travel.

c) Never use the accelerator to hold the vehicle at a standstill, only use the brakes to hold the vehicle at rest.

d) Always use turn signals if they are available; otherwise, use hand signals.

e) When backing up, check for personnel and obstructions prior to moving. If visibility is limited, sound the horn or get a spotter.

f) Passengers are only allowed to ride on the vehicle when there is seating available. Always keep arms and legs within the vehicle when in operation.

2. Maintenance/Inspections

   a) The cart must be maintained per the manufacturer's recommendations and only by an authorized service provider.

   b) All nameplates and markings must be maintained in a legible condition.

   c) The cart must be visually inspected at the beginning of each shift prior to operation.

   d) A monthly documented inspection must be conducted. (See Powered Cart/Golf Cart Inspection Checklist, Appendix 10-H, for this purpose.)

   e) All unsafe carts must be tagged and removed from service while awaiting repairs.

3. Cart Operation

   a) Always observe a safe operating speed or, if posted, speed limits. (When these vehicles are driven downhill, they can become unstable, and the braking power is limited if safe driving speeds are exceeded.)

   b) The right of way shall be yielded to pedestrians and emergency vehicles.

   c) Slowly ascend or descend grades.

   d) Stunt driving and horseplay is not permitted.

   e) At the end of vehicle use, always set the parking brake.

TRUCK INSPECTION CHECKLIST

BRANCH _____ JOB _____ DATE _____

MAKE/MODEL _____ EQUIPMENT NO. _____

NOTE: Explain Unsatisfactory conditions under comments.

Steering Mechanism	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
General Condition & Appearance	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Lubrication	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Tires, Wheels	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Lights (All)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Horn	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Clutch	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Windshield Wipers	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Glass	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Rear View Mirrors	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Fire Extinguisher (Other Emergency Equipment)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Brakes	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Operator Licensed	☐ Satisfactory	☐ Unsatisfactory	☐ N/A

COMMENTS	CORRECTIVE ACTION	DATE

Inspected by: _____ Date: _____

Name

POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST (GAS/PROPANE)

BRANCH _____ JOB _____ DATE _____

MAKE/MODEL _____ EQUIPMENT NO. _____

NOTE: Explain Unsatisfactory conditions under comments.

Tires	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Engine & Filters	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
All Fluid Levels (Oil/Hydraulic/Transmission/ Coolant	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
All Lines & Pressure (Oil/Hydraulic)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Leaks	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Fuel & Fuel Tank	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Battery	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Forks	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Hoses/Belts/Cables/Chains	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Mast & Tilt Cylinder	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Carriage & Hoist Cylinder	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Backrest	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Name/ID Plate	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Overhead Guard	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Seat Belt	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Fire Extinguisher	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Horn/Alarms	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Lights	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Gauges/Indicators/Warning Lights	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Controls (Lift/Tilt/etc.)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Parking Brake	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Brakes	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Steering	☐ Satisfactory	☐ Unsatisfactory	☐ N/A

COMMENTS	CORRECTIVE ACTION	DATE

Inspection by: _____ Date: _____
Name

POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST (ELECTRIC/BATTERY)

BRANCH _____ JOB _____ DATE _____

MAKE/MODEL _____ EQUIPMENT NO. _____

NOTE: Explain Unsatisfactory conditions under comments.

Tires	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
All Fluid Levels (Hydraulic/Transmission)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
All Lines & Pressure	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Leaks	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Battery (Charge/Fluid Level/ Connections/Vent Holes)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Forks	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Hoses/Cables/Chains	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Mast & Tilt Cylinder	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Carriage & Hoist Cylinder	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Backrest	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Name/ID Plate	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Overhead Guard	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Seat Belt	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Fire Extinguisher	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Horn/Alarms	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Lights	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Gauges/Indicators/Warning Lights	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Controls (Lift/Tilt/etc.)	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Parking Brake	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Brakes	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Steering	☐ Satisfactory	☐ Unsatisfactory	☐ N/A

COMMENTS	CORRECTIVE ACTION	DATE

Inspection by: _____ Date: _____

Name

EVALUATING WORK AREA

		Yes	No
1.	Is the AWP correct for the job?	☐	☐
2.	Are the operator and occupant trained?	☐	☐
3.	Have you walked your work area, inspected it, and planned an evacuation route?	☐	☐
4.	Working around live systems or equipment? Stay 10 ft. away or notify someone to lockout?	☐	☐
5.	Any overhead obstructions/crushing hazards?	☐	☐
6.	Is the surface of sufficient strength to withstand all floor/ground load forces?	☐	☐
7.	Are there narrow aisles/restricted places?	☐	☐
8.	Are there ramps or other sloped surfaces?	☐	☐
9.	Are there drop-offs or holes, including those concealed by water, ice, mud, etc?	☐	☐
10.	Are there bumps or floor obstructions?	☐	☐
11.	Is debris, housekeeping an issue? If so, clean the area.	☐	☐
12.	Operating in a hazardous environment, or in a closed area to create one?	☐	☐
13.	Are there pedestrians, other moving equip., or unauthorized persons in the area?	☐	☐
14.	Are barricades or traffic control required?	☐	☐
15.	Are spotters needed and are they trained?	☐	☐
16.	Will wind/weather conditions be a factor? If so, wind limited to 25-28 mph.	☐	☐
17.	Work plan coordinated with all crafts in area?	☐	☐
18.	Other possible unsafe conditions?	☐	☐

ARE ANY OF THE FOLLOWING REQUIRED?

	Yes	No
Work Permit	☐	☐
Lock Out/Tag Out Permit	☐	☐
Hot Work Permit	☐	☐
Fall Protection PPE	☐	☐
• Lanyard	☐	☐
• Double Lanyard	☐	☐
• SRL	☐	☐
Tool Lanyard	☐	☐
Signage	☐	☐

Special training required for this task?

• Fall Protection	☐	☐
• Spotter Training	☐	☐
• Permits/Protocol	☐	☐

FAMILIARIZATION BEFORE USE

		Yes	No
1.	Knows location of manual storage compartment?	☐	☐
2.	Knows location of and is familiar with the Operators and ANSI manuals?	☐	☐
3.	Understands the purpose and function of all controls, placards and warnings?	☐	☐
4.	Is aware of and understands all safety devices and operating characteristics specific to the model of AWP being used?	☐	☐

PAS
PERFORMANCE ABATEMENT SERVICES

Daily AWP Pre-Operation Checklist

Branch: _____

Job Site/No.: _____

Date: _____

Make and Model: _____

Identification No.: _____

Operator

Name: _____

Signature: _____

Occupant

Name: _____

Signature: _____

Spotter / Others

Name: _____

Signature: _____

AWP INSPECTION CHECKLIST

VISUAL CHECKS

		S	U	N/A
1.	Overall cleanliness	☐	☐	☐
2.	Operators and ANSI Responsibilities Manual	☐	☐	☐
3.	Safety Devices	☐	☐	☐
4.	Personal Protective Devices	☐	☐	☐
5.	Air System / Leaks	☐	☐	☐
6.	Hydraulic System Level / Leaks	☐	☐	☐
7.	Battery Connections	☐	☐	☐
8.	Fuel Level / Battery Charge Level	☐	☐	☐
9.	Fuel Leaks	☐	☐	☐
10.	Engine Oil Level / Leaks	☐	☐	☐
11.	Cables & Wiring Harness	☐	☐	☐
12.	Loose / Missing Parts	☐	☐	☐
13.	Tires / Wheels	☐	☐	☐
14.	Placards / Decals, Warning, Control Markings	☐	☐	☐
15.	Outriggers, Stabilizers, Extendable Axels & Other Structures	☐	☐	☐
16.	Guardrail System	☐	☐	☐
17.	Mast / Bucket Condition	☐	☐	☐
18.	Fire Extinguisher	☐	☐	☐
19.	Items Specified by Manufacturer	☐	☐	☐

OPERATIONAL / FUNCTIONAL CHECKS

		S	U	N/A
1.	Check Surroundings for Hazards	☐	☐	☐
2.	Ground Controls	☐	☐	☐
3.	Platform Controls	☐	☐	☐
4.	Horn	☐	☐	☐
5.	Hazard Warning Signal	☐	☐	☐
6.	Steering	☐	☐	☐
7.	Hydraulic Controls	☐	☐	☐
8.	Travel Controls	☐	☐	☐
9.	Outriggers / Stabilizers / Extendable Axels	☐	☐	☐
10.	Load / Capacity Charts	☐	☐	☐
11.	Brakes	☐	☐	☐
12.	Power / Emergency Stop	☐	☐	☐
13.	Guardrails / Gates / Chains	☐	☐	☐
14.	Emergency Descent / Auxiliary Power	☐	☐	☐
15.	Appropriate Safety Gear for Work / Environment	☐	☐	☐

S = Satisfactory U = Unsatisfactory

Note: Fields marked "U" must be reported to your foreman and the AWP taken out of service and tagged "DO NOT OPERATE" for those fields affecting major operational components

Inspected by Information:

Name:_____

Signature: _____

Time & Date:_____

OCCUPANT TRAINING

1. The purpose and use of the manuals and where they are storec
2. Responsibilities associated with problems or malfunctions affecting the operation of the AWP
3. Factors affecting stability
4. The purpose of placards and decals
5. Workplace inspection
6. Safety Rules and regulations
7. The nature of any electrical hazards, fall hazards and falling object hazards in the work area
8. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection system and falling object protection systems being used
9. The proper use of the AWP, and the proper handling of materials on the AWP
10. The maximum intended load and the load carrying capacities of the AWP
11. Appropriate PPE for the conditions / environment
12. Emergency decent / auxiliary power
13. Anything else pertinent:

_____

OTHERS TRAINING REQUIREMENTS

(Those not directly involved with the operation of the AWP)

1. Emergency Decent / Auxiliary Power / Ground Controls or other methods to lower AWP
2. Electrical contact hazards and precautions should the AWP become electrified
3. Barricades and staying away from the AWP
4. Hazards of a moving and lowering AWP and falling objects

PAS
PERFORMANCE
ABATEMENT SERVICES

Aerial Work Platform Operator Evaluation Form

Operator's Name: _____ **Equipment Type:** _____

Make: _____ **Model:** _____ **Serial No.** _____

Administered By: _____ **Date:** _____

PRE-SHIFT INSPECTIONS	SAT	UNSAT	N/A	Remarks
Workplace Inspection				
Operating & Emergency Controls				
Safety & Personal Protective Devices				
Leaks - Hydraulic, Air, Fuel				
Cables and Wiring Harness				
Loose and Missing Parts				
Tires and Wheels				
Warning Decals & Op. Manual				
Stabilizers, Outriggers & Ext. Axles				
Guardrail Systems				

OPERATING SKILLS	SAT	UNSAT	N/A	Remarks
Site Inspection Prior to Travel				
Smooth Starts				
Hits or Bumps a Fixed Object				
Correct Direction Selection				
Good Grip on the Controls				
Maintains Firm Footing				
Looks in the Direction of Movement				
Operates at Reasonable Speed				
Cautious at Corners & Intersections				
Observes Traffic Regs. & Signs				
Warns Other of Approach (Horn)				
Starts Turn in Proper Position				
Allows for Rear End Swing				
Platform Loading Within Limits				
Check s Rear Before Backing				
Machine is Level Before Raising				
Uses Boom Function to Position				
Is Aware of Stopping Distances				
Is Aware of Ramping				

PARKING	SAT	UNSAT	N/A	Remarks
Unit Parked in a Safe Area				
Lowered to Stowed Position				
Power off and Key Removed				
Fuel Valve Turned Off				

GENERAL SAFETY	SAT	UNSAT	N/A	Remarks
Aware of Overhead Clearances				
Slope & Grade Driving Technique				
Recognizes Work Site Hazards				
Uses Personal Protective Devices				

PAS
PERFORMANCE
ABATEMENT SERVICES

Aerial Work Platform Spotter Evaluation Form

Spotter's Name: _____ **Equipment Type:** _____

Make: _____ **Model:** _____ **Serial No.** _____

Administered By: _____ **Date:** _____

PRE-SHIFT INSPECTIONS	SAT	UNSAT	N/A	Remarks
Workplace Inspection				
Operating & Emergency Controls				
Safety & Personal Protective Devices				
Leaks - Hydraulic, Air, Fuel				
Cables and Wiring Harness				
Loose and Missing Parts				
Tires and Wheels				
Warning Decals & Op. Manual				
Stabilizers, Outriggers & Ext. Axles				
Guardrail Systems				

GENERAL SAFETY	SAT	UNSAT	N/A	Remarks
Aware of Overhead Hazards				
Slope & Grade Driving Hazards				
Communication system will be:				
Radio				
Signaling				
Voice				
Uses Personal Protective Devices				
Recognizes Work Site Hazards				

PARKING	SAT	UNSAT	N/A	Remarks
Unit Parked in a Safe Area				
Lowered to Stowed Position				
Power off and Key Removed				
Fuel Valve Turned Off				

_____ _____

Print Name **Sign Name**

PASSENGER/VAN INSPECTION CHECKLIST

BRANCH _____ JOB _____ DATE _____

YEHICLE, YEAR/MAKE _____ EQUIPMENT NO. _____

NOTE: Explain Unsatisfactory conditions under comments.

Brakes (Pedal Pressure)	☐ Satisfactory	☐ Unsatisfactory
Both Tail Lights	☐ Satisfactory	☐ Unsatisfactory
Windshields and Wipers	☐ Satisfactory	☐ Unsatisfactory
Horn	☐ Satisfactory	☐ Unsatisfactory
Turn Signals	☐ Satisfactory	☐ Unsatisfactory
Back-Up Lights	☐ Satisfactory	☐ Unsatisfactory
Both Headlights	☐ Satisfactory	☐ Unsatisfactory
Tires	☐ Satisfactory	☐ Unsatisfactory
Brake Lights	☐ Satisfactory	☐ Unsatisfactory

NOTE: This checklist is not intended to replace extensive mechanical inspections. The vehicle operator is responsible for the safe operation of his/her vehicle. This checklist describes the general operating condition of the vehicles surveyed at the time and date indicated above.

COMMENTS	CORRECTIVE ACTION	DATE

Inspection by: _____ Date: _____
Name

POWERED CART/GOLF CART INSPECTION CHECKLIST

BRANCH _____ JOB _____ DATE _____

MAKE/MODEL _____ EQUIPMENT NO. _____

NOTE: Explain Unsatisfactory conditions under comments.

Battery Plug Connection & Cord	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Charge Indicator Status	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Brakes	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Parking Brake	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Horn	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Headlights/Brake Lights	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Cab Exterior	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Tires/Wheels	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Forward/Reverse	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Back-Up Alarm	☐ Satisfactory	☐ Unsatisfactory	☐ N/A
Steering	☐ Satisfactory	☐ Unsatisfactory	☐ N/A

IMPORTANT – Always check for mud on brake assembly.

COMMENTS	CORRECTIVE ACTION	DATE

Inspection by: _____ Date: _____
Name

SECTION ELEVEN
OFF-THE-JOB SAFETY

An off-the-job safety program is essentially one that deals with the employees when they're not at work. The principle aim of an off-the-job safety program is to get the employees to follow the same safe practices in their outside activities as they used on the job. The off-the-job safety program should not be a separate program but rather an extension of the corporation's on-the-job safety program.

One of the basic reasons for any company to become involved in an off-the-job safety program is cost. Operating cost and production schedules are affected as much when employees are injured away from work as when they are injured on the job. Although accidents occur off the job, a large part of the cost is borne by the employer. Some of these costs are direct and some are hidden.

The approach to an off-the-job safety program should not be negative: "Don't do this" or "Don't participate in that activity," but should instead be positive. This can be done by pointing out that any activity can be performed safely if the employees only think through the activity first, find out what hazards are involved, take instruction if needed, and use the correct procedures and equipment. Off-the-job safety programming activities should be kept seasonal, if at all possible, to help create interest and obtain effectiveness. Employees are generally more receptive to subjects when they coincide with their normal routine. Also, many local gun clubs, powerboat clubs, the Red Cross, YMCA, health, police, and fire departments have proven to be of valuable assistance in promoting off-the-job safety. Lockton also has many types of off-the-job safety handout materials.

There are three major benefits that Performance Abatement Services, Inc., can realize by expanding its safety program to include off-the-job safety:

1. Reduction in lost production time and operating cost

2. Efforts in off-the-job safety can increase interest in on-the-job safety

3. Better public relations

Changing employees' safety attitude is an essential goal of the PAS Accident Prevention Program. Instituting an off-the-job safety program will assist in our obtaining this goal. No asset is more important to the corporation than the employees. They must be given a safe place to work with an incentive to be safe on and off the job.

SECTION TWELVE
MISCELLANEOUS

A. Ceiling Renovation Work

Many of you are involved in renovation work that requires new suspended ceilings to be installed. The problem is that in buildings built prior to 1980 there may be asbestos present. An asbestos survey, also known as a good faith survey, must be completed or caused to be completed by the owner and any asbestos containing material must be removed or encapsulated prior to us performing any work in the area.

The following procedures have been developed to address this situation and to avoid disturbing asbestos-containing materials:

1. Prior to the start of any work:

    a) A good faith survey must be completed by the owner of the structure. Surveys require removal of the suspect material by a qualified person and for the material to then be tested for asbestos content by a qualified laboratory.

2. If asbestos is present:

    a) The asbestos in the work area must be abated by certified abatement contractor.

    b) Upon completion of the removal, we must receive a laboratory report indicating the area is and that the asbestos has been removed. Our people can proceed with work under normal conditions

B. California Safety Requirements CAL-OSHA

1. Overview. Existing law requires every employer to furnish a place of employment which is safe and healthful for the employees therein, to furnish and use safety devices and safeguards, to adopt and use practices, means, methods, operations, and processes which are reasonably adequate to render the employment and the place of employment safe and healthful, and to do every other thing reasonably necessary to protect the life, safety, and health of employees. Employers

are prohibited from discharging or discriminating against an employee for participating in an occupational health and safety committee. The Division may include an evaluation of the employer's injury prevention program (our *Accident Prevention Plan*) using specific criteria, and to include an evaluation of other specified conditions during any inspection. California Code of Regulations, Title 8 requires that each citation received be prominently posted at or near the place of the violation. Title 8 also requires the employer, whenever a serious violation is not abated at the time of the inspection, to submit a signed statement that it has complied with the abatement terms and CAL-OSHA may reinspect to verify completion of the abatement action.

2. Discharge or Discrimination

   a) No employer shall discharge or in any manner discriminate against any employee because the employee has done any of the following:
      (1) Made any oral or written complaint to the Division, other governmental agencies having statutory responsibility for or assisting the Division with reference to employee safety or health, his or her employer, or his or her representative
      (2) Instituted or caused to be instituted any proceeding under or related to his or her rights or has testified or is about to testify in the proceeding or because of the exercise by the employee on behalf of himself, herself, or others of any rights afforded him or her
      (3) Participating in an occupational health and safety committee

   b) Any employee who is discharged, threatened with discharge, demoted, suspended, or in any other manner discriminated against shall be entitled to reinstatement and reimbursement for lost wages and work benefits caused by our acts.

   c) These specific Title 8 requirements are in addition to our established procedures in Section Five – Governmental Regulation Compliance.

3. CAL-OSHA Inspections. Every inspection conducted by the Division may include an evaluation of the employer's injury prevention program (our *Accident Prevention Plan*) including interviews with employees. Inspections also shall include an evaluation of the following:

   a) Condition or conditions alleged in a complaint

b) Condition or conditions involved in a serious accident

c) Condition or conditions related to significant safety or health hazards in high hazard industries - Construction is one of these industries.

d) These specific Title 8 requirements are in addition to our established procedures in Section Five – Governmental Regulation Compliance.

4. Title 8, Section 332.4, Violation Posting Requirements

a) Each citation, special order, or action orders, or a copy or copies thereof, shall be prominently posted, at or near each place a violation referred to in the citation occurred. All postings shall be maintained for three working days or until the unsafe condition is abated, whichever is longer.

b) When the Division verifies abatement of a serious violation or an order at the time of inspection or upon re-inspection, the employer shall post a notice prepared by the Division for three working days. In all other cases of abatement of serious violations, the employer shall post the signed statement confirming abatement.

b) These specific Title 8 requirements are in addition to our established procedures in Section Five – Governmental Regulation Compliance.

5. Title 8, Proposed Penalty Structure (Article 4)

a) Sections 335 and 336 of the penalty structure establishes factors and conditions which affect the penalty dollar value. These factors include:
(1) The size of the business of the employer being charged
(2) The gravity of the violation
(3) The good faith of the employer
(4) The history of previous violations

b) Any employer who violates any occupational safety or health standard and the violation is specifically determined not to be of a serious nature, a civil penalty may be assessed up to seven thousand dollars ($7,000) for each violation.

c) Any employer who violates any occupational safety or health standard and the violation is a serious violation; a civil penalty shall be assessed up to seven thousand dollars ($7,000) for each violation.

d) Any employer who fails to correct a violation of any occupational safety or health standard within the period permitted for its correction shall be assessed a civil penalty of not more than one thousand dollars ($1,000) for each day during which the failure or violation continued. If the violation is a serious violation, the civil penalty assessed shall not be more than two thousand dollars ($2,000) for each day during which the violation continued. Repeat and willful violations are subject to fines up to $70.000.

e) These specific Title 8 requirements are in addition to our established procedures in Section Five – Governmental Regulation Compliance.

6. Title 8, Section 341, Permit Requirements

a) For those employments or places of employment which by their nature involve a substantial risk of injury, the Division shall require the issuance of a permit prior to the initiation of any work, practice, method, operation, or process of employment. Such employment or places of employment shall be limited to:
(1) Construction of trenches or excavations which are five (5) feet or deeper and into which a person is required to descend
(2) The construction of any building, structure, scaffolding or falsework more than three (3) stories high or the equivalent height
(3) The demolition of any building, structure, or the dismantling of scaffolding or falsework more than three (3) stories high or the equivalent height

NOTE: For the purpose of this section, a story shall be deemed to be 12 feet in height.

b) For additional permit requirements and a copy of the permit application see the California Division of Occupational Safety and Health Requirements for: Permits, Registrations, Certifications, and Notifications.

7. Title 8, Section 3203, Program Requirements. Every employer shall establish, implement, and maintain an effective injury prevention program. The program shall be written and shall include, but not be limited to, the following elements:

   a) Identification of the person or persons responsible for implementing the program. (See PCG Corporate Safety Policy, PCG-101, "Responsibility.")

   b) The employer's system for identifying and evaluating workplace hazards, including scheduled periodic inspections to identify unsafe conditions and work practices. See Section Two – Hazard Identification/Evaluation/Control for inspection requirements on:
   (1) Informal inspections
   (2) Formal inspections
   (3) Insurance company inspections
   (4) Corporate inspections

   c) The employer's methods and procedures for correcting unsafe or unhealthy conditions and work practices in a timely manner. (See Section Two – Hazard Identification/Evaluation/Control.)

   d) An occupational health and safety training program designed to instruct employees in general safe and healthy work practices and to provide specific instruction with respect to hazards specific to each employee's job assignment.
   (1) In addition to the requirements in Section Seven – Safety Regulations and Procedures, Section Nine – Training and Motivation, and the *Safety Handbook*, pre-job safety briefings shall be conducted.
   (2) Safety Briefings
   (a) Based upon his or her pre-job safety planning activities, the superintendent shall brief the job foreman on known hazards to be encountered during work operations and the safeguards, engineering controls, personal protective equipment, and work practices to be used to control them. Where necessary, all of the requirements of Section Seven – Safety Regulations and Procedures will be implemented.
   (b) Prior to the initiation of each job, the foreman shall brief employees on the nature of the work to be performed, the known hazards associated with it and the safety measures that

will be used to control them. Particular attention shall be paid to unique hazards, unusual site conditions, and/or infrequently used equipment, materials or processes. Where necessary, all of the requirements of Section Seven – Safety Regulations and Procedures will be implemented.

(c) In addition to the HAZ-COM training documentation, each superintendent and foreman shall document "Safety Briefings" in their diary.

e) The employer's system for communicating with employees on occupational health and safety matters, including provisions designed to encourage employees to inform the employer of hazards at the worksite without fear of reprisal.

(1) In addition to the requirements of Section Nine – Training and Motivation, all employees must be encouraged to inform our field supervisors of hazards at the worksite without fear of reprisal.

(2) At the completion of each tool box safety meeting, we will encourage our employees to express their safety concerns, suggestions, and recommendations. These will always be given prompt and serious consideration.

(3) During our safety meetings, employees will be informed that the company is committed to open communication on safety matters and that under no circumstances will any employee be disciplined or subjected to any other form of reprisal for reporting unsafe conditions or offering safety suggestions to the company.

f) The employer's system for ensuring that employees comply with safe and healthy work practices, which may include disciplinary action.

(1) The *Accident Prevention Plan* addresses safety incentive programs and disciplinary actions. Both of these items address the requirement.

(2) The employer shall correct unsafe and unhealthy conditions and work practices in a timely manner based on the severity of the hazard.

(3) In addition to the established requirements in Section Two – Hazard Identification/Evaluation/Control, where possible, hazardous conditions shall be corrected immediately. Temporary control measures shall be implemented whenever hazards cannot be immediately corrected and shall remain in place until permanent corrective action is taken. If an imminent hazard is detected which cannot be abated without endangering employees and/or property,

all exposed personnel except those necessary to correct the condition shall be removed from the area. Employees designated to correct the condition shall be provided with all the necessary safeguards.

(4) The employer shall train all employees when the training program is first established, all new employees, and all employees given a new job assignment, and shall train employees whenever new substances, processes, procedures, or equipment are introduced to the workplace and represent a new hazard, and whenever the employer receives notification of a new or previously unrecognized hazard. (See Section Nine – Training and Motivation.)

8. General Recommendations

   a) Review the contents of the *Accident Prevention Plan* with all employees in a tool box safety meeting. Document the training. I would suggest you hand out a copy of the manual's index to each employee so they can become familiar with the safety regulations addressed in the manual.

   b) A current copy of the Accident Prevention Plan is available on the PCG information system for each supervisor to review when needed.

   c) Copies of the manual are available on CD if needed.

C. Nevada Required Safety Committee

1. On all Nevada state jobs with 25 or more employees, a safety committee shall be established. For small jobs, those with 24 or fewer employees, a safety committee is recommended but is not mandatory.

2. Safety Committee Requirements

   a) The safety committee is to be composed of equal numbers of management and employee representatives. The employee representatives are to be selected by the employees.

   b) The safety committee's purpose is to reduce the number of workplace injuries and illnesses. Their activities include but are not limited to:
   (1) Inspecting the job site to identify hazards
   (2) Investigating all accidents and near misses

(3) Reviewing and updating the written safety program as necessary
(4) Reviewing recommendations and suggestions to improve the safety program
(5) Reviewing and evaluating work practices, equipment operations, and site conditions for appropriate safety measures

c) The committee shall meet on a regular, periodic basis commencing the first week of the project and monthly thereafter. The site manager should attend the initial meeting and will provide ongoing support to ensure appropriate commitment to the committee's function. A written agenda and meeting minutes are required for each meeting. These records are to be retained in the permanent job file.

d) Members of the safety committee are to receive training sufficient to be able to effectively complete their tasks. Training minimums include instruction in hazard identification, use of safety inspection forms, accident investigations, and the use of the PAS accident investigation form.

d) Committee actions and recommendations are to be given to the site manager and communicated to the employees. The site manager will provide his response, in writing, to these reports within one week. Additionally he will provide administrative support, as required, for record keeping.

D. Fall Protection Program (Washington State Only)

1. Objectives. Performance Abatement Services, Inc.'s (PAS) Fall Protection Program (FPP) shall be implemented and maintained at all job sites where employees are exposed to the hazard of falling from a location six (6) feet or more in height. PAS shall ensure that fall restraint or fall arrest systems are provided, installed, and employed to protect our personnel from serious injury for all exposures 6 feet and over unless specific exception exists (see ladders) WAC 296-155-24501.

2. Management Responsibility. PAS's superintendent will designate a competent person (usually the foreman) who is capable of identifying existing and potential fall hazards; is knowledgeable of fall protection equipment, its use, inspection, and maintenance; and has authority to take prompt action to eliminate hazards. The competent person will be responsible for securing the necessary equipment; ensuring that it is

installed by competent journeymen-level employees according to manufacturers' instructions; providing for training of employees; keeping required documentation of training at the job site; and administering PAS's Fall Protection Program.

3. Employee Responsibility. Each employee shall be responsible to cooperate with PAS's designated competent person and other employees in following prescribed means and methods of use, inspection, and maintenance, and complying with all directives to minimize injuries caused by falls. Failure to comply with directions given by the competent person or to wear the required personal protective equipment can be considered grounds for termination.

4. Fall Protection Work Plan

   a) PAS's designated competent person shall implement the FPP on each job site where a fall hazard of 6 feet or more exists.

   b) The Site Fall Protection Plan checklist (Appendix 12-A) shall identify all fall hazards in the work area.
      (1) The checklist shall be prepared prior to commencement of PAS's work at each job site.
      (2) The checklist shall indicate the method(s) of fall restraint and/or fall arrest to be provided. Description of the methods and procedures PAS will implement are contained in the applicable section(s) of the FPP.
      (3) The checklist shall indicate any specific hazards which are unique to the job site and not listed in this plan, and describe the method(s) of fall protection to be employed.

5. Fall Restraint Systems

   a) Standard Guardrails
      (1) PAS prefers the use of standard guardrails whenever possible.
      (2) Standard guardrails shall consist of top rail, intermediate rail, toeboard and posts, conforming to WAC 296-155-505.

   b) Body Harnesses and Restraint Lines
      (1) Body harnesses shall conform to ANSI standards for Class I, II, III, or IV. A body belt (Class I) may be used with restraint lines for fall restraint only.

(2) Restraint lines shall be rigged to allow the movement of employees only as far as the sides and edges of the walking/working surface.
(3) Anchorage points used for restraint lines shall be capable of supporting four times the intended load.
(4) PAS's competent person shall ensure that all components are compatible and used per the manufacturer's instruction.
(5) All components of the fall restraint system shall be inspected prior to each use for wear, damage, or other deterioration, and defective components shall be removed from service.

6. Fall Arrest Systems

a) Full Body Harness (Class III)
(1) Body harness system shall be rigged to minimize free-fall distance with a maximum free-fall distance of six (6) feet, and such that the employee will not contact any lower level.
(2) Full body harness systems shall be secured to anchorages capable of supporting 5,000 pounds per employee.

Exception: When self-retracting lifelines or other deceleration devices are used which limit free-fall to two (2) feet, anchorages shall be capable of supporting 3,000 pounds per employee.

(3) Horizontal lifelines (catenary or static line) shall be designed, installed, and used under the supervision of a qualified person. These lines must maintain a safety factor of at least two.
(4) Vertical lifelines (droplines) shall have a minimum tensile strength of 5,000 pounds, and no more than one employee shall be attached to any one lifeline.

Exception: Self-retracing lifelines and lanyards, which automatically limit free-fall distance to two (2) feet or less, shall have a minimum tensile strength of 3,000 pounds.

(5) The body harness shall be connected to the vertical lifeline by approved means. All lifelines shall be protected against being cut or abraded.
(6) PAS's competent person shall ensure that all components of the fall arrest system are compatible and used per the manufacturer's instructions.

(7) All components of the fall arrest system shall be inspected prior to each use for wear, damage, or other deterioration, and defective components shall be removed from service.
(8) Body harness system or components, subject to impact loading, shall be immediately removed from service and not reused unless inspected and determined by a competent person (manufacturer's representative) to be undamaged and suitable for reuse.

b) Safety Nets
(1) On job sites where safety nets are installed by other contractors, PAS's competent person shall verify that the nets are properly installed prior to allowing PAS employees to work in the area.
(2) Contact the Safety Department for instructions if you are contemplating installing safety nets.

7. Guarding Low-Pitched Roof Perimeters

a) During the performance of work on low-pitched roofs with a ground-to-eaves height greater than six (6) feet, employees shall be protected from falling from the unprotected sides and edges by one or more of the following means:
(1) By installation of guardrails
(2) By use of safety net systems
(3) By use of a fall restraint or fall arrest system
(4) By use of a warning line system in compliance with 29 CFR 1926.502 and WAC 296-155-24505. Contact the Safety Department for instructions prior to installing a warning line system.

b) Protection From Falling Objects. Falling object protection shall comply with provisions in Section Seven M of this manual.
(1) Materials shall not be stored within 10 feet of the roof edge or six (6) feet of a hoistway or floor opening unless guardrails are installed. Stored materials shall be secured by adequate means to prevent them from falling on employees working below due to wind, vibration, or other causes.
(2) Tools and equipment shall be secured by appropriate means to prevent them from falling from the roof edge and injuring employees working below.

c) Hoist Area. Each employee in a hoist area shall be protected from falling 10 feet or more by guardrail systems, full restrain, or full arrest

systems. If guardrail systems are removed to facilitate the hoisting operation, that employee shall be protected from fall hazards by a personal fall arrest system.

8. Leading Edge Control Zone. Leading edge means the advancing edge of a floor or roof which changes location as additional floor or roof sections are placed.

   a) The leading edge control zone shall begin a minimum of six (6) feet back from the leading edge.

   b) The control zone shall be separated from other areas by erection of a warning line system as required by 29 CFR 1926.502(g)and WAC 296-155-24520.

   c) All employees required to work in the control zone shall be protected from fall hazards by a positive fall restraint or fall arrest system.

9. Safety Monitor System

   a) PAS does not recommend the use of the safety monitor system, described in 29 CFR 1926.502(h) and WAC 296-155-24521 for our employees.
   b) Contact the Safety Department for further information.

10. Fall Protection Standards for Equipment

   a) Ladders
      (1) Tie off is required for work from ladders for fall exposures over six (6) feet unless the work is of short duration and does not involve strenuous unusual activity.
      (2) Any work that requires wearing eye protection, respirators, or handling of pressure equipment, shall not be performed from a ladder more than 25 feet above the surrounding surface. See WAC 296-155-480.

   b) Suspended Scaffolds, Boatswain's Chair, Needle Beam Scaffold and Float or Ship Scaffolds (WAC 296-155-484)
      (1) Each employee shall be protected by a Class III full body harness attached to a dropline or lifeline. The attachment point of the lifeline to the structure shall be appropriate changed as the work progresses.

(2) Lifelines and other equipment shall comply with applicable section of WAC 296-155-483.

c) Ladder Jack Scaffolds. Where it is impractical to use standard guardrails, safety harness and lifelines shall be used complying with applicable sections of WAC 296-155-484.

d) Self-Propelled Elevating Work Platforms (Scissor Lifts) WAC 296-155-488
(1) Platform shall have the guardrail installed on all sides and gate chains fastened before elevating.
(2) In the event that the guardrail must be removed from any side due to the work operation being performed, employees working on the platform shall use applicable fall arrest systems described in WAC 296-155-24505

e) Boom-Supported Elevating Work Platform (JLG's, Snorkel Lifts, etc.) WAC 296-155-489 boom supported elevating work platform
(1) All occupants shall wear a full body harness and connect lanyard to attachment points provided and approved by the manufacturer.
(2) Occupants shall maintain a firm footing on the platform. Use of railings, planks, ladders, or any other device on the platform to gain additional working height is prohibited.

f) Forklift/Crane Elevated Platform WAC 296-155-615
(1) Employees occupying the platform shall use a full body harness system with lanyard anchored to a structural member within the platform capable of supporting a fall impact for all employees using the anchorage. On crane-elevated platforms, the lanyard may be attached to the lower load block or overhaul ball.
(2) Fall arrest systems shall comply with WAC 296-155-24505.

11. Assembly, Maintenance, Inspection, Disassembly, and Storage of Fall Protection Systems

a) Assembly, maintenance, inspection, disassembly, and storage of fall protection equipment shall be done under the direction of PAS's competent person.

b) Assembly of Equipment

(1) Equipment will be assembled, per the manufacturer's written instructions, by competent journeymen-level employees working under the direction of PAS's competent person.
(2) If there is any question that an anchorage point may not support the specified load, it shall not be used unless PAS's competent person first secures the services of a registered professional engineer. The engineer must be qualified to calculate the loads involved and certify that the anchorage point is capable of sustaining the required load.

c) Maintenance and Inspection
(1) Equipment shall be maintained per the manufacturer's instruction.
(2) Equipment shall be inspected prior to each use per the manufacturer's instructions. Any components that exhibit signs of wear, damage, or other deterioration shall be removed from service if their function or strength has been adversely affected.
(3) Equipment shall be maintained and inspected by competent journeymen-level employees, under the direction of PAS's competent person.

d) Disassembly and Storage
(1) System components shall be disassembled and inspected prior to storage by competent journeymen-level employees, under the direction of PAS's competent person.
(2) System components shall be stored where they will not be subject to damage or deterioration.

12. Rescue of Injured Workers. Complete the Rescue of Injured Worker section of the Site Fall Protection Plan (Appendix 12-A).

a) Contact municipal or plant emergency rescue squad. When practical, wait for trained rescue personnel.

b) First-aid trained personnel should try to determine nature of the injuries and decide if the injured worker is in a position to wait for trained rescue personnel.

c) If available, a lift or manbasket will be raised to the injured employee along with first-aid trained personnel.

d) If a lift or manbasket is not immediately available and it is determined the employee's injuries will permit, and he/she can be safely moved, the employee will be lowered to the next level.

e) If injuries prevent lowering the injured employee, another employee will be lowered to assist the injured until trained rescue personnel arrive.

13. Training

a) Orientation
   (1) All employees will receive orientation and training by a competent person in the application, use, care, and inspection of fall protection equipment prior to the employee working in areas where use of such equipment is required.
   (2) Training shall include an explanation of PAS's Fall Protection Program, explanation of manufacturers' requirements for equipment to be used, and an explanation of recognized fall hazards at the job site.
   (3) Training shall include instruction in correct procedures for handling, storage, and securing of tools and materials.

b) Additional Training
   (1) Updates will be given at tool box safety meetings concerning changes in job site conditions or equipment to be used.
   (2) Manufacturer's revised instruction will be reviewed when received.

c) Documentation
   (1) All employee orientation shall be documented on PAS's Safety Meeting Report (Appendix 9-A) form. The subjects and/or systems for which training was given must be listed and the names of those in attendance recorded. One copy is to be kept at the job site and one copy sent to the office.
   (2) Fall protection plan subjects discussed at the weekly tool box safety meeting must be documented on the report and a copy kept at the job site.
   (3) All documentation relating to the FPP must be available on each job site for inspection by the Department of Labor and Industries.

E. Site Fall Protection Plan Directions

Implement a mandatory written fall protection plan on all jobs. Elements of each fall protection plan:

1. The superintendent will maintain a current list of the fall protection competent persons. The designation of competent person requires the following minimum training is completed by either the General Manager, Labor Superintendent, or a member of the Safety Department.

   a) Hazard identification

   b) Personal protective equipment

   c) Scaffold protection

   d) Fall protection

   e) Power lift equipment

2. This training must be documented using the Safety Meeting Report form (Appendix 9-A).

3. Each “large” job foreman shall ensure that a written, job specific fall protection plan is ready for implementation prior to the start of any large job. The foreman should always be designated the competent person. Ample copies of the Site Fall Protection Plan (Appendix 12-A) shall be maintained in the foreman’s “safety box” or job site notebook. As the competent person, the foreman shall conduct training prior to job start on:

   a) The nature of fall hazards on this job

   b) The correct procedures for erecting, maintaining, disassembling and inspecting the fall protection system

   c) The use and operation of guardrail and personal fall arrest systems - (Use of safety net systems, warning line systems, safety monitoring systems and controlled access zones require written approval from the General Manager.)

d) The correct procedures for the handling and storage of all site equipment and materials

e) The correct procedures for providing overhead protection for workers passing under/through the area

f) Complete the materials list as indicated on the Site Fall Protection Plan (Appendix 12-A). Indicate the initial quantities required:
   (1) Harnesses
   (2) Ladders
   (3) Cables
   (4) Retracing lifelines
   (5) Lanyards
   (6) Ropes
   (7) Rope grab devices
   (8) Other

g) Name the person(s) responsible for equipment inspections

h) Complete the Site Fall Protection Plan (Appendix 12-A) form. Satisfactory completion of this document is intended to ensure completion of required training, acquire necessary equipment for the fall plan, implement a system on site for proper inspection of the equipment, and identify resources which may be necessary for handling emergency situations.

i) In those events where the site competent person can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment and procedures, the competent person may develop an independent plan that conforms to the following provisions. The Site Fall Protection Plan II (Appendix 12-B) is to be used to satisfy this requirement. (This site-written plan would be necessary regardless of the size of the job.)
   (1) The fall protection plan shall be prepared by a competent person and it must be site specific. This plan must be maintained up-to-date to reflect changing site conditions.
   (2) All changes in the program must be approved by the competent person.
   (3) A copy of the plan shall be maintained and posted (if feasible) at the job site.

(4) The implementation of the plan shall be under the supervision of a competent person.
(5) The plan shall document the reasons why the use of conventional fall protection systems, fall arrest systems, or safety net systems are infeasible or why their use would create a greater hazard.
(6) The plan must explain the other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.
(7) The plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones.
(8) The plan shall include the names of each employee who is designated to work in controlled access zones.
(9) In the event an employee falls, the company shall investigate the circumstances to determine if the fall protection plan needs to be changed.

4. Definitions. The fall protection definitions applicable to this section are listed in Appendix 12-C.

5. Implementation of this additional activity should result in fewer fall related accidents, increase the field's hazard awareness, and improve our bottom line. This mandatory action is in addition to the fall protection procedures that are detailed (and mandated) in Section Seven – Safety Regulations and Procedures.

SITE FALL PROTECTION PLAN

BRANCH _____ DATE _____

JOB NAME _____ JOB NO. _____

JOB ADDRESS _____

NAME OF COMPETENT PERSON RESPONSIBLE TO IMPLEMENT PLAN:

_____

NAME OF PERSON(S) RESPONSIBLE FOR EQUIPMENT INSPECTIONS:

_____

The following fall protection plan identifies fall hazards of six (6) feet or more recognized to be present at the above referenced job site. Means and methods of fall protection for the hazards identified are addressed in Performance Abatement Services, Inc.' (PAS) Fall Protection Program, from Section Twelve of the *PAS Accident Prevention Plan*. It shall be implemented by the competent person named above.

Prior to permitting PAS employees into areas where fall hazards exist, the competent person shall ensure that the employees are trained and instructed on the following topics: (The training is to be documented on the Safety Meeting Report form (Appendix 9-A) and retained on site as part of the fall protection plan.)

- Nature of fall hazards on this job
- Correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection system(s)
- Use and operation of guardrail and personal fall arrest systems - (Use of safety net systems, warning line systems, safety monitoring systems, and controlled access zones require written approval from the General Manager.)
- Correct procedures for the handling and storage of all site equipment and materials
- Correct procedures for providing overhead protection for workers passing under/through the area

Materials list: (Indicate initial quantities required)

Harnesses	_____	Lanyards	_____
Ladders	_____	Ropes	_____
Cables	_____	Rope grab devices	_____
Retracting lifelines	_____	Caution tape	_____
Warning tape	_____	Warning signs	_____
Scaffold tags	_____		

INSTRUCTIONS:

1. Check the box next to the fall hazards recognized as present at this job site. If a hazard is not applicable, mark the item N/A.
2. Place a check on the line next to the method(s) of fall protection to be used. Refer to the Fall Protection Program in Section Twelve of the *PAS Accident Prevention Plan* (APP) for a description of the fall protection methods chosen. If a hazard is not applicable to this job site, mark the item N/A.

☐ **LADDERS**
____ FALL ARREST

☐ **TUBULAR FRAME SCAFFOLDS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST

☐ **SUSPENDED SCAFFOLDS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST

☐ **BOOM LIFTS**
_____ STANDARD GUARDRAIL
_____ FALL RESTRAINT
_____ FALL ARREST

☐ **MANUALLY PROPELLED SCAFFOLD TOWERS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
_____ FALL ARREST

☐ **SCISSOR LIFTS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST

☐ **FORKLIFT/CRANE ELEVATING PLATFORM**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST
____ PLATFORM SECURELY ATTACHED

☐ **STAIRWAYS, SHAFTS, HATCHES, SKYLIGHTS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST

☐ **FLOOR PERIMETERS**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST
____ WARNING LINE
____ SAFETY MONITOR

☐ **ROOF PERIMETER**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST
____ WARNING LINE
____ SAFETY MONITOR

☐ **LEADING EDGES**
____ STANDARD GUARDRAIL
____ FALL RESTRAINT
____ FALL ARREST
____ WARNING LINE
___ SAFETY MONITOR

☐ **WORKING ABOVE OTHERS**
____ SCREEN GUARDRAIL
____ BARRICADE AREA BELOW
____ WARNING SIGNS

RESCUE OF INJURED WORKER

TELEPHONE NO. FOR TRAINED RESCUE PERSONNEL:

_____

LIFT OR MANBASKET LOCATION:

_____

STRETCHER LOCATION:

_____

NAMES OF PERSONNEL TRAINED IN FIRST AID:

_____ _____

_____ _____

_____ _____

OTHER FALL HAZARDS

TASK	HAZARD	PROTECTION

PREPARED BY: _____

DATE: _____

SITE FALL PROTECTION PLAN II

BRANCH _____ DATE _____

JOB NAME _____ JOB NO. _____

JOB ADDRESS _____

NAME OF COMPETENT PERSON RESPONSIBLE TO IMPLEMENT PLAN:

_____

Reasons why conventional fall protection systems are infeasible: _____

_____

_____

_____

Other measures taken to reduce or eliminate the fall hazard: _____

_____

_____

_____

Specific site location where conventional fall protection cannot be used: _____

_____

_____

_____

Specific site locations where a safety monitoring system is implemented: _____

_____

_____

_____

Accident Prevention Plan

Names of employees designated to work in controlled access zones:

_____ _____ _____
_____ _____ _____
_____ _____ _____

Injured worker rescue:

Emergency Telephone No: _____

Stretcher Location: _____

List of First Aid Trained Personnel: _____

_____

_____

_____

Describe any other specific hazards not addressed above, and describe fall protection methods for each: _____

_____

_____

_____

Prepared By: _____ Date: _____

DEFINITIONS APPLICABLE TO THE FALL PROTECTION PROGRAM

ANCHORAGE. A secure point of attachment for lifelines, lanyards, or deceleration devices which is capable of withstanding the forces specified in the applicable sections of chapter 296-155 WAC.

APPROVED MEANS. For the purpose of this action; tested and certified by the manufacturer, or any recognized national testing laboratory to possess the strength requirements specified in this section.

BODY BELT. A Type 1 safety belt used in conjunction with lanyard or lifeline for fall restraint only.

FULL BODY HARNESS. A configuration of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.

COMPETENT PERSON. An individual knowledgeable of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance; and who is capable of identifying existing and potential fall hazards; and who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this section regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

FULL BODY HARNESS SYSTEM. A Class III full body harness and lanyard which is attached to an anchorage, meeting requirements of Part C-1 WAC 296-155; or attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections of chapter 296-155 WAC.

CATENGARY LINE. S*ee horizontal lifeline.*

CONTINUOUS FALL PROTECTION. Design and use of a fall protection system such that no exposure to an elevated fall hazard occurs. This may require more than one fall protection system or a combination of prevention or protection measures.

CONTROL ZONE. Areas between warning line and the unprotected sides and edges of the walking/working surface.

DECELERATION DEVICE. Any mechanism, such as a rope grab, ripstitch lanyard, specifically woven lanyard and automatic self-retracting lifeline, which serves to dissipate more energy during a fall arrest than does a standard line or strap webbing lanyard.

DROP LINE. A vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

FALL ARREST SYSTEM. The use of multiple, approved safety equipment components such as: body harnesses, lanyards, deceleration devices, droplines, horizontal and/or vertical lifelines and anchorages, interconnected and rigger as to arrest a free-fall. Compliance with anchorage strength requirements specified in the applicable sections of chapter 296-155 WAC, Part C-1 shall constitute approval of this anchorage.

FALL PROTECTION WORK PLAN. A written planning document in which the employer identifies all areas on the job site where a fall hazard of 10 feet or greater exists. The plan describes the method or methods of fall protection to be utilized to protect employees, and includes the procedures governing the installation use, inspection, and removal of the fall protection method or methods which are selected by the employer (see WAC 296-155-24505).

FALL-RESTRAINT SYSTEM. An approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level. When standard guardrails are selected, compliance with applicable sections governing their construction and use shall constitute approval.

FALL DISTANCE. The actual distance from the worker's support to the level where a fall would stop.

HARDWARE. Snap hooks, D-rings, buckles, caribiners, adjusters, O-rings, that are used to attach the components of a fall protection system together.

HORIZONTAL LIFELINE. A rail, rope, wire, or synthetic cable that is installed in a horizontal plane between two anchorages and used for attachment of a worker's lanyard or lifeline device while moving horizontally; used to control dangerous pendulum-like swing falls.

LANYARD. A flexible line of webbing, rope, or cable used to secure a body belt or harness to a lifeline or an anchorage point usually 2, 4, or 6 feet long.

LEADING EDGE. The advancing edge of a floor, roof, or formwork which changes location as additional floor, roof, or formwork sections are placed, formed, or constructed. Leading edges not actively under construction are considered to be "unprotected sides and edges," and positive methods of all arrest or fall restraint shall be required to protect exposed workers.

LIFELINE. A vertical line from a fixed anchorage or between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured. Lifeline as referred to in this text is one which is part of a fall protection system used as back-up safety for an elevated worker.

LOCKING SNAP HOOK. A connecting snap hook that requires two separate forces to open the gate; one to deactivate the gatekeeper and a second to depress and open the gate which automatically closes when released; used to minimize roll-out or accidental disengagement.

LOW-PITCHED ROOF. A roof having a slope equal to or less than 4 in 12.

POSITIONING BELT. A single or multiple strap that can be secured around the worker's body to hold the user in a work position; for example, a lineman's belt, a rebar belt, or saddle belt.

RESTRAINT LINE. A line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to prevent the worker from falling to a lower level.

ROLL-OUT. Unintentional disengagement of a snap hook caused by the gate being depressed under torque or contact while twisting or turning; a particular concern with single-action snap hooks that do not have a locking gatekeeper.

ROPE GRAB. A fall arrester that is designed to move up or down a lifeline suspended from a fixed overhead or horizontal anchorage point, or lifeline, to which the belt or harness is attached. In the event of a fall, the rope grab locks onto the lifeline rope through compression to arrest the fall. The use of a rope grab device is restricted for fall restraint applications.
(Refer to WAC 296-155-24510(2)(b)(iii).)

SAFETY LINES. *See lifelines.*

SAFETY MONITOR SYSTEM. A system of fall restraint used in conjunction with a warning line system only, where a competent person as defined by this part, having no additional duties, monitors the proximity of workers to the fall hazard when working between the warning line and the unprotected sides and edges, including, the leading edge of a low pitched roof or walking/working surface.

SELF-RETRACTING LIFELINE. A deceleration device which contains a drum-wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall.

SHOCK ABSORBING LANYARD. A flexible line of webbing, cable, or rope used to secure a body belt or harness to a lifeline or anchorage point that has an integral shock absorber.

SINGLE-ACTION SNAP HOOK. A connecting snap hook that requires a single force to open the gate which automatically closes when released.

SNAP HOOK. A self-closing connecting device with a gatekeeper latch or similar arrangement that will remain closed until manually opened. This includes single action snap hooks that open when the gatekeeper is depressed and double action snap hooks that require a second action on a gatekeeper before the gate can be opened.

STATIC LINE. *See horizontal lifeline.*

STRENGTH MEMBER. Any component of a fall protection system that could be subject to loading in the event of a fall.

STEEP ROOF. A roof having a slope greater than 4 in 12.

UNPROTECTED SIDES AND EDGES. Any side or edge (except at entrances to points of access) of a floor, roof, ramp or runway where there is no wall or guardrail system as defined in WAC 296-155-505(6).

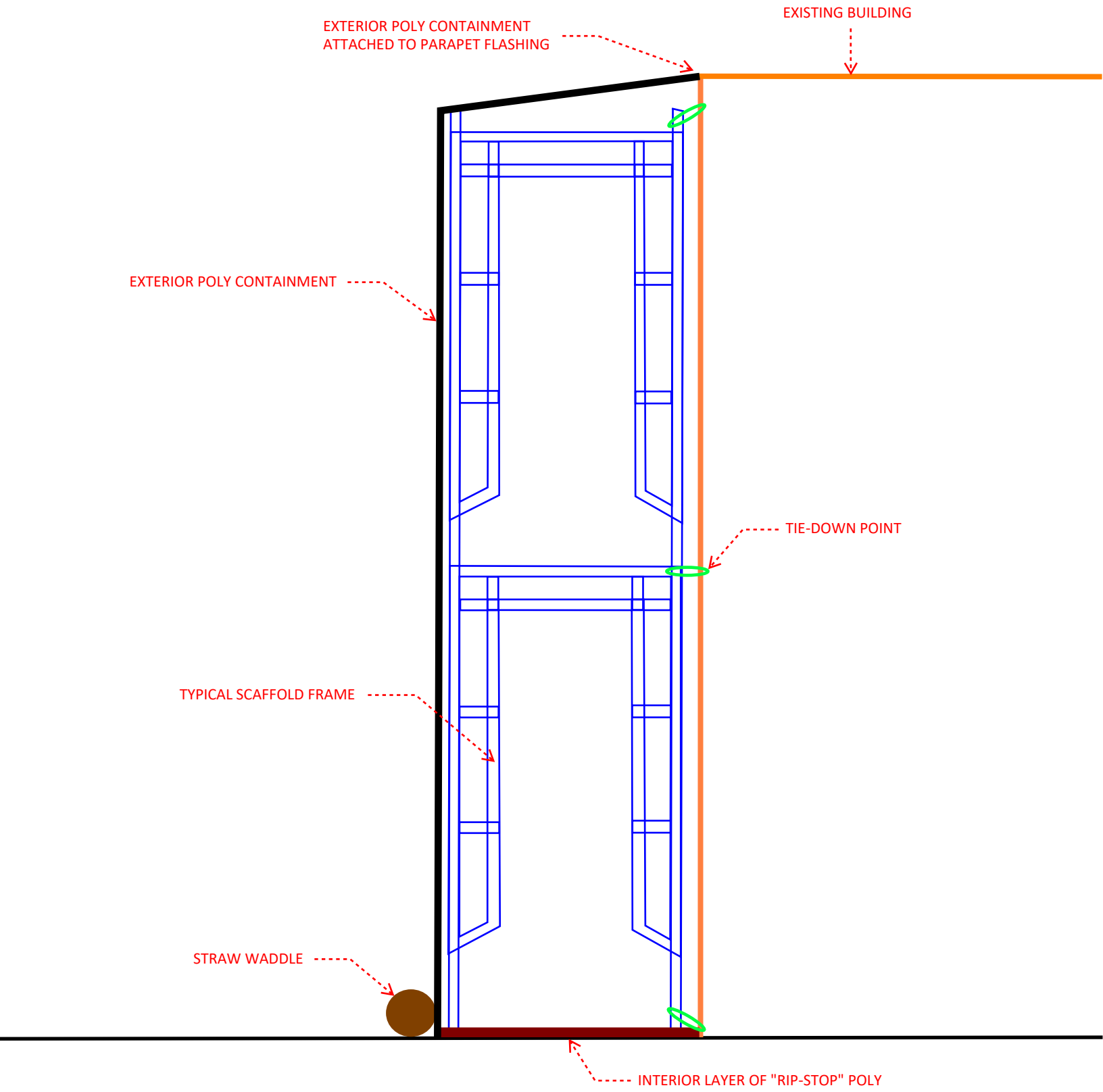
WALKING/WORKING SURFACE. For the purpose of this section, any area whose dimensions are 45 inches or greater in all directions, through which workers pass or conduct work.

WARNING LINE SYSTEM. A barrier erected on a walking and working surface or a low pitch roof (4 in 12 or less) to warn employees that they are approaching an unprotected fall hazard(s).

WORK AREA. That portion of a walking/working surface where job duties are being performed.

APPENDIX E

CONTAINMENT SECTION DIAGRAM



APPENDIX F

Safety Data Sheet
Per GHS Standard Format

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: Fiberset PM No. 7470 White, No. 7475 Clear & No. 7480 Blue
Recommended Use of Product: Post-Removal Surface Sealant

Information on the Supplier of the Safety Data Sheet

Manufactured For:
Fiberlock Technologies
150 Dascomb Road
Andover, MA 01810
P: 978-623-9980 F: 978-475-6205

Emergency Telephone Numbers:
CHEM TEL: (U.S.): 1-800-255-3924
(Outside the U.S.): 813-248-0585

SECTION 2: HAZARDS IDENTIFICATION

Signal Word: **WARNING**

GHS Label Statements
Hazard Statements:
Harmful if inhaled.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause cancer.

GHS Classifications
This product is considered hazardous by The 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Acute Toxicity-Inhalation (Vapors) Category 4
Acute Toxicity-Inhalation (Dust-mists) Category 2
Serious eye damage/eye irritation – Category 2
Skin sensitization – Category 1

PRECAUTIONARY STATEMENTS

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection (eye protection, gloves) during application. When grinding/sanding dry films, wear respiratory protection.

Response: If on skin, wash with plenty of soap and water. If in eyes, rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If inhaled, remove victim to fresh air. If exposed or concerned, get medical advice.
Storage: Keep closures tight and containers upright to prevent leakage. KEEP FROM FREEZING. Product is non-combustible.
Disposal: The coating and any contaminated diking material should be thoroughly air dried and collected into drums. The drums should be sealed and labeled and land-filled or incinerated according to local, regional and national regulations.

Hazards Not Otherwise Classified (NHOC): Not applicable
Other Information: Toxic to aquatic life with long lasting effects. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight, %**
*Titanium dioxide	13463-67-7	10-30
Propylene glycol	57-55-6	3-7
Chlorothalonil	1897-45-6	0.1-1
Polyethylene glycol branched nonylphenyl either	68412-54-4	0.1-1
***Pathalocyanine blue	Proprietary	<.50

***Not in PM Cleartone Base #7475 or in Blue #7480**
****The exact concentration of composition has been withheld as a trade secret.**
***** Only in 7480 Blue**

SECTION 4: FIRST AID MEASURES

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact
Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.

Inhalation
Remove to fresh air. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately. If not breathing, give artificial respiration. Do not breathe dust.

Ingestion
Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Self-Protection of the First Aider
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapors or mists.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
Burning sensation. Coughing and/or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically. May cause sensitization of susceptible persons.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical: Product is/or contains a sensitizer. May cause sensitization by skin contact.

Uniform Fire Code
Sensitizer: Liquid Toxic: Liquid

Hazardous Combustion Products: Carbon oxides

Explosion Data
Sensitivity to mechanical impact No.
Sensitivity to static impact No.

Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid generation of dust.

Other Information: Refer to protective measures listed in Sections 7 & 8.

Environmental Precautions

Environmental Precautions: Refer to protective measures listed in Sections 7 & 8.

Methods and Material for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so

Methods for Cleaning Up: Immediately place absorbent material in a sealed water-filled metal container to avoid spontaneous combustion of absorbent material contaminated with this product. Pick up and transfer to properly labeled containers.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse. Keep away from contact with clothing and other combustible materials to avoid fire.

Conditions for Safe Storage, Including any Incompatibilities

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Products: None known based on information supplied

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	*ACGIH TLV*	*OSHA PEL*	*NIOSH IDLH*
Titanium dioxide 13463-67-7	TWA: 10 mg/m3	TWA: 15 mg/m^3 total dust (vacated) TWA: 10 mg/m3 total dust	IDLH: 5000 mg/m3

ACGIH TLV: American Conference of Governmental Industrial Hygienists – Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration – Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines: Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters

Appropriate Engineering Controls

Engineering Measures: Showers / Eyewash Stations / Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear safety glasses with side shields (or goggles). None required for consumer use.

Skin and body Protection: Wear protective gloves and protective clothing

Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Viscous liquid	**Odor:**	Very Slight
Appearance:	White	**Odor Threshold:**	No information available
Color:	No information available		

Property	**Values**	**Remarks/Method**
pH	8.5	None known
Melting/freezing point	No data available	None known
Boiling point/boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Miscible in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No data available	
Oxidizing properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle size	No data available
Particle size distribution	No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity
No data available

Conditions to Avoid
Excessive heat

Chemical Stability
Stable under recommended storage conditions

Incompatible Materials
None known based on information supplied

Possibility of Hazardous Reactions
None under normal processing

Hazardous Decomposition Products
Carbon oxides

Hazardous Polymerization
Hazardous polymerization does not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information: Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation: Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation (based on components).

Eye Contact: Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. May cause redness, itching, and pain. May cause temporary eye irritation.

Skin Contact: Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion: Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	*Oral LD50*	*Dermal LD50*	*Inhalation LC50*
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)		
Propylene Glycol 57-55-6	= 20000 mg/kg (Rat)	= 20800 mg/kg (Rabbit)	
Chlorothalonil 1897-45-6		> 10 g/kg (Rabbit)	= 310 mg/m3 (Rat) 1 h
Polyethylene glycol branched Nonylphenyl either 68412-54-4		= 1780 µL/kg (Rabbit)	

Information on Toxicological Effects

Symptoms: May cause redness and tearing of the eyes, coughing and/or wheezing, itching, rashes and hives.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Sensitization: May cause sensitization of susceptible persons. May cause sensitization by skin contact.

Mutagenic Effects: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	*ACGIH*	*IARC*	*NTP*	*OSHA*
Titanium dioxide 13463-67-7		Group 2B		X
Chlorothalonil 1897-45-6		Group 2B		X

ACGIH (American Conference of Governmental Industrial Hygienists)
A2 – Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X-Present

Reproductive Toxicity, STOT Single Exposure, STOT Repeated Exposure: No information available

Chronic Toxicity: Titanium dioxide has been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B) by inhalation. Contains a known or suspected carcinogen.

Target Organ Effects: Eyes, respiratory system, skin, gastrointestinal tract (GI) & lungs.

Aspiration Hazard: No information available

Numerical Measures of Toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)
8,711.00 mg/kg
ATEmix (dermal)
21,608.00 mg/kg (ATE)
ATEmix (inhalation-gas)
3,118.00 ppm (4hr)
ATEmix (inhalation-dust/mist)
2.41 mg/l
ATEmix (inhalation-vapor)
16.00 ATEmix

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Chemical Name	*Toxicity to Algae*	*Toxicity to Fish*	*Toxicity to Microorganisms*	*Daphnia Magna (Water Flea)*
Propylene Glycol 57-55-6	96h EC50: = mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 51600 mg/L (Oncorhynchus mykiss) 96h LC50: 41-47 mL/L (Oncorhynchus mykiss) 96h LC50: 51400 mg/L (Pimephales promelas) 96h LC50: = 710 mg/L (Pimephales promelas)		24h EC50: > 10000 mg/L 48h EC50: > 1000 mg/L
Chlorothalonil 1897-45-6	72h EC50: = 0.57 mg/L (Desmodesmus Subspicatus) 72h EC50: = 0.0068 mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 0.012 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0076 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0221-0.032 mg/L (Lepomis macrochirus) 96h LC50: 0.045-0.057 mg/L (Lepomis macrochirus)		48h EC50: 0.0342-0.143 mg/L

Persistence and Degradability: No information available

Bioaccumulation

Chemical Name	*Log Pow*
Chlorothalonil 1897-45-6	2.9
Methylchloroisothiazolinone 26172-55-4	-0.71-0.75

Other Adverse Effects: No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Dispose of contents/containers in accordance with local regulations

California Hazardous Waste Codes: 331

SECTION 14: TRANSPORT INFORMATION

DOT	Not Regulated
Proper Shipping Name	Non-Regulated
Hazard Class	N/A

TDG
No data available

IATA
No data available

IMDG/IMO
No data available

SECTION 15: REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL

TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Name	*CAS No.*	*Weight - %*	*SARA 313 – Threshold Values %*
Chlorothalonil	1897-45-6	0.1-1	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

Chemical Name	*California Proposition 65*
Titanium dioxide – 13463-67-7	Carcinogen
Chlorothalonil – 1897-45-6	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	*New Jersey*	*Massachusetts*	*Pennsylvania*	*Rhode Island*	*Illinois*
Titanium dioxide – 13463-67-4	X	X	X		
Propylene Glycol – 57-55-6	X		X		
Chlorothalonil – 1897-45-6	X	X	X	X	

International Regulations

Canada
WHMIS Hazard Class
D2A – Very toxic materials
D2B – Toxic materials

SECTION 16: OTHER INFORMATION

NFPA	Health Hazards 2	Flammability 0	Instability 0	Special Hazard
HMIS	Health Hazards 2*	Flammability 0	Physical Hazard 0	Personal Protection X

Chromic Hazard Star Legend * = Chronic Health Hazard

WARNING! If you scrape, sand or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD (5323) or log on to: www.epa.gov/lead

MANUFACTURED FOR: INLINE DISTRIBUTING
ADDRESS: 14093 BALBOA BLVD.
SYLMAR, CA 91342
EMERGENCY PHONE NUMBER: CHEM TREC
1-800-424-9300

INFORMATION NUMBER: 1-800-795-0933

H. M. I. S.

HEALTH	2
REACTIVITY	0
FLAMMABILITY	4

THESE RATINGS SHOULD BE USED ONLY AS PART OF A FULLY IMPLEMENTED HMIS SYSTEM

MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT CLASS: AEROSOL ADHESIVE **PRODUCT CODE NUMBER:** POLYTACK III
DATE: 05/11/2005
HAZARDOUS MATERIAL DESCRIPTION: Consumer Commodity ORM-D
PRODUCT NAME: INLINE POLYTACK III 10 OZ. HAPS FREE

SECTION II- HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO	OSHA PEL	TWA TLV	STEL	SARA 313	WT % (OPTIONAL)
ACETONE	67-64-1	750	750	1000		15-25
PROPANE	74-98-6	1000	1000	ASPHYXIATE		20-30
HEPTANE	142-82-5	500	400	400		10-20
ISOBUTANE	75-28-5	N/A	800	N/A		5-15
ALIPHATIC HYDROCARBON	110-82-7	300	300		X	1-10

SECTION III- HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:
PRIMARY ROUTES OF ENTRY: SKIN CONTACT. EYE CONTACT. ABSORPTION. INHALATION.

INHALATION: CAN CAUSE IRRITATION TO THE NOSE AND THROAT. HIGH CONCENTRATIONS MAY CAUSE HEADACHES, DIZZINESS, NAUSEA, AND CONFUSION.
EYE: MAY CAUSE EYE IRRITATION
SKIN: MAY CAUSE TRANSIENT SKIN IRRITATION
INGESTION: MAY CAUSE GASTROINTESTINAL IRRITATION
OTHER: REPORTS HAVE ASSOCIATED PROLONGED AND REPEATED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

SECTION IV- FIRST AID PROCEDURES

SWALLOWING: IF SWALLOWED DO NOT INDUCE VOMITING. CALL POISON CONTROL CENTER, HOSPITAL EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY.
INHALATION: REMOVE TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP WARM AND QUIET. GET MEDICAL ATTENTION.
EYE: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY. CONTINUE FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.
SKIN: REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREA WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

SECTION V- PHYSICAL DATA

BOILING POINT	-40 F TO 160 F	**SPECIFIC GRAVITY**	0.6
VAPOR PRESSURE PSIG @ 70F	70 APPROX	**MELTING POINT**	N.A.
VAPOR DENSITY	2.5	**% SOLIDS**	23.4 %

APPEARANCE AND ODOR: CLEAR LIGHT AMBER SOLUTION

SECTION VI – FIRE AND EXPLOSION DATA

FLASH POINT AND METHOD: -40 F TCC **FLAMMABLE LIMITS:** 1.8 LEL
12.0 UEL

UNUSUAL FIRE AND EXPLOSION HAZARDS: AEROSOL CANS MAY RUPTURE WHEN HEATED

EXTINGUISHING MEDIA: USE WATER FOG, DRY CHEMICAL, FOAM OR CARBON DIOXIDE

SPECIAL FIRE FIGHTING PROCEDURES: HEATING OF CONTENTS ABOVE 130F MAY CAUSE CANS TO BURST.

SECTION VII- REACTION DATA

STABILITY: STABLE
CONDITIONS TO AVOID: STORING IN HIGH TEMPERATURES OR EXPOSING TO OPEN FLAMES
INCOMPATIBILITY (CONDITIONS TO AVOID): NONE
HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE AND CARBON DIOXIDE
HAZARDOUS POLYMERIZATION: NONE

SECTION VIII- SPILL OR LEAK INFORMATION

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: ELIMINATE ALL SOURCES OF IGNITION. PERMIT ONLY PROPERLY PROTECTED WORKERS IN THE AREA WITH SKIN/EYE PROTECTION AND SELF CONTAINED BREATHING GEAR. ABSORB SMALL SPILLS WITH INERT ABSORBENT MATERIAL. CONTAIN SPILLED LIQUID TO PREVENT CONTAMINATION OF SOIL, AND SURFACE OR GROUNDWATER. CONTACT STATE, LOCAL AND FEDERAL AGENCIES TO ENSURE COMPLIANCE WITH CURRENT REGULATIONS.

WASTE DISPOSAL METHOD: WASTE MUST BE DISPOSED OF ACCORDING TO LOCAL, STATE, AND FEDERAL REGULATIONS.

SECTION IX- PERSONAL PROTECTION INFORMATION

RESPIRATION PROTECTION: IF THE TLV'S LISTED IN SECTION II ARE EXCEEDED USE A PROPERLY FITTED NIOSH/MSHA APPROVED RESPIRATOR
VENTILATION: LOCAL AND MECHANICAL VENTILATION ARE RECOMMENDED TO KEEP ANY HAZARDOUS INGREDIENTS LISTED IN SECTION II BELOW THE LOWEST EXPOSURE LIMIT.
HAND PROTECTION: RESISTANT PLASTIC OR RUBBER RECOMMENDED.
EYE PROTECTION: WEAR SAFETY CHEMICAL SPLASH GOGGLES.
OTHER PROTECTIVE EQUIPMENT: NOT LIKELY TO BE NEEDED.

SECTION X- SPECIAL PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: STORE CANS IN A COOL, DRY AND WELL VENTILATED AREA AWAY FROM ALL IGNITION SOURCES. PROLONGED EXPOSURE OF CANS TO ELEVATED TEMPERATURES MAY CAUSE CANS TO RUPTURE OR BURST.

THE FOREGOING DATA HAS BEEN COMPILED FROM SOURCES WE BELIEVE TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

GREEN DIAMOND SAND PRODUCTS

ABRASIVES • ROOFING • FOUNDRY SANDS • FILLERS • CONSTRUCTION

Green Diamond Sand Products is a fused Magnesium Ortho Silicate, formed from molten lateritic ore when quenched by granulation. The quenching process produces an amorphous non-crystal line form of hard durable glass. ***Green Diamond Sand Products*** is non metallic, and chemically inert.

Green Diamond Sand Products is manufactured in the U.S.A.

Material Properties

Shape: Angular to Sub Angular
Hardness: 7 on the Mohs hardness scale
Color: Green to Grey
Specific Gravity: 3.3
Bulk Density: 85 to 105 lb. Per Cu.Ft.
Melting Point: 2900 F
Fusion Point: 2600 F
Certifications: QPL Mil 22262b(SH), CARB Title 17, AASHTO(T104-90-T12-87)
Free Silica: Contains less than .1%
Product Specifications: See spec sheets also custom blending available.
Packaging: jumbo bags, 100 and 50 lb. Paper bags
Bulk: Rail covered hopper and Trucks pneumatic or container type.

Typical Analysis

Silicon Dioxide	50.9
Magnesium Oxide	32.8
Iron Oxide	11.7
Aluminum Oxide	1.2
Calcium Oxide	0.5
Trace Minerals	2.9

Environmental: ***Green Diamond Sand Products*** meets the TCLP (40 CFR 261.24a) criteria prior to its use.

Green Diamond Sand Products contains no heavy metals exceeding the levels of the TCLP.

Copies of all laboratory and certification tests are available upon request.

GREEN DIAMOND SAND PRODUCTS

MATERIAL SAFETY DATA SHEET

ROOFING PRODUCTS

SECTION I - PRODUCT IDENTIFICATION		HMIS
Manufacturer's Name:	Green Diamond Sand Products	Health - O
Telephone:	(541) 874-3111	Flammability - O
Address:	PO Box D, Riddle, OR 97469	Reactivity - O
Date Prepared:	August 1, 2004	Protective Gear - E

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical ID - Common Names)	CAS No.	ACGIH TLV	OSHA PEL
SiO_2 (Silicates)	112926-00-8	10 mg/m3	10 mg/m3
MgO (Magnesium Oxide)	1309-48-4	10 mg/m3	10 mg/m3
Fe_2O_3 (Iron Oxide)	1309-37-1	10 mg/m3*	10 mg/m3
Al_2O_3 (Aluminum Oxide)	1344-28-1	10 mg/m3	10 mg/m3
CaO (Calcium Oxide)	1305-78-8	2 mg/m3	5 mg/m3
Ni (Nickel)	7440-02-0	1 mg/m3	1 mg/m3
Cr_2O_3 (Chromium Oxide)	1308-38-9	10 mg/m3*	15 mg/m3*

*Regulated as for nuisance particulate (dust).

TYPICAL ANALYSIS:

SiO_2	50.2%
MgO	31.4%
Fe_2O_3	15.9%
Al_2O_3	1.6%
CaO	0.7%
Ni + NiO	<.1%
Cr_2O_3	.1%
Trace Elements & Compounds (total)	1.5%
TOTAL	99.8%

All SiO_2 reported in Green Diamond materials is in the form of silicates and contains no crystalline silica. Crystalline silica is the only form of silica suspected of being carcinogenic.

SECTION 313 SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372):

CAS #	Chemical Name	Percent by Weight
7440-02-0	Nickel	<.1%

This information should be included in all MSDSs that are copied and distributed for this material.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point:	NA
Vapor Pressure (mm Hg.):	NA
Vapor Density (AIR = 1):	NA
Specific Gravity (H2O = 1):	3.0
Melting Point:	2,650 Deg. F
Evaporation Rate:	NA
Solubility in Water:	Not soluble in water
Appearance and Odor:	Green, Gray granular, no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	NA
Flammable Limits:	NA
Extinguishing Media:	NA
Special Fire Fighting Procedures:	None
Unusual Fire & Explosion Hazards:	None

SECTION V - REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	None
Incompatibility (materials to avoid):	None
Hazardous Decomposition or By-Products:	None
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None

SECTION VI - HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation?	Yes
	Skin?	No
	Ingestion?	No
Health Hazards (Acute & Chronic):		No specific health hazards; should avoid specified limits for compounds listed in Section II.
Carcinogenicity:	NTP?	No
	IARC Monographs?	No
	OSHA Regulated?	Yes, control for compounds in Section II and for nuisance dust.
Sign & Symptoms of Exposure:		Typical of over exposure to nuisance dust.
Medical Conditions Generally Aggravated by Exposure:		Respiratory conditions.
Emergency & First Aid Procedures:		As relevant for over exposure to nuisance dust.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be Taken in Case Material is Released or Spilled:	Clean up with broom or vacuum.
Waste Disposal Method:	Follow federal, state, and local regulations for disposal as in inert solid waste.
Precautions to be Taken in Handling & Storing:	No specific precautions.
Other Precautions:	None

SECTION VIII - CONTROL MEASURES

Respiratory Protection (Specify Type):	NIOSH/OSHA/MSHA approved particulate filter respirator.
Ventilation:	Yes
Local Exhaust:	Yes
Mechanical (General):	Use to meet TLV requirement if dust is generated.
Special:	None
Other:	None
Protective Gloves:	Yes, if handling.
Eye Protection:	Yes, safety glasses.
Other Protective Clothing or Equipment:	Appropriate apparel.
Work/Hygienic Practices:	Use material for the purpose intended and incorporate methods of dust control that are effective in maintaining airborne dust concentrations within the TLV.

NOTICE

While the information included in this MSDS has been obtained from reliable sources, this information is furnished without any warranty (expressed or implied), representation, inducement, or license except that it is accurate to the best of Green Diamond Products knowledge. This information is offered solely for your consideration, investigation, and verification. Any use of this information must be determined by the user to be in accordance with applicable federal, state, and local laws and regulations. Furthermore, the conditions or methods of handling, storage, use, and disposal of the product are beyond the control and knowledge of Green Diamond Products. Green Diamond Products does not assume responsibility and expressly disclaim liability for any loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product. Buyer assumes all risks in its use of the product.

SDS Date: August, 2016

Safety Data Sheet

Per GHS Standard Format

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: Piranha 4 No. 5740
Recommended Use of Product: Paint Remover

Information on the Supplier of the Safety Data Sheet

Manufactured For:
Fiberlock Technologies, Inc.
150 Dascomb Road
Andover, MA 01810
P: 800-342-3755 F: 978-475-6205

Emergency Telephone Numbers:
CHEM TEL: (U.S.): 1-800-255-3924
(Outside the U.S.): 813-248-0585

SECTION 2: HAZARDS IDENTIFICATION

Signal Word: **DANGER**

GHS Classifications
This product is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Flammable liquids – Category 4
Eye irritation – Category 2A
Reproductive toxicity – Category 1B
Specific target organ systemic toxicity (single exposure) – Category 3

GHS Label Statements
Hazard Statements:
Harmful if swallowed.
Causes eye irritation on contact.
Avoid skin contact.

PRECAUTIONARY STATEMENTS

Prevention: Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response: In case of fire: Use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention.
Storage: Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Potential Health Effects

Eye: May cause eye irritation. Symptoms including stinging, tearing and redness.

Skin: Short contact may cause slight reddening or no irritation. Prolonged or frequently repeated contact can cause irritation, defatting, dermatitis and may result in absorption of harmful amounts. Some ingredients in this product may be absorbed through intact skin and product toxic effects similar to swallowing.

Ingestion: Ingestion can cause severe internal irritation.

Inhalation: If mists or vapors are generated at high concentrations, may cause pallor, nausea, anesthetic or narcotic effects, blurred vision and irritation of the upper respiratory passages.

Chronic Overexposure Information: No data available

Teratology and Reproduction Information: n-methyl-2-pyrrolidone, a component of this product, was reported to be fetotoxic and to increase the incidence of skeletal abnormalities when administered dermally to rats at a dosage of 750 mg/kg during gestation (Fund. and Appl. Tox 2:73-6, 1982)

Aggravation of Pre-Existing Conditions: Skin contact may aggravate existing skin disease.

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight, %
n-methyl-2-pyrrolidone Exposure guidelines not listed	872-50-4	45-50
dimethyl adipate Exposure guidelines not listed	627-93-0	40-45
d-limonene Exposure guidelines not listed	5989-27-5	0-5

SECTION 4: FIRST AID MEASURES

Eye Contact
Flood with plenty of water with eyelids held open for at least 15 minutes and get medical attention promptly.

Skin Contact
Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Inhalation
If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention.

Ingestion
Immediately give 1 or 2 glasses of water and call physician, hospital emergency room or poison control center for way to induce vomiting. Get medical attention promptly. Never give anything by mouth to an unconscious person. Aspiration of material into lungs can cause chemical pneumonitis which can be fatal.

Notes to Physician
This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity when deciding whether to induce vomiting.

SECTION 5: FIRE-FIGHTING MEASURES

Flammable Properties: This product may burn, but will not ignite readily.

Hazardous Combustion Products: May form carbon dioxide and carbon monoxide, various hydrocarbons.

Extinguishing Media: Water fog, regular foam, carbon dioxide or dry chemical.

Firefighting Procedures: Keep personnel removed and upwind of fire. Wear full protective equipment. Wear self-contained breathing apparatus. Cool container with water spray.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Small Spill: Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and shovel into containers.

Large Spill: Wipe or scrape up any material. Wash area thoroughly with detergent and water; ventilate adequately with good fresh air movement at floor level.

Environmental Precautions: No special precautions.

Methods for Containment and Cleaning Up: Absorb the liquid and scrub the area with detergent and water.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

Storage: Keep container tightly closed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits: See Section 3.

Engineering Controls: None required when used as intended.

Personal Protective Equipment

Eye/Face Protection: Chemical goggles or safety glasses with side shield.

Skin and Body Protection: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

Respiratory Protection: Wear an approved respirator if mists are generated.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Thick liquid
Odor: Typical pine terpene

Property	Values
pH (1% in h20)	7-8
Melting/freezing point	No data available
Boiling point/boiling range	200°F
Flash Point	>200°F Method: Setaflash closed cup
Evaporation rate	Less than ether
Flammability (solid, gas)	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Vapor pressure	<1 mmHg 20°C
Vapor density	Heavier than air
Specific Gravity	1.042
Water Solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability (Conditions to Avoid)
Stable

Incompatibility
Avoid contact with strong oxidizing agents.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Decomposition Products
Carbon dioxide and carbon monoxide, various hydrocarbons.

Hazardous Polymerization
Hazardous polymerization will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute: This product has not been tested as a whole.

Subchronic: This product has not been tested as a whole.
Chronic/Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP or OSHA.
Routes of Exposure: Inhalation, skin absorption, skin contact, eye contact and ingestion.

SECTION 12: ECOLOGICAL INFORMATION

Environmental Fate: This product has no known adverse effect on ecology.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Small quantities may be deposited in general trash and residue flushed down drain with water. Large spills must be disposed of in accordance with local, state and federal regulations.

SECTION 14: TRANSPORT INFORMATION

Land Transport (DOT)
Not regulated

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

TSCA: The intentional ingredients of this product are listed.
OSHA: The intentional ingredients of this product are listed.
CERCLA: SARA Hazard Category: Immediate/Health

- Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains chemicals (marked in section 3) which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.
- Reportable Quantity: None of the chemicals in this material have an RQ.

US State Regulations

California Proposition 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product contains a chemical(s) known to the state of California to cause cancer, birth defects, or other reproductive harm.

Volatile Organic Compounds: 50% by weight; 520 g/l, 4.33 lbs/g

SECTION 16: OTHER INFORMATION

NFPA Ratings: 1, 1, 0

Manufacturer Disclaimer: Judgement of potential hazards of this product is based on information available about individual components listed under section 3 – Ingredients. Direct testing of mixture has not been done. Flash point has been tested. Information given herein is believed to be accurate and is given in good faith. However, no warranty either expressed or implied is made. It is strongly suggested that users confirm in advance of need that the information is current and applicable to their situation.

WARNING! If you scrape, sand or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD (5323) or log on to: www.epa.gov/lead

SAFETY DATA SHEET
Nashua 307, 300N, 311, 393, 394, 398N

1. IDENTIFICATION

Product Name	Nashua 307, 300N, 311, 393, 394, 398N
Recommended use of the chemical and restrictions on use	
Identified uses	Pressure Sensitive Adhesive
Company Identification	Berry Plastics Corporation 25 Forge Parkway Franklin, MA 02038
Customer Information Number	(800) 248-7659 (Monday – Friday 8:00 am to 5:00 pm) msdstechnical@berryplastics.com
Emergency Telephone Number	
Chemtrec Number	Within USA and Canada: 1-800-424-9300 CCN22955 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
Issue Date	July 22, 2014
Supersedes Date	January 9, 2012

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
This product is classified as not hazardous in accordance with the Globally Harmonized System of Classification and Labelling (GHS).

Label Elements
Hazard Symbols
None

Signal Word: None

Hazard Statements
None

Precautionary Statements

Prevention
None
Response
None
Storage
None
Disposal
None

2. HAZARD IDENTIFICATION

Other Hazards
None identified.

Specific Concentration Limits
The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	10 - 20%
Acute dermal toxicity	20 - 30%
Acute inhalation toxicity	75 - 85%
Acute aquatic toxicity	90 - 100%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
This product is a mixture.

Component	CAS Number	Concentration
Polymers, Rubbers and Resins	N.A.	20 - 30%
Inorganic Compound(s)	N.A.	15 - 25%
Titanium Dioxide	13463-67-7	0.1 - <1%

4. FIRST- AID MEASURES

Description of necessary first-aid measures
Eyes
Immediately flood the eye with plenty of water. Obtain medical attention if symptoms persist.
Skin
Wash skin thoroughly with soap and water. Obtain medical attention if symptoms persist.
Ingestion
Obtain medical attention immediately.
Inhalation
Remove person to fresh air if symptoms occur. Seek medical attention if symptoms persist.

Most important symptoms/effects, acute and delayed
Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed
Notes to Physicians
Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media
Water spray, carbon dioxide and dry chemical.

5. FIRE - FIGHTING MEASURES

Specific hazards arising from the chemical
May release hazardous vapors during a fire.

Special Protective Actions for Fire-Fighters
Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing.

Environmental Precautions
Prevent the material from entering drains or watercourses.

Methods and materials for containment and cleaning up
Pick up and transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear appropriate protective clothing.

Conditions for safe storage
Store away from sources of heat or ignition. Storage area should be: cool - dry - well ventilated - out of direct sunlight - away from sources of ignition(heat, sparks, flames, pilot lights) - away from incompatible materials (see Section 10)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Polymers, rubbers and resins
None established
Titanium Dioxide
ACGIH TLV: 10 mg/m^3 TWA
OSHA PEL: 15 mg/m^3 TWA (Total dust)

Appropriate engineering controls
No specific measures necessary. Good general room ventilation is expected to be adequate to control airborne levels.

Individual protection measures
Respiratory Protection
Respiratory protection not normally required.
Skin Protection
Not required under normal conditions of use.
Eye/Face Protection
Safety glasses

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Body Protection
Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Solid: Rubber based pressure sensitive adhesive coated on one side of polymer/cloth backing
Color	Backing: Black or silver Adhesive: Gray
Odor	Slight
Odor Threshold	No data available
pH	Not applicable
Density (g/yd^2)	160 - 280
Boiling Range/Point (°C/F)	Not applicable
Melting Point (°C/F)	Not applicable
Flash Point (PMCC) (°C/F)	Not applicable
Vapor Pressure	Not applicable
Evaporation Rate (BuAc=1)	Not applicable
Solubility in Water	Negligible
Vapor Density (Air = 1)	Not applicable
VOC (%)	0
Partition coefficient (n-octanol/water)	Not applicable
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	No data available

10. STABILITY AND REACTIVITY

Reactivity
Data is not available.

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Heat, sparks, flames - high temperatures - contact with incompatible materials

Incompatible Materials
Strong acids - bases - oxidizers

Hazardous Decomposition Products
Oxides of carbon - olefinic and paraffinic compounds - organic acids - ketones - aldehydes - alcohols

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Available data indicates this product is not expected to be acutely toxic.

Specific Target Organ Toxicity (STOT) – single exposure
Available data indicates this product is not expected to cause target organ effects after a single exposure.

Specific Target Organ Toxicity (STOT) – repeat exposure
Available data indicates this product is not expected to cause target organ effects after repeated exposure.

Serious Eye damage/Irritation
Available data indicates this product is not expected to cause eye irritation.

Skin Corrosion/Irritation
Available data indicates this product is not expected to cause skin irritation.

Respiratory or Skin Sensitization
Available data indicates this product is not expected to cause skin sensitization.
Available data indicates this product is not expected to cause respiratory sensitization.

Carcinogenicity
Titanium Dioxide: IARC Overall Evaluation is 2B (Possibly carcinogenic to humans) IARC evaluation guidelines consider the generation of tumors, in 2 different studies within the same animal species, to be adequate criteria for an assessment of sufficient evidence. The conclusions of several epidemiology studies on more than 20000 TiO_2 industry workers in Europe and the USA did not suggest a carcinogenic effect of TiO_2 dust on the human lung. Mortality from other chronic diseases, including other respiratory diseases, was also not associated with exposure to TiO_2 dust. Based upon these studies, titanium dioxide is not expected to cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.

Germ Cell Mutagenicity
Available data indicates this product is is not expected to be mutagenic.

Reproductive Toxicity
Available data indicates this product is not expected to cause reproductive toxicity or birth defects.

Aspiration Hazard
Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
No relevant studies identified.

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

12. ECOLOGICAL INFORMATION

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Not Regulated
UN Proper Shipping Name	Not Regulated
UN Class	None
UN Number	None
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Environmental Hazards	Not a marine pollutant

15. REGULATORY INFORMATION

United States TSCA Inventory
All components of this product are in compliance or are exempt from inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory
All components of this product have not been verified for inclusion or are exempt from listing on the Domestic Substance List (DSL).

WHMIS Classification
None
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

California Proposition 65
The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986.
To the best of the manufacturer's knowledge the products manufactured do not contain Proposition 65 Chemicals at levels which would require warning labels as known to the State of California to cause cancer or reproductive toxicity.

SARA Title III Sect. 311/312 Categorization
None

SARA Title III Sect. 313
This product does not contain any chemicals listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Flammability - 0
NFPA Code for Health - 0
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings
HMIS Code for Flammability - 0
HMIS Code for Health - 0
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
ECHA: European Chemicals Agency
IARC: International Agency for Research on Cancer
N/A: Denotes no applicable information found or available
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Berry Plastics Corporation assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.

APPENDIX G

AQUA-BRITE INC.
PO Box 66401 • Seattle, WA 98166
Since 1972

Performance Contracting Inc.

Attn: Tyler Hampton

Phone o 425 806 8404

April 16, 2019

Hello Tyler,

Following is a list of the main pieces of equipment that would be used to provide

Negative air pressure inside the containment area, recover the used blasting media,

Set up and dismantling of ducting, hoses, etc.

1) 24000 CFM diesel dust collector
2) 30000 CFM diesel/electric dust collector
3) Vector diesel sand vacuum
4) Vector diesel sand vacuum
5) Sullair 1600 CFM diesel compressor
6) 6-ton trailer mounted sandblasting pot
7) Abatement shower trailer
8) Champion telescoping forklift
9) 80ft Genie diesel man lift
10) 68ft Grove gas man lift

Best Regards

Dave

Visual Inspection Plan to Evaluate Work Performance

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date:	**December 28, 2019**
NVL Project No.	**2012-949**
Site Address:	**Rainer Commons** 3100 Airport Way S, Seattle, 98134

Introduction:

NVL Laboratories has prepared this Visual Inspection Plan to Evaluate Work Performance to document procedures to ensure that paint is removed at the completion of each Individual Phased Work Plan (IPWP) as outlined in the Rainier Commons Work Plan dated March 25, 2013, revised July 25, 2013 ("Work" or "Plan"), and meets the requirements of the EPA risk based approval for the Plan.

Requirements:

Condition 7 of EPA's approval of the Work Plan, "Rainier shall **evaluate the performance of the work through visually examining 100 percent of the surface from which paint was removed, and conducting detailed verification visual analysis of 2 percent of the substrate** pursuant to the description provided in the Work Plan and the conditions herein."

The requirements include:

1. EPA requires complete removal of all visible paint to satisfy the requirements of this approval.*

2. If paint remains after blasting is conducted additional remediation is necessary to meet the terms of this approval.

3. If a remediation method that is not listed in the Accepted Abatement Methods on Page 8 of the Work Plan is deemed necessary by Rainier to remove all exterior paint, Rainier will seek EPA approval prior to commencing paint abatement activities following the procedures in Section 3, page 9 of the Work Plan.

4. EPA requires the use of a numbered grid and a random number selector for this process.

5. The proposed grid, inspection locations and inspection methodology shall be included in each IPWP for EPA approval.

* = Note: What this is interpreted to mean "visually" per the Work Plan: "The goal will be complete removal of the paint, with the understanding that the infrequent, small fleck of paint remaining post-abatement is functionally unavoidable as a practical matter. Complete removal and completely clean to visual inspection will be required of the Contractor."

Inspection Schedule:

Per the Process Steps described in the Work Plan, a summary of the steps include:

- Step #6 – Notification by Contractor to NVL that paint removal is complete and ready for inspection.

- Step #7 – General inspection by NVL of paint removal and determination if paint removal is complete:
  - If not complete, further action by Contractor and repeat of abatement work described in Step #4
  - If complete, then proceed to step 8

- Step #8 – Compliance Inspection, including what is detailed in this document as the Visual Inspection Plan to Evaluate Work Performance. After inspection:
  - If accepted, work activities proceed to Step #9
  - If not accepted, then work activities will be to conduct required action, most likely returning to Step #4

Methodology:

A Certified Industrial Hygienist (CIH) will oversee all visual inspection, analysis, data interpretation and reporting involved with the Work and the IPWPs.

Visual Inspection of 100 Percent of Area Abated

When the Contractor notifies NVL that a level, or segment of work, is complete and ready for inspection, qualified NVL personnel will walk each level, either ground or scaffold level, and visually scan the entire work area for any residual paint, with Contractor performance and contract compliance requirements in mind. Provisional acceptance of the work will be carried out as outlined in the Work Plan.

Detailed Visual Inspection on Randomly Selected Two Percent (2%) of Surfaces Abated

After NVL has provisionally accepted the work, NVL then will carry out the verification inspection as follows:

1. Using a rough calculation of the total square footage of the abated surface area ready for inspection, a record of the dimensions and calculation will be made on a set of Field Notes.

2. The calculation of the area to be inspected will be made finding two percent of the total square footage of the area ready for inspection. The areas inspected will be recorded in the Field Notes.

3. Before the verification inspection begins, a simple diagram will be drawn of the inspection area in the Field Notes. These diagrams are to be carefully drawn, but hand drawn to approximate scale for record keeping purposes is acceptable. The locations of the areas inspected should be recorded on the diagrams. Perfect or

exact scale drawings are not required. The distribution of the inspection area (two percent of the total area) may be in one location or broken up into two or more locations at NVL's discretion depending upon the overall size of the particular inspection area.

4. NVL shall use its discretion to field measure and mark out the inspection area in the most efficient manner possible with chalk or masking tape or other media. NVL personnel shall make a detailed and close visual inspection of the area.

5. NVL shall photograph the inspection area and make the photographs a part of the Field Notes, captioning or documenting within the photograph the area that it represents.

6. The investigation area shall be designated with the building number, the ordinal direction of the elevation or wall (N=north facing, S=south facing, E=east facing, W=west facing) and the level (G=ground, 1=first level of scaffolding and so on). So, for example, if the west facing wall of building 13 is investigated on the 2nd level of scaffolding the investigation area will be designated in the Field Notes and in the photograph(s) as 13-W-2.

Reporting:

A written report will be provided by NVL to Rainier Commons to provide to the EPA within 30 days of visual assessment. The report will include a description of the inspection locations and conditions as well as site photos.

Example of Method to Randomly Select Two Percent of Surface Area to Test

NVL Laboratories, Inc.
Office: (206) 547-0100
Fax: (206) 634-1936

Date: **December 28, 2019**

NVL Project No. **2012-949**

Site Address: **Rainer Commons**
3100 Airport Way S, Seattle, 98134

Example of Method Using West Side of Building #11

1. Calculate square footage of surface

Example, the west side of building 11 is 70' x 40' = 2,800 Square Feet (SF)

2. Calculate what is 2% of the surface

2800 * 0.02 = 56 SF

3. NVL determined desired minimum number of grid boxes to inspect for the 2% is 5 and the ideal number is 10.

5. NVL determined the ideal size of a grid box is between 4 and 10 SF

6. Calculate the ideal square footage and number for having 10 grid boxes on the surface:

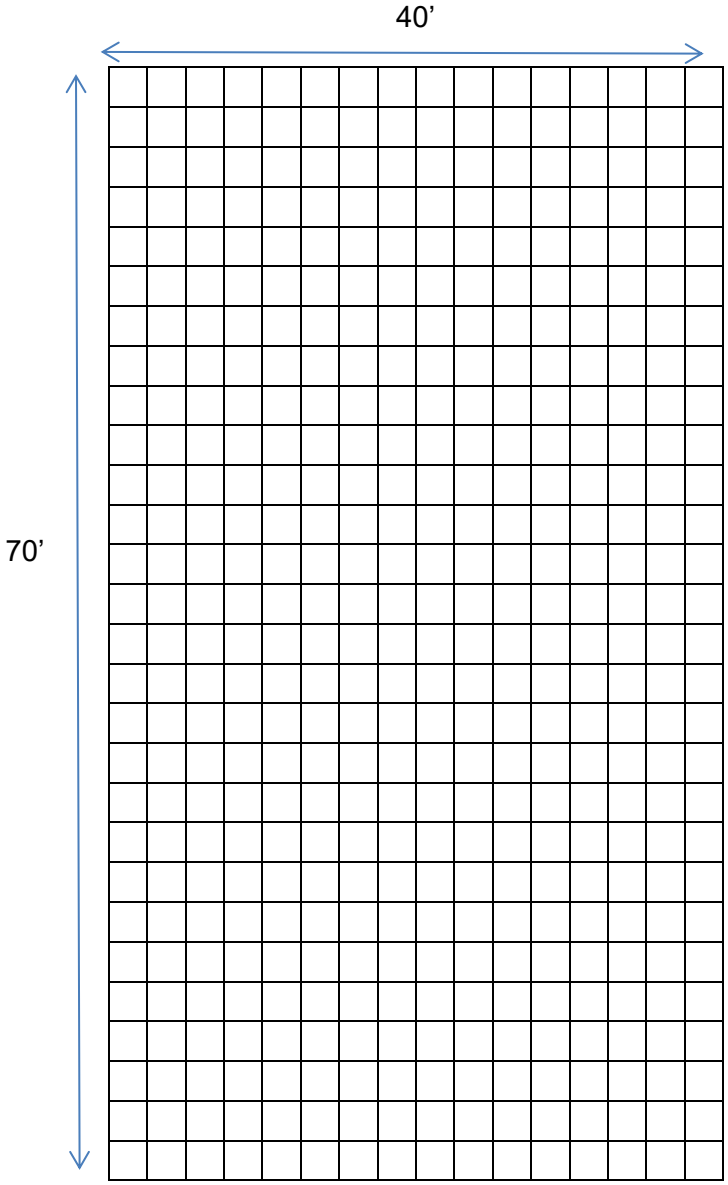
56 SF / 10 = 5.6 SF per grid box (this is ideal)

2800 SF/ 5.6 SF per grid box= 500 grid boxes (this is ideal)

7. Figure out how best to define and demark uniform square grid boxes near the ideal number i.e. 500 Grid Boxes on a 70' x 40' surface. (Uniform square to avoid potential statistical skew.)

70' / 2.5' = 28 boxes along the 70' side
40' / 2.5' = 16 boxes along 40' side.

28 x 16 = 448 Grid Boxes



Which means, each grid box = 2.5' x 2.5' = 6.25 SF

As calculated earlier, assess at least two percent 2 percent of the side of the building, 56 SF must tested. 56 SF / (6.25 SF/box) = 8.96 boxes, which means **9 grid boxes minimally need to be inspected**

8. Create the grid. The numbers for the grid boxes will be set up in a boustrophedon pattern, i.e. alternate lines in opposite directions for the purpose to avoiding potential statistical skew.

The selection of the random grid boxes is done in the next step, and those that are selected in the next step are indicated on the grid. For this example, the first 9 randomly selected grid box numbers are in **RED.**

The following page has a 28 x 16 grid, with 448 grid boxes numbered in a boustrophedon pattern.

40’

70’

1	2	3	**4**	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	**23**	22	21	20	**19**	18	17
33	➲														48
64														➲	49
65	➲												**78**		80
96														➲	81
97	➲														112
128														➲	113
129	➲											**141**			144
160							**153**							➲	145
161	➲	**163**					**168**								176
192														➲	177
193	➲														208
224	**223**													➲	209
225	➲														240
256														➲	241
257	➲														272
288														➲	273
289	➲														304
320								**312**	**311**					➲	305
321	➲										**332**				336
352								**344**						➲	337
353	➲														368
384														➲	369
385	➲														400
416														➲	401
417	➲	**419**										**429**			432
448		**446**											**435**	➲	433

9. Determine / identify grid on actual surface

The surface grid will typically be marked off on the actual surface using a tape measure and chalked line.

For this example, Building #11 is being used. The following is a picture of the west side of Building #11 as well as a diagram of the west side of the building with the inspection grid overlaid.

Building #11:

Inspection Grid Overlay:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
33	➲														48
64														⊂	49
65	➲												78		80
96														⊂	81
97	➲														112
128														⊂	113
129	➲											141			144
160							153							⊂	145
161	➲	163					168								176
192														⊂	177
193	➲														208
224	223													⊂	209
225	➲														240
256														⊂	241
257	➲														272
288														⊂	273
289	➲														304
320								312	311					⊂	305
321	➲										332				336
352								344						⊂	337
353	➲														368
384														⊂	369
385	➲														400
416														⊂	401
417	➲	419										429			432
448		446											435	⊂	433

One potential issue, as can be seen in the grid overlay above, is that some cells lie within the windows or other areas that might not have paint.

10. Select the grid boxes to be inspected using random numbers

Number of grid boxes = 448
Number of random grid boxes needed = 9

Use a random number generator to generate a list of unique three-digit random numbers that fall within the range of cell numbers (in this case, numbers 1-448). Generally, the number of random three digit numbers on the list should be two times the number of random grid boxes needed. For this experiment, 18 random unique three-digit numbers in the chosen range were created using the random number generator:

141
004
099
312
435
429
332
153
334
023
419
199
423
211
068
183
350
091

Working down this list of random numbers, the first random number that corresponds with an available grid box on the building side will be marked as the first inspection location. The next number on the list that corresponds with an available grid box will be the second inspection location, and so forth. A numbered inspection box becomes unavailable if the inspection box is located on an unpainted surface.

In this situation, the numbers 099 and 334 were unavailable and not utilized as inspection locations because the corresponding cells are non-painted surfaces (windows).

Here is an example of nine randomly selected inspection locations that resulted from our mock selection:

Location #	Grid Box Random Number
1	141
2	004
3	312
4	435
5	429
6	332
7	153
8	023
9	419

11. Extra Visual Inspection Testing – NVL Selected Worse Case

In addition, at least two grid boxes will be selected in a non-random fashion by NVL as "worse case" inspection locations. These two grid boxes will be identified by NVL personnel on-site based on the visual characteristics of the wall and substrate. These two inspection locations will be assessed in the same fashion as all other grid boxes.

Rainier Commons Catch Basin Monitoring Plan for Abatement Work Performed in Phase IIb and Phase III
December 2, 2020

I. Introduction:

Rainier Commons (Rainier), in conjunction with NVL Laboratories (NVL), has prepared this *Catch Basin Monitoring Plan for Abatement Work Performed in Phase IIb and Phase III* (Plan) to ensure that interim measures to protect the storm and combined storm and sanitary sewer systems (collectively referred to as "storm sewer system") continue to perform effectively throughout the remainder of the *Rainier Commons Paint Abatement Project* (Project). These interim measures are described in Exhibit 43c of this plan. Additionally, the Plan provides demonstrable compliance with Condition 6 of the EPA Risk-Based Disposal Approval (RBDA), dated December 18, 2013; which identifies requirements relative to the prevention of exposure of PCBs to the storm sewer system network.

II. Background:

Several years ago, Rainier, in conjunction with Seattle Public Utilities (SPU) and King County Wastewater Management (K/C), developed and implemented best management practices (BMPs) intended to protect storm sewer system collection points against the introduction of paint chips which may contain PCBs. Collectively, these BMPs form Rainier's Site Source Control Containment Plan, which is periodically monitored by SPU and K/C. Ongoing laboratory testing of representative catch basin contents – by both Rainier and the public utilities – continues to demonstrate the efficacy of Rainier's site source control.

As required by RBDA Condition 6, Individual Phase Work Plans (IPWP) for Phase I and IIa contained a complete inventory of all known inlets and pathways to the storm sewer systems on the Rainier campus, including roof drains, manholes, catch basins, and all other entry points to the system. This inventory was originally developed by CDM Engineering on its schematic drawing dated January 2009. Subsequent refinements to the drawing include revisions dated July 2012.

More recently, in-depth evaluations of the storm sewer system, as well as recent changes brought about by new construction to the south, are reflected on the final inventory diagram titled *Rainier Commons Inventory of Storm Sewer Inlets*. These evaluations included extensive dye testing to validate stormwater flow patterns, the use of non-hazardous smoke to confirm pathway configurations and connectivity, and visual/audible tracking of individual system components.

Based on the results of this work, we now have a complete understanding of the water flow patterns of all the exterior surfaces, knowledge of the specific intake(s) into the system where water would go for any particular surface area, and knowledge of the location of the last access point for collecting samples just prior to effluents leaving the campus. In so much as the goal of our Site Source Control Plan and the controls in place when paint abatement work occurs is to prevent the introduction of PCBs into the public storm sewer system, strategically and continuously collecting samples and testing for PCBs at specific points presented in this plan will provide the most comprehensive protection.

III. Approach:

RBDA Condition 6 includes a requirement to obtain aqueous and catch basin sediment samples adjacent to the areas undergoing abatement; both prior to, during, and after completion of abatement activities. In previous Phases (IPWP I and IIa), this requirement was met by obtaining samples from the manhole and/or catch basin that represented the nearest, downstream storm sewer system component capable of obtaining a sample.

While this methodology was helpful in demonstrating the efficacy of the individual protective measures utilized for a particular Phase, it did not provide an overall view of the campus. The vagaries of the timing of rainfall have also interfered with sampling in the time frames contemplated in the original plan, e.g. rainfall at night and on weekends, but not for extended periods during weekday working hours. The initial methodology was also developed to address an abatement strategy that contemplated a series of starts and stops between Phases.

The planned abatement strategy for the remainder of the work on campus (IPWP IIb and III) is anticipated to be performed in a continuous flow of activities. The remaining Work is comprised of a series of "Setups", with several Setups being performed concurrently. It is anticipated that - at any given time – concurrently run Setups will be in any one of four stages: Mobilization, Abatement, Verification, and Demobilization. These stages can be generally categorized into the RBDA Condition 6 definitions of before, during, and after abatement activities.

Since these concurrent Setups will be located at several different locations throughout the campus at any given time, it is imperative that the Plan address the effectiveness of protective measures applied to the storm sewer system at the campus-wide level, rather than an individual catch basin or manhole. A monthly sampling interval will increase the opportunity to capture the sampling matrix in adequate volumes.

Based on the extensive analysis and testing of the Rainier campus storm sewer system, five main Zones and their respective main points of entry to the public storm sewer systems have been identified. Also, for each of these five Zones a sampling location has been identified, representing the system access point closest to the discharge into the public systems.

Further, by graphically mapping the contributing surface water flows for each Zone, it can be determined what Zone will be immediately adjacent to any given Setup (see attached diagram titled *Rainier Commons Catch Basin Sampling Zones*). For example, Setup #1 describes abatement work to be performed on Building 12, west elevation. Consulting the Zone diagram will identify the blue Zone (sample location C/B#3) as the Zone immediately adjacent to the Setup.

The cover sheet description of each Setup (located in the Plan, section titled *Floor Plans*) will clearly identify its applicable Catch Basin Sampling Zone. See attached example of Cover Sheet for Setup #1.

IV. Sampling Frequency:

To provide a campus-wide assessment of the on-site storm sewer system, each of the five Catch Basin Sampling Zones will be tested for the presence of PCBs on a monthly basis. Monthly testing will include collecting and analyzing both aqueous and sediment samples, as available and applicable.

The current regulatory storm sewer discharge levels for Rainier authorizes 0.1 micrograms per Liter (µg/L) per Aroclor of PCBs. Therefore, the action level for PCBs in the aqueous samples will be 0.1 µg/L per Aroclor of PCBs for this sampling plan. The action level for PCBs in sediments is 1 ppm (or 1 mg/kg) per Aroclor of PCBs. Laboratory detection limits/reporting limits shall be correspondingly adequate to detect and report each of these levels.

Rainier will make best efforts to time the collection of aqueous samples so that they are collected during or immediately following rain events, as practicable. It will consult the NOAA weather forecast for the Seattle area (http://www.wrh.noaa.gov/sew/) and/or other credible weather news source to assist in planning for collection of adequate aqueous samples, in anticipation of each monthly sampling round. In the event that no significant rain events occur during the current sampling period, samples will be

collected during the course of the next rain event, without waiting for the next monthly round, wherever practicable.

Monthly sampling will commence during initial Mobilization activities for the first Setup and will continue for 12 consecutive months following the last Demobilization of the final Setup. Sampling and monitoring results from the samples collected subsequent to final Demobilization will be reported under separate cover and will not be cause for delay in the Project Final Closeout Report submittal and review/approval.

V. Sampling Locations:

The sample collection location for each Catch Basin Sample Zone is:

Sample Zone	Sample Location Identifier	Description
Purple	Catch Basin #24	C/B located at NE corner of campus access road. Marked "Stormceptor"
Green	Clean-out #1	Clean-out adjacent to NE corner of new Urban Storage, South of Bldg 15
Orange	Manhole #6	Manhole west of southern area of Bldg 14
Yellow	Manhole #28	Manhole at eastern intersection of Bldg 1 and Bldg 2
Blue	Catch Basin #3	C/B located west of Bldg 13, in main parking lot

VI. Methodology:

A Certified Industrial Hygienist (CIH) will oversee all sample collection, analysis, data interpretation and reporting involved with the Work and the IPWPs, including this Sampling Plan.

To collect aqueous samples, NVL will use a telescopic catch pole fitted with a clean polyethylene catch cup fitted to the end to collect the water sample. The sample cup is to be appropriately discarded after use. After lowering the catch cup down into the water in the catch-basin, the aqueous sample will be retrieved and then poured directly into a one-liter amber glass bottle. The bottles will then be labeled and packed in an iced cooler for transportation to the laboratory via chain-of-custody protocol.

To collect sediment samples, NVL will use the same telescopic catch pole fitted with a trowel tip to collect any sediment present at the bottom of the catch-basin. The trowel tip is to be appropriately discarded or cleaned for re-use. After scooping up sediment, the sample will be retrieved, and sediment transferred into a clean and labeled container. Sediment samples will then be transported to the laboratory via chain-of-custody protocol.

For sediment samples, composite sampling will be used where possible, with the intent to collect a representative sediment sample. The bottom of a catch basin will be divided visually into four quadrants and four separate scoops will be taken from each quadrant, withdrawn and all placed in the same container. It is recognized that there may not be any sediment in one or more of the quadrants at the bottom of a catch basin. If this is the case, then only the scoops of sediment from the remaining quadrants

that can be collected will be submitted as the sample. The container will be submitted to the laboratory as a single sample and the directions for analysis will be to homogenize the sample prior to analysis.

If any sediment scoop includes appreciable amounts of water the sediment sampling will generally follow the procedure set forth by King County in Section 3.1 at page 8 of its East Waterway Source Tracing in King County Combined Sewer System Sampling and Analysis Plan document. Overlying water collected with the sediment will be allowed to settle and then be decanted from the sample container and be returned to the storm/sewer line.

NVL will document in its records and observations that sediment was or was not present at each sampling location, during an inspection.

Due to the time and cost involved with decontaminating the sampling equipment, the nature of the sampling equipment used and to avoid the potential for any cross contamination, collection device equipment will be disposable where possible and for what is not disposable, sufficient quantity of the equipment will be available when samples are taken to have clean items that contact the sample for each sample collected (For example, enough trowels will be present for the sampling round to facilitate the use of a clean trowel for each collected sample for that sampling round. Decontamination of any sampling equipment that is not disposable and will be used for the next sampling round will be done following a general procedure and protocol, which includes decontaminating by scrubbing equipment with water containing detergent, followed by rinsing with clean water and then rinsing/wiping the surface with hexane.

VII. Media Sample Volume Requirements:

Per the analytical procedure requirements:

- Aqueous sample minimum volume: 1 Liter.
- Sediment sample minimum mass: 10 grams

VIII. Analysis:

Samples will be submitted to AIHA and Washington Dept. of Ecology accredited laboratories to be analyzed for PCB Aroclor content via EPA Method 8082.

NVL Laboratories will be the primary laboratory used for the analysis. NVL meets the requirements of this Condition. NVL Laboratories' professional laboratory accreditations and reference to QA/QC documentation can be found at: http://www.nvllabs.com/qualifications.htm.

Laboratory turnaround time will be a standard five days, unless otherwise directed by Rainier's Project Manager.

IX. Chain of Custody:

Standard Chain of Custody Procedures include:

- All samples must have a unique field sample identifier.
- Personnel will maintain control and security of samples collected to prevent loss or possible tampering.
- A chain of custody form will be used to transfer custody of samples to the laboratory.
- The chain of custody form minimally includes fields for sample identifier, parameter for analyses, sample collection date and time, sampler, and custody transfer signature area.
- Samples collected will be properly stored and relinquished to the laboratory for analysis as soon as practical

X. Quality Assurance/Quality Control (QA/QC):

QA/QC details are necessary to ensure that the resulting data are of acceptable quality, including sensitivity, to be acceptable for comparison to EPA decision criteria.

Laboratory QA/QC

NVL Laboratories standard QA/QC procedures will be applicable. The QA/QC program in place is part of NVL Laboratories' multiple professional laboratory accreditations, which include recognition by The Washington State Department of Ecology (Ecology) – Accreditation ID C797 - for several listed chemicals, including PCB (Aroclor) analysis.

NVL's practices and procedures in place to maintain Ecology Accreditation include:

- Periodic Laboratory Inspections by Ecology to monitor and accept NVL's laboratory facilities, laboratory procedures/practices and testing conditions.

- Routine involvement with the Proficiency Testing Program where samples are sent to NVL's laboratory and results are reviewed by Ecology to test the accuracy of analysis.

NVL Laboratories' QA/QC program includes the addition of surrogates, laboratory control sample (LCS) and LCS duplicate, matrix spike (MS) and MS duplicate and continuous calibration check (CCV) sample for all PCB analysis.

Any other laboratory selected for analysis of samples will be required to have similar procedures and accreditations.

Sample Collection QA/QC

Duplicate Samples: To measure QA/QC for reproducibility and representativeness of results, a duplicate sample will be collected for each aqueous and sediment laboratory submission set. (i.e. one aqueous duplicate sample and one sediment duplicate sample.) By definition, a duplicate sample is a separate sample collected under comparable conditions as the first sample. Duplicate samples are to be submitted with the other samples in the set to the same laboratory.

For each and every laboratory submission set, the selection of the separate locations to collect the duplicate aqueous and sediment samples will be from the available identified sampling locations using a random number generator.

For aqueous samples, all five sampling locations identified in Section V of this document are available.

For sediment samples, only two of the sampling locations identified in Section V of this document are available given that they are locations where sediment would likely exist. These two locations are for Sample Zone Purple and Sample Zone Blue which are catch basins whereas the other three sampling locations are sections of drainpipe where it is not anticipated that sediment would deposit and be available for collection.

To create a duplicate sample, twice the standard volume of effluent or sediment collected for a standard sample will collected, homogenized and then placed into two separate sample containers and appropriate identified as duplicate samples.

Laboratory analysis results must be within 75 to 125 percent to be acceptable.

Split Samples: To measure QA/QC for accuracy and reproducibility of results, a split sample will be collected for each aqueous and sediment laboratory submission set. (i.e. one aqueous split sample and one sediment split sample.) By definition, a split sample is created by first collecting the sample in a single container, homogenizing the sample in the container, then dividing the sample in two by placing half of the sample in a separate container. Split samples are to be submitted to separate laboratories. One of the split samples is part of the sample set of collected samples sent to a laboratory.

For each and every laboratory submission set, the selection of the separate locations to collect the split aqueous and sediment samples will be from the available identified sampling locations using a random number generator.

For aqueous samples, all five sampling locations identified in Section V of this document are available.

For sediment samples, only two of the sampling locations identified in Section V of this document are available given that they are locations where sediment would likely exist. These two locations are for Sample Zone Purple and Sample Zone Blue which are catch basins whereas the other three sampling locations are sections of drain pipe where it is not anticipated that sediment would deposit and be available for collection.

To create a split sample, twice the standard volume of effluent or sediment collected for a standard sample will collected, homogenized and then placed into two separate sample containers and appropriate identified as split samples.

Laboratory analysis results must be within 75 to 125 percent to be acceptable.

All QA/QC samples will be managed under the chain-of-custody control as referenced above.

Maximum Concentration Level (MCL):

Laboratory results from analysis of samples will have a maximum allowable concentration level of 0.1 µg/L PCBs in aqueous samples and 1 mg/kg PCBs in sediment samples. Reporting Limits shall correspond to these levels.

XI. Contingency Plan:

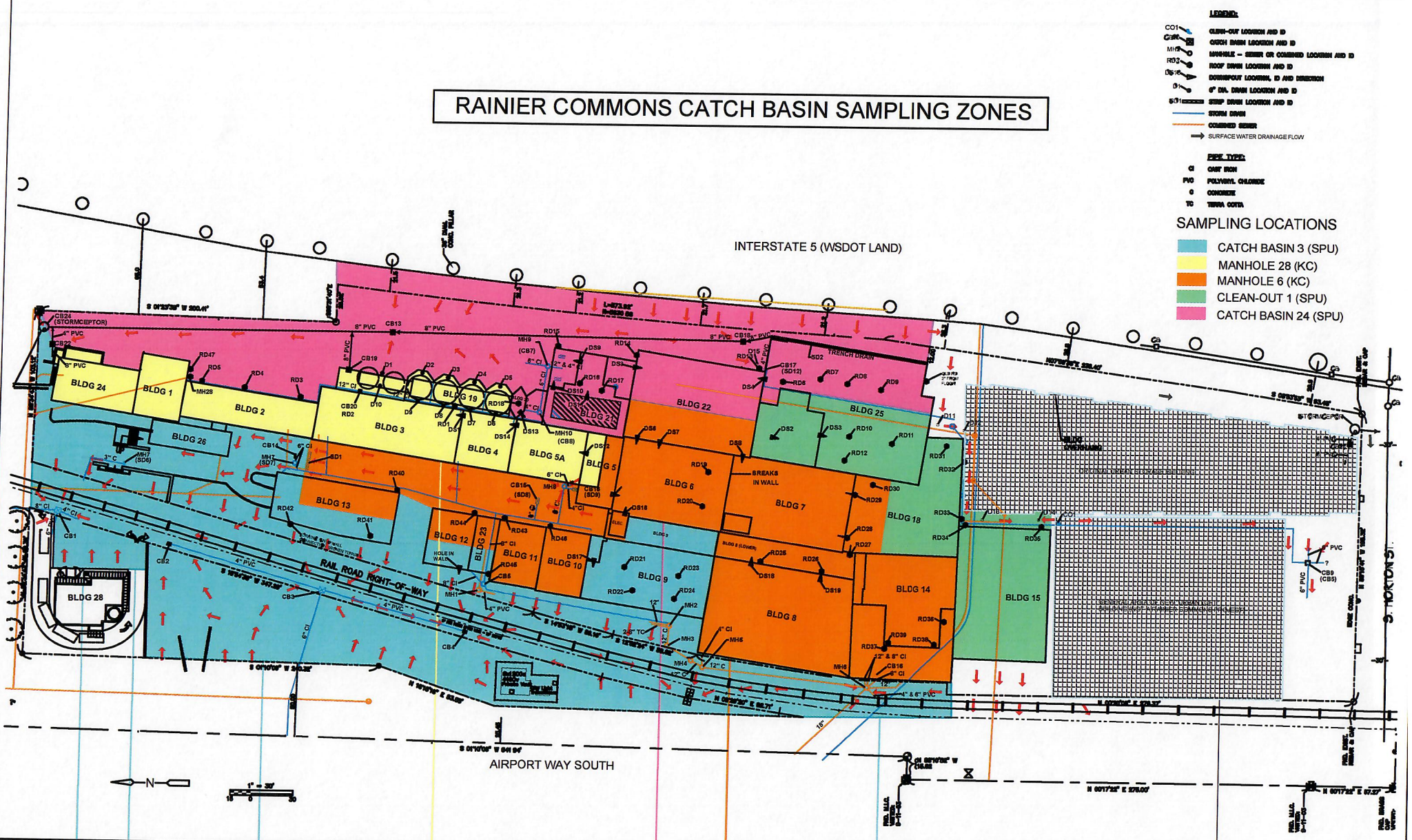
The presence of PCBs greater than (>) 0.1 µg/L in aqueous samples or greater than (>) 1 mg/kg in sediment samples shall trigger an immediate evaluation of any containment structures that are or recently have been in place along with current source control measures to address any deficiencies and implement appropriate additional interventions, corrections or improvements where applicable. Any results exceeding the defined MCL will be immediately reported to the EPA by Rainier's Project Management.

XII. Reporting:

Laboratory results will be reviewed by NVL's CIH for compliance with the defined MCL maximums and provided by NVL to Rainier for inclusion with Project documents. Upon conclusion of all Project abatement activities, NVL will prepare a final Catch Basin Sampling Report which will include a description of the sampling locations and sampling conditions as well as site photos. The results of the laboratory analysis will be shown in a data table. Any sample with a detection result above the MCL will be shown in bold in the table. Laboratory analysis reports and a site map showing the designated sample collection locations will also be included as attachments to the report.

Rainier will include the final Catch Basin Sampling Report as an attachment to the Project Final Closeout Report.

RAINIER COMMONS CATCH BASIN SAMPLING ZONES



REV. NO.	DATE	DRWN	CHKD	REMARKS

BASED ON ORIGINAL ENGINEERING BY:
CDM

Lansing Construction Consultants LLC
305 241st St SW
Bothell, WA 98021

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

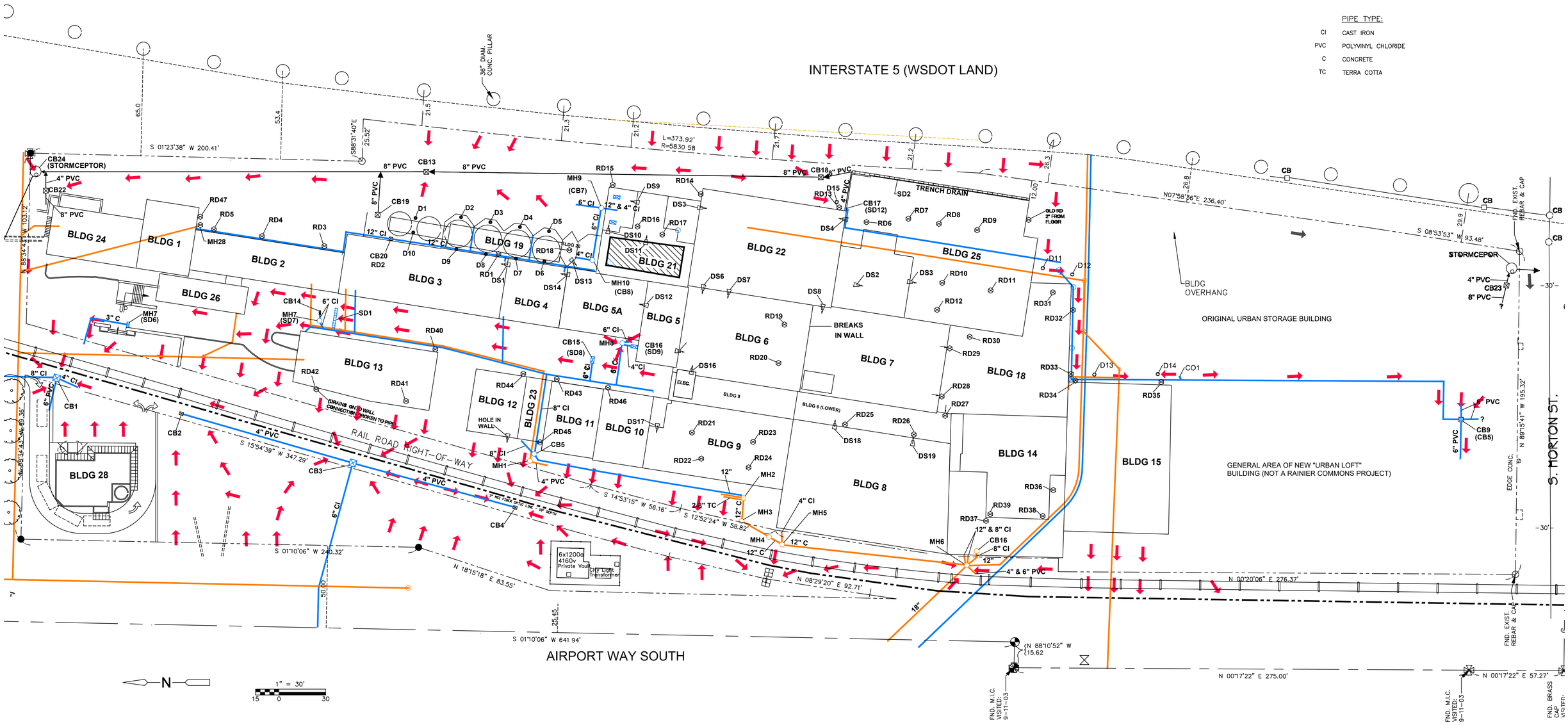
RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

CATCH BASIN SAMPLING ZONE LOCATIONS

8-1-2019

SHEET NO.
1

RAINIER COMMONS INVENTORY OF STORM SEWER INLETS



REV. NO.	DATE	DRWN	CHKD	REMARKS

BASED ON ORIGINAL ENGINEERING BY:
CDM
Camp Dresser & McKee Inc.
11811 N.E. 1st. Street, Suite 201, P.O. Box 3885
Bellevue, Washington 98005
Tel: (425) 453-8383
consulting • engineering • construction • operations

Lansing Construction Consultants LLC
305 241st St SW
Bothell, WA 98021

VERIFY SCALE
THIS BAR IS ONE INCH LONG AT FULL SCALE

RAINIER COMMONS LLC
3100 AIRPORT WAY S
SEATTLE, WASHINGTON

INVENTORY OF STORM SEWER INLETS

8-1-2019

SHEET NO.
1

Exhibit 43c:

Campus-wide Storm and Sanitary Inlets Protection Plan

December 2, 2020

This plan addresses the campus-wide protection of storm and sanitary system inlets in place for ongoing abatement work through Phase III and continuing for 12 additional months subsequent to final abatement activities. These protections are a portion of place Rainier Commons' ongoing site source control activities and reflect Best Management Practices (BMPs) for storm and sewer inlet protection.

Protective Measures:

Catch Basins

- Two layers of filter cloth
- Top layer inspected daily. Replaced minimally every 7 days
- Top and bottom layer replaced minimally every 21 days

Roof Drains

- Two layers of filter cloth (unless ponding during heavy rain requires temporary emergency reduction to one layer)
- Top layer inspected daily. Replaced every 7 days
- Top and bottom layer replaced minimally every 21 days

Manholes

- Sealed closed or protected with filter fabric

Prescriptive Application of Additional Protection

Based on field observation and/or test data, the NVL CIH may require additional protection at any time. Examples of when additional protection may be considered include inlets whose standard filtering systems clog too rapidly, filtration that creates excessive pooling of storm water, or inlets requiring additional screening based on sampling results.

For each inlet requiring additional protection, a licensed Professional Engineer (PE), or other similarly qualified expert will design a specific filter style protection for the inlet incorporating appropriate principles and design specifics utilizing BMPs from Washington State Department of Ecology's Stormwater Management Manual of Western Washington, including but not limited to:

- BMP C22 Storm Drain Inlet Protection

Maintenance requirements to be defined by the engineering consultant.

Inlet Protection Inspection and Maintenance

Rainier Commons and Contractor personnel shall inspect and maintain catch basin filters and any other protection put in place. Inspection and maintenance shall be minimally daily and shall be more frequent during the day during and after storm/rain events. Any visible debris on filters will be collected. If the

insert becomes clogged it will be replaced. Any visible paint debris adjacent to the containment shall be removed, even if not from the project area.

Waste Control

Any waste collected shall be collected and characterized prior to disposal determination pursuant to all laws, rules and regulations applicable to the waste as characterized.

Emergency Overflow Protection Plan

If there is a breach of the containment allowing blast media of PCB bulk product waste to escape, the Emergency Overflow Protection Plan is to block any storm and sanitary sewer inlets that may be at risk and allow water to pool. Once the breach is contained, the plan is to extract and collect the water for proper disposal treatment, then clean the surface areas prior to allowing drain inlet to return to functioning status. To prepare for such an emergency, plastic sheeting and material necessary to block inlets will be kept on site by the contractor for this purpose and be readily accessible for immediate use, in addition to absorbent spill prevention kits.

Rainier Commons
IPWP III Dust Sample Collection and Assessment Plan

NVL Laboratories, Inc.
Office: (206) 547-0100
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Date:	**January 8, 2020**
NVL Project No.	**2012-494**
Site Address:	**Rainer Commons** 3100 Airport Way S, Seattle, WA 98134
NVL Document No.	**IPWPIII-01**

I. SAMPLING PLAN

1. Introduction

1.1 Objective/Scope

The objective of this sampling plan is to collect wipe samples to test and measure the potential presence and concentrations of PCBs and specified metals in settled dust on surfaces in tenant spaces that are adjacent to paint removal activities.

If ever PCBs are detected in settled dust at the identified trigger level of greater than 10 ug/100 cm^2, the additional analysis of the sample(s) collected for metal content is to be used to compare to the known metals profile of the blasting media to evaluate if PCBs were introduced by the paint removal process.

1.2 Project Description

Two types of samples, one for PCBs and one for metals, can be collected immediately adjacent to each other at any of the testing locations. Sample collection for PCBs will be done pre and post abatement. Sample collection for metals will be done post abatement and will be analyzed for metal content (copper, zinc, chromium and nickel) only if ever PCBs are detected at the identified trigger level of greater than 10 ug/100 cm^2. Sample collection for metals prior to abatement is not necessary given that use of the metal containing blasting media has not yet occurred.

Two different sample collection media will be used for the two types of samples.

1. For PCB analysis, a “hexane wipe” is used.

2. For metal content analysis, a “ghost wipe” is used.

Because the surface settled dust is removed once a sample is collected with use of either media, the exact same surface on any given day a sample is collected cannot and will not be used to

collect a sample with the other media. As a result, on any particular day when two or more samples are collected at a testing location, the surfaces sampled will be not be the same exact surface, rather testing will be done on a surface that is immediately adjacent to the initial location.

The specific locations from which samples will be collected are identified on the interior containment wipe sampling location diagrams.

Samples collected for PCB testing will be submitted to the laboratory for analysis. Samples collected for metal content analysis will be submitted to the laboratory and the Chain of Custody will indicate that these samples are to be held in custody for potential analysis. Further analysis will be ordered per the protocol below.

Once the laboratory analytical results are available for PCB content, NVL's CIH will determine if any PCB results are greater than 10 ug/100 cm^2, and if so, will send instructions to the laboratory which specific samples collected for metal content that are held in custody are to be analyzed.

Any samples submitted to the laboratory and requested to be held in custody for potential analysis are to be kept in custody by the laboratory for 14 days if not analyzed unless indicated otherwise by NVL's CIH. After this period, the samples are to be disposed of per the laboratory's standard protocol for disposing samples.

1.3 Basis of Plan

NVL Laboratories, Inc. (NVL) has prepared this sampling plan with reference to the "EPA's Requirements for House Dust Sample Collection and Assessment", for the Phase II work areas and to establish procedures ensuring the quality of the sample collection, analysis, interpretation and reporting.

Further references to this plan herein will be under the following underlined title: IPWP3 Dust Sample Collection and Assessment Plan (or "Sampling Plan").

2. References

The following lists the references used in connection with this Sampling Plan. References are referred to in this document using the underlined titles.

- Work Plan = "Work" or "Plan" = Rainier Commons Work Plan - Dated March 25, 2013 / Revised July 25, 2013
- IPWP1 = Individual Phased Work Plan #1 - Dated April 3, 2014
- IPWP2 = Individual Phased Work Plan #2 – Dated February 24, 2015
- Quality Assurance Project Plan for Rainier Commons House Dust Sample Collection and Assessment, USEPA November 2014
- EPA's Requirements for House Dust Sample Collection and Assessment

3. Description of Areas in IPWPIII to be Sampled

Interior tenant spaces that are adjacent to active paint removal activities are the areas that will be sampled.

Each interior space will be designated for their occupancy use as “RESIDENTIAL” OR “NON-RESIDENTIAL” based on Rainier Commons’ input. The determined occupancy designation will be indicated on each interior containment wipe sampling location diagram.

4. Overall Sampling Parameters

The following summarizes overall sampling parameters:

- Date and time for Sample Collection: Commencing prior to, and post any IPWPIIb paint removal work.

- Sample Locations: Sample locations are indicated on each of the interior containment wipe sampling location diagrams. Specifics regarding sample locations are detailed in Section 5.

- Samples to be collected: PCB wipe samples to be collect via hexane wipes; wipe samples for blasting media metals to be collected via ghost wipes.

- Sample Surface Size: PCB wipe samples will be collected over a 10 cm by 10 cm area. Metal content samples will be collected over a 1 foot by 1 foot area.

- Number of Samples Planned: Each interior containment wipe sampling location diagram indicates the number of sampling locations, which is equivalent to the number of samples planned with the addition of quality assurance and quality control sample(s), which is defined as 1 additional field blank for every 10 original samples in a laboratory submission set.

- Laboratory Method Reporting Levels:

    - For PCBs: The Method Reporting Limit will be .050 µg/wipe.
    - For Metals: The Method Reporting Limit will be 4.0 µg/wipe.

- Action Level: The PCB action level for reporting will be 10 µg/wipe. Any sample with a detection result above an Action Level will be shown in bold in the table in the report provided to the EPA.

5. Locations for Testing

Interior tenant spaces that are adjacent to active paint removal activities are the areas that will be sampled.

The testing locations for each space are indicated on the interior containment wipe sampling location diagrams.

The protocol for determining the interior testing locations is as follows:

A: Each interior space will be designated for their occupancy use as “RESIDENTIAL” OR “NON-RESIDENTIAL” based on Rainier Common’s determination. The space occupancy designation will be indicated on each interior containment wipe sampling location diagram.

B: For spaces determined to be “Residential”:

Settled dust samples will be collected:

1. At points of ingress within the interior containment (number of locations depends on how many points of ingress there are).
2. Just outside secondary containment on the floor (1 location).
3. Mid-way between secondary containment and farthest wall at waist and ground level (2 locations, where waist level opportunity exists).
4. Near or at the farthest wall away from secondary containment at waist and ground level (2 locations, where waist level opportunity exists).

C: For spaces determined to be “Commercial”:

Settled dust samples will be collected:

1. At points of ingress within the interior containment (number of locations depends on how many points of ingress there are).
2. Just outside secondary containment on the floor (1 location).

The coding system to establish unique and distinguishable names for sample locations is described in the following table:

Designated Sample Location #	Building & Location	Building Elevation View	Sample Type	Sample Type secondary indicator*
• Sequential # starting at 1 for the first in the sequence. • Number is predetermined, not repeated, and field annotated on each and every sampling location diagram. • If for some reason another "additional / new" location is sampled in the field, it will be given the next number in the current sequence.	**B =** Letter B followed by Building # **U** = Letter U followed by Unit #	Identified by the compass direction the wall undergoing abatement is facing. **N =** North **S =** South **E** = East **W** = West	**I** = Point of Ingress within the interior containment (number of locations depends on how many points of ingress there are) **O** = Just outside secondary containment on the floor (1 location) **M** = Mid-way between secondary containment and farthest wall at waste and ground level (2 locations where waist level surface to test opportunity exists) **F** = Near or at the farthest wall away from secondary containment at waist and ground level (2 locations where waist level surface to test opportunity exists) **Q** = QA/QC sample = 1 field blank for every 10 original samples	**W** = Waist Level **G** = Ground Level
**= W or G not used if not applicable for the location description* *A dash (-) will be placed between each code component on the Sample Locations*				

As an example using this coding system: For the 8th predetermined sample location for the residential space, assigned Unit #410 on the fourth floor of building 10, while abating the building elevation facing towards the south, that is selected because a sample is to be taken from the floor adjacent to the farthest wall away from the secondary containment would be identified as:

8-B10U410-S-FG

The coding system described above may change during the course of the project due to such things as practical experiences, and if so, the updated system will be written down, kept with the project records, and provided to EPA in the applicable weekly progress report.

6. Sampling Methodology

A Certified Industrial Hygienist (CIH) will oversee all sample collection, analysis, data interpretation and reporting involved with this IPWPIII Dust Sample Collection and Assessment Plan.

Wipe Samples for PCBs

- Surface samples for the presence of Polychlorinated Biphenyls (PCBs) will be collected using a wiping technique with 2 inch square cotton gauze pads wetted with n-hexane which will be previously prepared by NVL at their laboratory location in separate clean glass vials.
- Sample collection methodology will follow the steps described in QAPP set forth below.
- Surface areas sampled will be measured using a disposable 100 square centimeter (100 cm^2) paper template. One template will be used per sample collected and then disposed.
- Clean nitrile gloves will be used by the sampler at each location and will be appropriately collected for disposal and replaced at each new location.
- All sample locations will be identified, reviewed and confirmed with Rainier Commons personnel on site prior to sample collection.

Wipe Samples for Metals

- Surface samples for the presence of metals in the blasting media (Chromium, Copper, Nickel and Zinc) will be collected using a wiping technique using *Ghost Wipes*.
- Sample collection methodology will follow the steps described in QAPP set forth below.
- Surface areas sampled will be measured using a disposable one foot square paper template. One template will be used per each sample collected and then disposed.
- Clean nitrile gloves will be used by the sampler at each location and will be appropriately collected for disposal and replaced at each new location.
- All sample locations will be identified, reviewed and confirmed with Rainier Commons personnel on site prior to sample collection.

7. Chain of Custody

NVL's Standard Chain of Custody Procedures include:

- All samples must have an unique sample identifier.
- Personnel will maintain control and security of samples collected to prevent loss or possible tampering.
- A chain of custody form will be used to transfer custody of samples to the laboratory.
- The chain of custody form minimally includes fields for sample identifier, parameter for analyses, sample collection date and a custody transfer signature area.
- Samples collected will be properly stored and relinquished to the laboratory for analysis as soon as practical.

NVL will also standardize and use a logical system for uniquely identifying samples collected in the field. A field copy of each Sampling Location Diagram, annotated with individual Designated Sample Location numbers will be included with the Chain of Custody form and become a part of the project records.

8. Analysis

Wipe Samples for PCBs

- Samples will be submitted to a WA Dept. of Ecology accredited laboratory to be analyzed for PCB Aroclor content via EPA METHOD 8082A - POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY. The Method Reporting Limit will be established at 0.050 µg/wipe.

Wipe Samples for Metals

- Samples will be analyzed by NVL Labs. EPA Method 3051/6010C: Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oil. Samples are to be analyzed for metals previously determined to be present in abrasive blasting media; Chromium, Copper, Nickel, and Zinc.

Laboratory turnaround time will minimally be the standard of five business days.

9. Reporting

A written report will be provided by NVL to Rainier Commons to provide to the EPA upon completion of all laboratory analysis. The report will include a description of the sampling locations as well as site photos. The results of the laboratory analysis will be shown in a data table. Any sample with a detection result at or above an Action Level will be shown in bold in the table. Laboratory analysis reports and a site map showing sample collection locations will also be included as attachments to the report.

II. QUALITY ASSURANCE (QAPP)

In November 2014, EPA provided Rainier Commons a document titled "*QUALITY ASSURANCE PROJECT PLAN FOR RAINIER COMMONS HOUSE DUST SAMPLE COLLECTION AND ASSESSMENT"*, which addressed interior dust wipe sampling at Rainier Commons. This EPA approved document will be referred to in this plan as the EPA QAPP. In general, the QAPP set forth in this plan is modeled on the EPA QAPP, with minor exceptions noted below:

- EPA specific procedures and processes identified in the EPA QAPP document will be modified to be Rainier Commons and NVL specific.
- Samples will not be analyzed at EPA's Manchester Environmental Laboratory, but will be analyzed at private laboratories complying with identified QA/QC procedures.
- Sample collection procedures for the metals wipe samples will be performed in the same manner as the PCB wipe samples as set forth herein, with the exception of the sample media and sample area as noted in this document.

In addition to the above, the following is added for clarity:

- A "testing location" is the general location that is indicated where samples are collected. Examples include: point of ingress, just outside secondary containment, and mid-way between secondary containment and farthest wall at waist level.
- It is also important to note that because the surface settled dust is removed once a sample is collected when wiping with a media, the exact same surface on any day a sample is collected cannot be used to collect another sample. As a result, on any particular day when and where two or more samples are collected at a testing location, the surfaces sampled will be not be the same exact surface, rather testing will be done on surfaces that are immediately adjacent to each other.

1. Project Management Elements

1.1 Distribution

NVL staff involved with the project will receive instruction and be aware of the content of this plan. Rainier Commons' project manager will also receive a copy of this document and be responsible for any necessary further distribution.

1.2 Project Management/Task Organization

Munaf Khan	Project Manager, Laboratory Director / President
Dave Leonard	Certified Industrial Hygienist (CIH) / Technical Resource Expert
Marcus Gladden	Industrial Hygienist

Responsibilities of those listed above when collecting samples will include:

- receiving and inspecting the sample containers,
- completing and signing appropriate field records,

• collecting field samples as specified,
• assigning “unique and distinguishable” identifiers to each and every sample collected pursuant to the coding system set forth herein, or as amended,
• verifying the completeness and accuracy of chain-of-custody documentation,
• controlling and monitoring access to samples while in their custody, and
• initiating shipment of the samples to appropriate destinations.

NVL’s schedule of tasks and activities include:

Activity	**Date / Timeframe**
Sample Collection	To be determined and coordinated with Rainier Commons prior to and following paint removal activities associated with IPWPIII.
Laboratory Analysis	Standard Laboratory Turn Around (Typically 5 business days)
Data Report	Within 30 business days of receipt of Laboratory Analysis Results

2. Quality Objectives and Criteria for Measurement Data

As stated in the EPA QAPP:

> Data quality objectives (DQOs) are qualitative and quantitative statements that clarify the intended use of the data, define the type of data needed to support the decision, identify the conditions under which the data should be collected, and specify tolerable limits on the probability of making a decision error due to uncertainty in the data. DQOs are developed by data users to specify the data quality needed to support specific decisions. DQOs for measurement data (referred to here as data quality indicators) are precision, accuracy, representativeness, completeness, comparability, and measurement range. The overall QA objective for analytical data is to ensure that data of known and acceptable quality are provided. To achieve this goal, data must be reviewed for 1) representativeness, 2) comparability, 3) precision, 4) accuracy (or bias), and 5) completeness. Precision, accuracy, completeness, sample representativeness and data comparability are necessary attributes to ensure that analytical data are reliable, scientifically sound, and legally defensible. Each analytical result or set of results generated should be fully defensible in any legal action, whether administrative, civil or criminal.
>
> Precision: Precision is a measure of internal method consistency. It is demonstrated by the degree of agreement between individual measurements (or values) of the same property of a sample, measured under similar conditions.
>
> The precision of the analyses is measured by monitoring the relative percent differences between duplicate measurements. Laboratory precision and accuracy can be measured by the laboratory measuring Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples and the analysis of laboratory duplicate samples. Laboratory MS/MSD analyses are usually performed on a 5% frequency (1 per 20 samples) while field duplicate samples analyses are performed at a 10% frequency (1 per 10 samples collected). However, lab and field duplicates, as well as MS/MSD

analyses are not appropriate for wipe samples which represent a specific area measured and cannot be split or cut at the laboratory.

Accuracy (Bias): Accuracy is defined as the degree of agreement between an observed value and an accepted reference or true value. Accuracy is a combination of random error (precision) and systematic error (bias), introduced during sampling and analytical operations. Bias is the systematic distortion of a measurement process that causes errors in one direction, so that the expected sample measurement is always greater or lesser to the same degree than the sample's true value.

Accuracy will be evaluated by the using percent recovery (%R) of the target analyte in spiked samples (MS/MSD) and also the recoveries QC samples. Field blanks and method blanks are also used as indicators of accuracy and potential bias in the sample results. Percent recoveries are calculated as follows:

$$\% \text{ Recovery} = \frac{SQ - NQ}{S} \times 100$$

SQ = quantity of spike or surrogate found in sample
NQ = quantity found in native (un-spiked) sample
S = quantity of spike or surrogate added to native sample

Representativeness: Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter, variations at a sampling point, a process condition, or an environmental condition. Representativeness of samples is ensured by adherence to standard field sampling protocols and standard laboratory protocols. The design of the sampling scheme and number of samples should provide a representativeness of each matrix or product of the chemical processes being sampled.

Comparability: Comparability is an expression of the confidence with which one data set can be compared with another. Comparability is dependent on the proper design of the sampling program and on adherence to accepted sampling techniques, standard operating procedures, and quality assurance guidelines. This is measured and achieved by using the same matrix, sample location, sampling techniques and analytical methodologies.

Completeness: Completeness is the percentage of valid results obtained compared to the total number of samples taken for a parameter. Since sampling are grabs and limited in number, the number of valid results obtained from the analyses are expected to be 100%. The % Completeness may be calculated using the following formula:

$$\% \text{ Completeness} = \frac{\text{\# of valid results}}{\text{\# of samples taken}} \times 100$$

The QA objectives outlined, above, will be evaluated in conjunction with the data validation process.

3. Special Training Requirements/Certification

All persons collecting samples, under this plan, need to have proper training in the collection of dust samples using the wipe technique.

General safety precautions will be followed.

The analysts performing the analytical work for this project have extensive knowledge and skill in the execution of the analytical methods being requested at the certified laboratories selected.

4. Documentation and Records

NVL will document all field sample collection and handling activities necessary for proper processing in the laboratory and, ultimately, for the interpretation of results.

Required sample collection, locational data, monitoring data, shipment, chain of custody documentation, and final validated results will be kept on record.

Documentation in the field will be sufficient to enable participants to reconstruct events that occurred during the project accurately and objectively at a later time.

Documentation records need to be complete such that the analytical results can be traced to a dust sample obtained from a known location on a specific date. Any field notes deemed necessary to complete this documentation will be maintained with the site file.

Photographs of sample locations may also be used to clarify the types of surfaces where dust samples were obtained.

The following documents will be archived at the laboratory performing the analyses: (1) signed hard copies of sampling and chain-of-custody records (2) electronic and hard copy of analytical data including all supporting documentation - extraction and sample preparation bench sheets, raw data and reduced analytical data.

The laboratory will store all sample receipt, sample login, extraction/preparation, and laboratory instrument print-outs and other analytical documentation as per their established SOPs.

5. Sample Handling and Custody Requirements

The purpose of these procedures is to ensure that the quality of the samples is maintained during collection, transportation, storage, and analysis. All chain-of-custody requirements comply with NVL's Standard Chain of Custody Procedures, which include:

- All samples must have an unique field sample identifier that will include collection details that cannot be reused.
- Personnel will maintain control and security of samples collected to prevent loss or possible tampering.
- A chain of custody form will be used to transfer custody of samples to the laboratory.
- The chain of custody form minimally includes fields for sample number, parameter for analyses, sample collection date and time, sampler, and custody transfer signature area.

Samples collected will be properly stored.

Proper labeling of samples is an important aspect of quality assurance and will be adhered to.

A Chain-of-Custody Form acts as a record of sample shipment and a catalog of the contents of each shipment (coinciding with information on the field record).

Upon receipt of the samples, the analytical laboratory will record the arrival time on the chain of custody form. Any observations regarding the shipment (e.g., torn or damaged packaging, insufficient dry ice) also will be documented on the chain of custody form.

Samples will be hand delivered (or express shipped) to the analytical laboratory on the day of or day following sample collection.

The primary objective of chain-of-custody procedures is to provide an accurate written or computerized record that can be used to trace the possession and handling of a sample from collection to completion of all required analyses. A sample is in custody when it is:

- In someone's physical possession,
- In someone's view,
- Locked up, or
- Kept in a secured area that is restricted to authorized personnel.

6. Analytical Methods Requirements

The analytical methods that will be used by NVL for this project are as set forth above. For any instance in which laboratory results exceed QC acceptance criteria, re-extraction and/or reanalysis will occur as indicated in the applicable analytical method. The respective laboratory analysts will be responsible for ensuring that appropriate sample analysis procedures are followed and for taking appropriate actions to ensure deficiency correction, if any should occur

7. Quality Control Requirements

As stated in the EPA QAPP regarding routine quality control measures to be performed by the laboratory:

> QC checks for sample collection will be accomplished by a combination of chain-of-custody protocols and laboratory QA procedures as prescribed in the sampling or analytical methods. No QC samples (i.e., double blind performance evaluation samples) are planned for this activity outside of the normal laboratory QC criteria outlined in the analytical methods. These QC samples include blanks (field and laboratory method), field duplicates (where applicable) and method-specified lab QC. Lab duplicate and MS/MSD analyses are not appropriate for wipe samples which represent a specific area measured and cannot be split or cut at the laboratory or in the field when the sample is collected. A "true" field duplicate is also not appropriate for the dust samples in this project, as the vacuum wiping action with the testing media will remove all material from the area to collect the first sample leaving none to be collected by any testing methods. Results from these samples will be compared to the QC requirements indicated. All analyses that will be

performed for this project will produce definitive data. DQI targets for this project are specified in section 1.6 and precision and accuracy requirements are summarized in Table 5 of this QAPP.* Bias for estimated qualified data will be determined by the validation process in accordance with the objectives outlined in this document and the validation stages defined by the EPA (2009).

Table 5: Summary of Data Quality Objectives

Total Samples[1]	Matrix	Parameter	# QA Samples	Matrix	Container	Holding Time	Preservation	Method	Reporting Limit[2]	Precision	Accuracy
5	Dust	PCB Aroclors	1 filter blank	Dust	Glass Jar (shared)	14 days extraction / 40 days analysis	none	EPA 8082	0.1 mg/kg	50% RPD	50-150%
5	Dust	Metals: Cr, Cu, Ni, Pb, Zn	1 filter blank	Dust		180 days	none	EPA 3050B + 6010B/6020A	TBD	50% RPD	70 - 130%
6	Hexane Wipe	PCB Aroclors	1 wipe blank & 1 field duplicate	Surface residue	Wipe / Glass Jar	14 days extraction / 40 days analysis	none	EPA 8082	0.5 µg/wipe	50% RPD	50-150%
6	Ghost Wipe	Metals: Cr, Cu, Ni, Pb, Zn	1 wipe blank & 1 field duplicate	Surface residue	Wipe / Glass Jar	180 days	none	EPA 3050B + 6010B/6020A	TBD	50% RPD	50-150%

[1] Total number of samples includes field QC (field duplicate, blanks)

[2] The bases for the specified reporting limits are included in Appendix B.

*= text is from referenced EPA QAPP from 2014. As a result, section 1.6 referenced in the text is in that document. Table 5 is also in that document and is presented above.

For clarification and modification of the above text that will be specific for this projects:

Wipe Samples for PCBs

- Samples will be submitted to a WA Dept. of Ecology accredited laboratory to be analyzed for PCB Aroclor content via EPA METHOD 8082A - POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY. The Method Reporting Limit will be established at 0.050 µg/wipe.

Wipe Samples for Metals

- Samples will be analyzed by NVL Labs. EPA Method 3051/6010C: Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oil. Samples are to be analyzed for metals previously determined to be present in abrasive blasting media; Chromium, Copper, Nickel, and Zinc. The Method Reporting Limit will be 4.0 µg/wipe.

Laboratory turnaround time will minimally be the standard of five business days.

- For PCBs: The Method Reporting Limit will be .050 µg/wipe.
- For Metals: The Method Reporting Limit will be 4.0 µg/wipe.

A field duplicate sample will not be collected, as described in the EPA text above. Also, a field duplicate is also not appropriate for the dust samples collected in this project, as the vacuum wiping action with the testing media will remove all material from the area to collect the first sample leaving none to be collected by any testing methods."

8. Instrument/ Equipment Testing, Inspection, and Maintenance Requirements

All instrument/equipment testing, inspection and maintenance will follow the standard operating procedures for any preventative maintenance required on laboratory instruments specified in the laboratory's QA Manual.

9. Instrument Calibration and Frequency

All instruments and equipment used during fixed laboratory sample analyses will be operated, calibrated, and maintained according to the manufacturers' guidelines and recommendations, as well as criteria set forth in the applicable analytical methodology references and/or in accordance with the laboratory's QA manual and SOPs.

10. Inspection/ Acceptance Requirements for Supplies and Consumables

Hexane wipes will be provided by NVL's lab, along with containers in which to return them for direct digestion/extraction. Hexane wipes will have been pretested for PCBs; ghost wipes used are certified clean for the metals of interest.

11. Data Management

Standards contained in these documents will be used to ensure the validity of data generated by NVL for this project. Data validation will be performed as identified.

12. Assessment Oversight/Corrective Action

NVL's CIH will be responsible for reviewing documentation for accuracy and completeness within 48 hours of the sampling event. Sample results provided to the PM by the laboratory will be appended to the project reports. The PM will compare the sample information in the field log notebooks with the analytical results appended to the inspection report to ensure that no transcriptions errors have occurred.

If major deviations from the QA requirements of the project are observed in the data validation process, NVL's PM will contact the laboratory to correct the problem. If the laboratory is not responsive to the request, NVL's PM will inform Rainier Commons of the situation. A brief narrative will be written explaining the deviations, and recommendations will be given based on the quality of the submitted data. Any need for re-sampling and subsequent re-analysis will be decided by Rainier Commons if and when such a decision making situation arises.

Unavoidable deviations from the procedure set forth in this QAPP shall be documented by the NVL PM. Corrective action procedures that might be implemented from QA results or detection of unacceptable data will be developed if required and documented.

13. Data Validation and Usability

13.1 Data Review, Validation, and Verification Requirements

The data validation review of data packages will include an evaluation of the information provided on the analytical data sheets and required support documentation for all sample analyses; the

supporting sample collection documentation, including chain-of-custody forms. The QA review also will examine adherence to the procedures as described in the cited SOPs and the specified analytical methods.

13.2 Validation and Verification Methods

All data generated shall be reviewed in accordance with the QA/QC requirements specified in the methods and the technical requirements in the QAPP.

The raw data for this project shall be maintained by the laboratory. Data review will be performed by the laboratory for all the analyses prior to the release of data. The laboratory will also archive the analytical data into their laboratory data management system.

Sample qualifications based on field blank results (when collected) will be applied in the same manner as qualifications based on laboratory method blank results.

13.3 Reconciliation with User Requirements

All data and related information obtained during the course of this project will be included in the data report package to be submitted to NVL's CIH. Results of the validated analytical data will be reviewed against the project's data quality objectives for accuracy (adequate reporting limits) and completeness.

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NVL's

HEALTH AND SAFETY PLAN (HASP)

for the

Rainier Common's Exterior Paint Removal Project

NVL Laboratories
4708 Aurora Ave North
Seattle WA 98103

NVL Project #: 2012-494

Version Date: January 8, 2020

The HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new tasks are implemented. The latest version date is posted at the NVL construction site office.

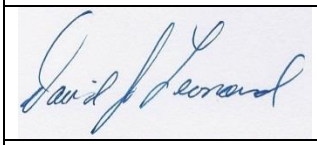
HEALTH AND SAFETY PLAN APPROVAL

NVL Laboratories (NVL) developed this Health and Safety Plan (HASP) for its use. NVL claims no responsibility for its use by others. This plan covers activities with the potential for exposure to hazardous materials during activities associated with the project.

The Contractor at the Site will have a HASP in operation at the site. The intent is to follow the procedures documented in the Contractor's HASP with NVL's HASP providing specifics and clarity for NVL operations.

With this said, NVL's HASP is written for the specific site conditions, purposes, dates, and personnel specified and must be amended as described in the document, particularly if conditions change. It is recognized that this is a living document and will be continuously improved and updated during the course of the project. At a minimum, this HASP is to be reviewed and updated by the CIH minimally every six months and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially approved as signed below, it is critical that the latest version of the HASP is used. The latest version date is kept at NVL's site office.

The HASP is not intended to address normal safety practices on the construction site or NVL's standard operating procedures that are covered in the Washington State Department of Labor and Industries Safety Standards for Construction Work (WAC 296-155).

PLAN PREPARED BY:	
	January 8, 2020
David Leonard, CIH	Date
	January 8, 2020
Munaf Khan, NVL President	Date

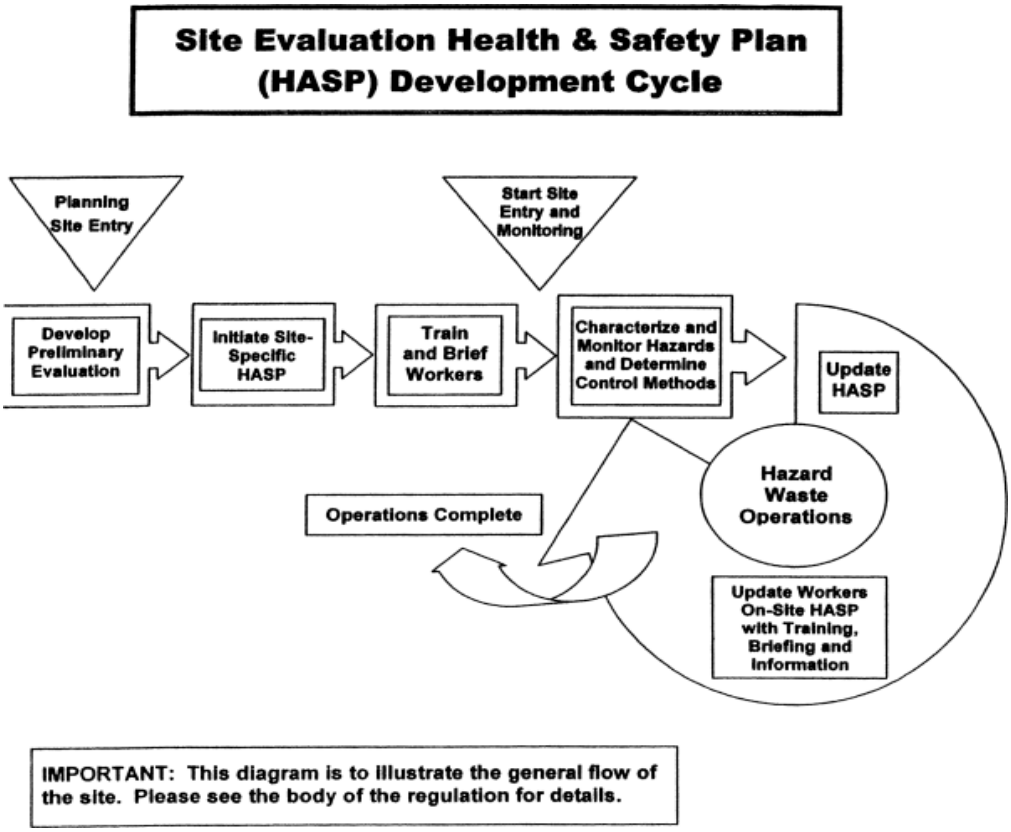
PROJECT CONTACTS AND EMERGENCY INFORMATION	
SITE LOCATION:	**3100 Airport Way South** **Seattle, WA 98134**
NVL JOBSITE ADDRESS:	**3100 Airport Way South** **Seattle, WA 98134**
NVL LABORATORIES, INC. (NVL) **KEY PERSONNEL** **HEALTH AND SAFETY** • **SITE SAFETY OFFICER**	**NVL Laboratories, Inc.** (NVL) 4708 Aurora Ave. N. Seattle WA 98103 Office: Phone: (206) 547-0100 Fax: (206) 634-1936
	Munaf Khan Project Manager/Laboratory Directory/President CELL: 206-914-4646 E-mail: Munaf.K@nvllabs.com
	Dave Leonard MSPH CIH Certified Industrial Hygienist (CIH) CELL: 206-498-0326 E-mail: catalystnw@comcast.net
	Marcus Gladden Site Safety Officer / Industrial Hygienist CELL: 206-819-4213 E-mail: Marcus.G@nvllabs.com
Project Site KEY PERSONNEL	**Doug Lansing** Construction and Facilities Manager Rainier Commons, LLC Project Manager : Rainier Commons CELL: 206-963-6656 E-mail: Douglasplansing@hotmail.com
NEAREST HOSPITAL:	**Harborview Medical Center** 325 Ninth Avenue Seattle, WA 98104-2499 General Information: 206-744-3300 Emergency Department: 206-744-3074 Urgent Care, 206-744-5867
EMERGENCY FIRE AND AMBULANCE:	**Call 911**

EMERGENCY PROCEDURES	
Emergency Phone Number	**Call 911 for POLICE / FIRE / MEDICAL AID**
Jobsite Address:	**3100 Airport Way South** **Seattle, WA 98134**
NEAREST HOSPITAL: **(Map with directions on next page)**	**Harborview Medical Center** 325 Ninth Avenue Seattle, WA 98104-2499 General Information: 206-744-3300 Emergency Department: 206-744-3074 Urgent Care, 206-744-5867
FIRST AID KIT LOCATIONS	NVL Construction Site Office
SITE EVACUATION	In the event of an emergency situation such as fire, explosion, or significant release of toxic gases, project personnel in the field will be directed to evacuate the area. In the event of an emergency, personnel will gather at their pre-determined meeting point for a head count. The meeting point is in front of the Coffee Shop (West Side). This location (or any change) will be communicated to the work crew(s) during the safety briefing prior to commencement of work activities and weekly thereafter.

1.0 INTRODUCTION

This site specific Health and Safety Plan (HASP) provides a general description of the levels of personal protection and safe operating guidelines expected of each NVL employee or subcontractor associated with the work being conducted under the control of Rainier Commons during the Exterior Paint Removal project.

It is recognized that this is a living document and will be continuously improved and updated during the course of the project. As described and shown in the following diagram from WAC 296-843-100, characterization and analysis of site hazards is an ongoing process:



In order to do this, HASP supplements will be generated as necessary to address any additional activities or changes in site conditions which may occur during field operations. Once generated, each Supplement will be reviewed and acknowledged by NVL, communicated to field personnel prior to the start of applicable work activities and appended to this HASP.

At a minimum, this HASP is to be reviewed and updated by the CIH minimally every six months and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially approved as signed below, it is critical that the

latest version of the HASP is used. The latest version date is kept at the NVL construction site office.

1.1 GENERAL

The provisions of this HASP are mandatory for all NVL personnel engaged in fieldwork associated with the Rainier Commons Exterior Paint Removal project. A copy of this HASP, any applicable HASP Supplements and applicable NVL safety documents shall be maintained on site and available for review at all times. Record keeping will be maintained in accordance with this HASP.

In the event of a conflict between this HASP and federal, state, and local regulations, workers shall follow the most stringent/protective requirements.

1.2 SCOPE OF HEALTH AND SAFETY PLAN

This HASP covers specific site activities that will be conducted by NVL personnel and their subcontractors.

Site Investigation and Monitoring

Activities include, but are not limited to: the industrial hygiene and safety sampling and testing for air contaminants and material testing by NVL personnel in support of HASP activities. Other site investigation activities not specifically listed here will be covered by Health and Safety Supplements, which will be appended to this HASP as needed.

Other activities not specifically listed here will be covered by Health and Safety Supplements, which will be appended to this HASP as needed.

1.3 PURPOSE OF THE SITE SPECIFIC HASP

The information in this HASP has been developed in accordance with applicable standards and the project specification and is, to the extent possible, based on information available to date and is tailored to be site specific. The HASP is a living document and is to be constantly updated as conditions and knowledge of the work activities develop.

1. This site specific *Health and Safety Plan* (HASP) is required in the specification for the project to identify, evaluate and control safety and health hazards.

2. Also, as part of this project, NVL provides support to Rainier Commons with health and safety services, including an experienced Certified Industrial Hygienist to perform the duties of identifying and taking immediate actions to correct hazards found during the course of the project.

3. NVL's duties per this HASP is to assess safety hazards, conduct exposure monitoring and interpret laboratory data to provide the professional industrial hygiene, safety and laboratory services needed to support operations and assure compliance with Environmental and Health and Safety regulations

1.4 HASP REQUIREMENTS

The HASP includes the following requirements:

- **Communication** the contents of this HASP to all NVL personnel, subcontractors, and visitors at the site, which includes at a minimum an initial briefing regarding health and safety procedures. During the briefing, employees shall be instructed on the following topics:

    - The nature of the hazardous materials at the site and the controls in place
    - The atmospheric monitoring program and equipment
    - Action levels and requirements, if exceeded

- **Elimination of unsafe conditions**, i.e. efforts to identify conditions that can contribute to an incident and to remove exposure to these conditions.

- **Frequent inspections**, i.e. regular documented safety inspections of the work area, materials, and equipment by qualified persons to ensure early detection of unsafe conditions. Safety and health deficiencies shall be corrected as soon as possible or project activities shall be suspended. Documentation of daily inspections and corrective actions are to be kept with the project files.

- **Scheduled formal review and update of the HASP.** To ensure this HASP maintains compliance with regulatory and specification requirements, and is serving its purpose to protect people and the environment, this HASP is to be reviewed and updated by the CIH minimally after completion of an IPWP (Individual Phase Work Plan) and more frequently if the work changes. Updates are done as new task are implemented. As a result, even though initially approved as signed below, it is critical that the latest version of the HASP is used. The latest version date is kept at the NVL construction site office.

1.5 APPLICABLE REGULATIONS

Safety and Health Requirements for Hazardous Waste Operations, since the work being conducted involves operations impacting hazardous waste at a site regulated by the Resource Conservation and Recovery Act of 1976 (RCRA) the applicable regulations includes WAC 296-843-100 for Hazardous Waste Operations.

2.0 PROJECT HEALTH AND SAFETY ORGANIZATION

PROJECT MANAGER

The Project Manager (PM) has overall management authority and responsibility for all NVL site operations, including safety. The PM will provide the site supervisor and NVL with the necessary work plans, staff and budgetary resources which are appropriate to meet the safety needs of the project operations.

PROJECT SITE SUPERVISOR

The Site Supervisor (SS) has the overall responsibility and authority to direct NVL work operations at the job site according to the provided work plans, this HASP and applicable THAs (Task Hazard Analysis forms). This includes:

- Discussing deviations from the work plan with the PM.
- Discussing safety issues with the PM and field personnel.
- Assisting with the development and implementation of corrective actions for site safety deficiencies.
- Assist the with the implementation of this HASP and ensuring compliance.
- Assist the with inspections of the site for compliance with this HASP.

At this project, the competent person for NVL is the SS who the Department of Labor and Industries (L&I) regulations define a "competent person" as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

NVL's INDUSTRIAL HYGIENE AND SAFETY SUPPORT

For this project NVL Laboratories (NVL) provides the professional industrial hygiene, safety and laboratory services needed to assess safety hazards, conduct exposure monitoring and interpret laboratory data to support operations and assure compliance with Environmental and Health and Safety regulations.

EMPLOYEES

Employee Responsibilities

Responsibilities of employees associated with this project include, but are not limited to:

- Understanding and abiding by the policies and procedures specified in the HASP and other applicable safety policies, and clarifying those areas where understanding is incomplete.

- Providing feedback to the NVL relating to omissions and modifications in the HASP or other safety policies.
- Notifying NVL of unsafe conditions and acts.

Employee Authority

The health and safety authority of each employee assigned to the site includes the following:

- The right to refuse to work and/or stop work authority when the employee feels that the work is unsafe (including subcontractors or team contractors), or where specified safety precautions are not adequate or fully understood.
- The right to refuse to work on any site or operation where the safety procedures specified in this HASP or other safety policies are not being followed.
- The right to contact NVL at any time to discuss potential concerns.

3.0 SITE HAZARDS

The project is to remove exterior paint that is known to contain PCBs. The methods to be used by the Contractor to remove the paint include abrasive blasting and chemical removal.

Other hazards also exist at the site and are categorized as construction hazards.

4.0 SITE CONTROL

GENERAL

The purpose of site control is to minimize potential contamination of workers and protect the adjacent area from the site hazards.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted. Diagrams designating specific controlled work areas will be provided the Contractor, posted in the support area and discussed during the daily safety meetings. If the site layout changes, the new areas and their potential hazards will be discussed immediately after the changes are made.

5.0 SAFE WORK PRACTICES

STOP WORK AUTHORITY

- **Project Manager and Site Safety Officer**

  The PM and SS have the ultimate responsibility and authority to stop work if they determine if workplace conditions present an uncontrolled risk of injury or illness to employees. Resumption of safe operations is the primary objective AND operations shall not resume until NVL has concurred that workplace conditions meet acceptable safety standards.

- **Employees**

  All employees have the right and duty to stop work when conditions are unsafe and to assist in correcting these conditions.

6.0 TRAINING

HAZWOPPER training is required for workers at the site.

The CIH will work with PM to identify if additional training is required. Topics for training may include:

- **HASP training**

  Instruction on the contents of applicable portions of this HASP and any supplemental health and safety information developed for the tasks to be performed, including:
  - Information about the potential routes of exposure, protective clothing, precautionary measures, and symptoms or signs of chemical exposure and heat stress.
  - Awareness of task-specific physical hazards and other hazards that may be encountered during site work. This includes any specific required training for health and safety.
  - Awareness of emergency and evacuation procedures.

- **Personal Protective Equipment (PPE)**

- **Respiratory Protection**

- **Hazard Communication Program**

7.0 PERSONAL PROTECTIVE EQUIPMENT

NVL's existing Personal Protective Equipment (PPE) procedures/program will be followed at this site, which includes training in its use.

Priority for control of site hazards will be eliminated or reduced to the greatest extent possible first through administrative and/or engineering controls along with safe work practices prior to relying on personal protective equipment. The goal, if PPE is used, is that it is as a back-up if the other controls are ineffective.

General Information about Personal Protective Equipment		
Type	**Material**	**Information**
Safety Vest	High Visibility	Must be visible from all sides
Boots		
Safety Glasses		ANSI Approved
Hearing Protection	Ear Plugs and/or Muffs	When in noisy environments
Gloves	Any	When working with sharp objects or powered equipment
Protective chemical gloves	Inner: Best Safety N-DEX Outer: Heavy duty Nitrile, PVC, Neoprene, and Viton	When in contact with potentially contaminated materials
Protective Chemical Overalls	Tyvek	When clothing may contact contaminated materials
Protective Chemical Boots	Rubber, Neoprene, PVC	If needed
Level C Respiratory Protection	Full Face Respirator	If in containment
Face shield	Debris/splash shield	If needed
Cold weather gear	Hard hat liner, hand warmers, and insulated gloves	If needed

8.0 GENERAL SAFETY AT THE SITE

Smoking, Eating, or Drinking

Smoking, eating and drinking will not be permitted inside any controlled work area at any time. Field workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking).

Personal Hygiene

The following personal hygiene requirements will be observed:

- Water Supply: A water supply meeting the following requirements will be utilized:

- *Potable Water* - An adequate supply of potable water will be available for field personnel consumption. Potable water can be provided in the form of water bottles, canteens, water coolers, or drinking fountains. Where drinking fountains are not available, individual-use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

- *Non-Potable Water* - Non-potable water may be used for hand washing and cleaning activities. No potable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating:

  Non-Potable Water
  Not Intended for Drinking Water Consumption

Buddy System

All field personnel will use the buddy system when working within any controlled work area. Personnel belonging to another organization on site can serve as "buddies" for NVL personnel. Under no circumstances will any employee be present alone in a controlled work area.

Heat and Cold Stress

Heat and cold stress may vary based upon work activities, PPE/clothing selection, and weather conditions. To reduce the potential of developing heat/cold stress, be aware of the signs and symptoms of heat/cold stress and watch fellow employees for signs of heat/cold stress.

9.0 RECORDKEEPING

Records shall established and maintained of all necessary and prudent monitoring activities as described in the appendices.

Copies of air sampling results will be maintained in the project files.

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v-hepa Finn Air Purifier

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Technical Specifications

- Room Coverage: Most sized bedrooms - up to 400 sq feet (20' x 20')
- Air purifiers comes with a 98% efficient filter
- Noise Level: 40dB (speed 1), 49dB (speed 2), 60dB (speed 3)
- Air Flow (cfm): 60 (speed 1), 90 (speed 2), 140 (speed 3)
- CADR: 140
- Filter: Cleanable pre-filter and v-hepa filter
- v-HEPA filter efficiency: 98%
- Filter life: 1 to 2 years (recommend dusting/lightly vacuum every 1-2 months for best performance)
- Fan speeds: 3
- Controls: Electronic
- Filter Replace/Clean Indicator
- Negative ionizer - certified ozone safe.
- Dimensions: 7" x 10" x 22"
- Weight: 10 lbs
- Power: 55 watts, 115V, 60Hz
- Warranty: 10 years (we will replace the purifier if there are any mechanical or electrical issues during the warranty period)

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- Free Shipping
- Money Back Guarantee
- 100% Secure
- No Interest Financing

OVERVIEW | EFFECTIVE | USER-FRIENDLY | SAFE | TECH SPECS

Specifications

- Room Coverage: Most sized rooms - up to 600 sq feet (20' x 30')
- Air purifier comes with all filters shown (pre-filter, v-HEPA, and activated carbon filter)
- Noise Level (dB): 34 (speed 1), 41 (speed 2), 47 (speed 3), 53 (turbo)
- Air Flow(CFM): 147 (speed 1), 185 (speed 2), 205 (speed 3), 245 (turbo)
- CADR: 230
- Filters: Vacuumable pre-filter, HEPA type filter, Activated carbon filter
- v-HEPA filter efficiency: 98%+
- v-HEPA Filter life: 12 months (12 months if operated continuously and up to 18 months if operated intermittently)
- Pre-Filter Life: 12 months
- Carbon Filter Life: 12 months
- Filter replacement indicator (alert to check the filters)
- Fan speeds: 4 plus auto mode
- Controls: Electronic control
- Dust/Gas Sensor
- Timer Settings: 1-12 hours
- Electronic display with Indoor Air Quality Monitor
- Anion (negative ion)
- Dimensions: 17" x 22" x 8"
- Weight: 18.5 lbs
- Power: 90 watts,115V, 60Hz
- Warranty: 10 years (we will replace the purifier if there are any mechanical or electrical issues during the warranty period)

Rainier Commons Temporary Waste Storage Facility

Standard operating Procedure (SOP) Process Controls

Purpose:

During the course of the exterior paint abatement project for Rainier Commons, it is anticipated that up to three types of regulated waste may be generated:

1. A bulk mixture of removed paint and blasting media
2. Exposed containment structure material, PPE, and non-liquid cleaning materials, and
3. Liquid wastes generated during the abatement process

This Standard Operating Procedure (SOP) describes the temporary storage facility, marking requirements, and periodic inspection requirements used to ensure these waste products are protected starting from their initial *removed from service* dates until the waste containers are loaded for shipment to their final disposal site.

Background:

Temporary storage of regulated wastes generated during Individual Phase Work Plan Phase One (IPWP I) and Individual Phase Work Plan IIa (IPWP IIa) was accomplished by utilizing vacant on-site warehouse space in Building 15, lower level.

Subsequent to the completion of these Phases, Building 15 has been leased to commercial tenants, eliminating the building as a temporary storage facility for future Phases. All other units with direct forklift access are also leased. An enclosed storage area is available in Building 6, on the 400 level. This unit will be designated as the Rainier Commons Temporary Waste Storage Facility (Storage Facility) for the remainder of the abatement project.

The Rainier Commons site is registered with the EPA. Site ID Number WAD051239994.

References:

40 CFR 761.65 Storage for Disposal

40 CFR 761.40 Marking Requirements

40 CFR 761.45 Marking Formats

Facility Construction:

Building 6-400 is of concrete and structural steel construction. The unit contains no windows and is protected by a water-proof roof to prevent exposure to the elements. No floor drains have been installed in the concrete slab floor. Three man-doors and a freight elevator provide access to the unit. All man-doors are bolted closed from inside the unit. Access via the freight elevator is controlled by a lockable garage door inside the unit (pictures attached).

Eight-inch diameter straw waddles will be installed and maintained under two layers of sealed, 6-mil rip-stop polyethylene sheeting to provide a continuous curbed storage area capable of containing 25% of the total volume of all PCB containers stored within.

Stored containers shall be either sealed 55-gallon drums or one-cubic yard "super-sacks" meeting DOT approved design requirements. The exterior of all waste containers will be decontaminated by HAZWOPER-trained abatement personnel prior to transportation to the Storage Facility.

Incoming containers will be transported via forklift to the loading dock located at the west entrance to Building 9-100. Building 9-100 is currently occupied by a commercial art studio, separated from the public lobby by a solid demising wall. From the loading dock, the containers will be moved utilizing a standard pallet jack, through the Building 9 lobby, onto the freight elevator. The freight elevator will then provide access to Building 6-400 (see attached floor plan).

Janitorial service, which may include hepa vacuum, damp dusting or mopping will follow each round of delivery in the Building 9-100 lobby and in the freight elevator and will follow each shipment of waste to storage site in the Building 6-400 area and all building egress areas.

All material handling will be performed by HAZWOPER-trained personnel.

The facility is selected and designed to meet the requirements of 40 CFR 761.65 (b)(1).

Marking:

Once a waste container has been sealed, decontaminated, and moved from the abatement work area, each container will be clearly tagged with a label meeting the requirements of 40 CFR 761.45 (example attached) on two sides of the container.

Each container entering the storage facility shall be assigned a unique identification number consisting of the container's Set-Up number, a unique Alpha identifier (A, B, C, etc.), and its accumulation start date (e.g. the second container from Set-Up #26, received for storage on January 17, 2020 will have an identification number of 26-B-1-17-20). A running tally of containers arriving for storage, including their I.D. number, shall be maintained at the storage facility entrance. This record shall be used to determine when a container is nearing its required shipment date. This tally sheet shall also record each container's actual shipment date and manifest number.

Additionally, a form meeting the requirements of the Washington State Department of Ecology (Ecology), identifying the type of hazard, accumulation start date, and the major risk will be affixed to the front of the container (example attached).

A label meeting the requirements of 40 CFR 761.45 will also be displayed at every entrance to the Temporary Storage Facility, as required by 40 CFR 761.40.

Periodic Inspections:

To ensure that containers stored in the Storage Facility pose no risk to human health or the environment, a weekly inspection by a HAZWOPER-trained person will be conducted. The inspection will consist of applicable elements listed on the Ecology checklist titled *Weekly Inspection Checklist for Dangerous Waste Container Accumulation Area* (copy attached). Completion of the weekly inspection will be documented on the Checklist, which will be retained for five years.

State PCB Waste Storage and Disposal Regulations:

Reference: *Differences Between Washington State and Federal Rules — Highlights* Revised October 2010

All PCB waste to be stored, transported, and disposed of in accordance with all applicable State regulations, in addition to Federal regulations.

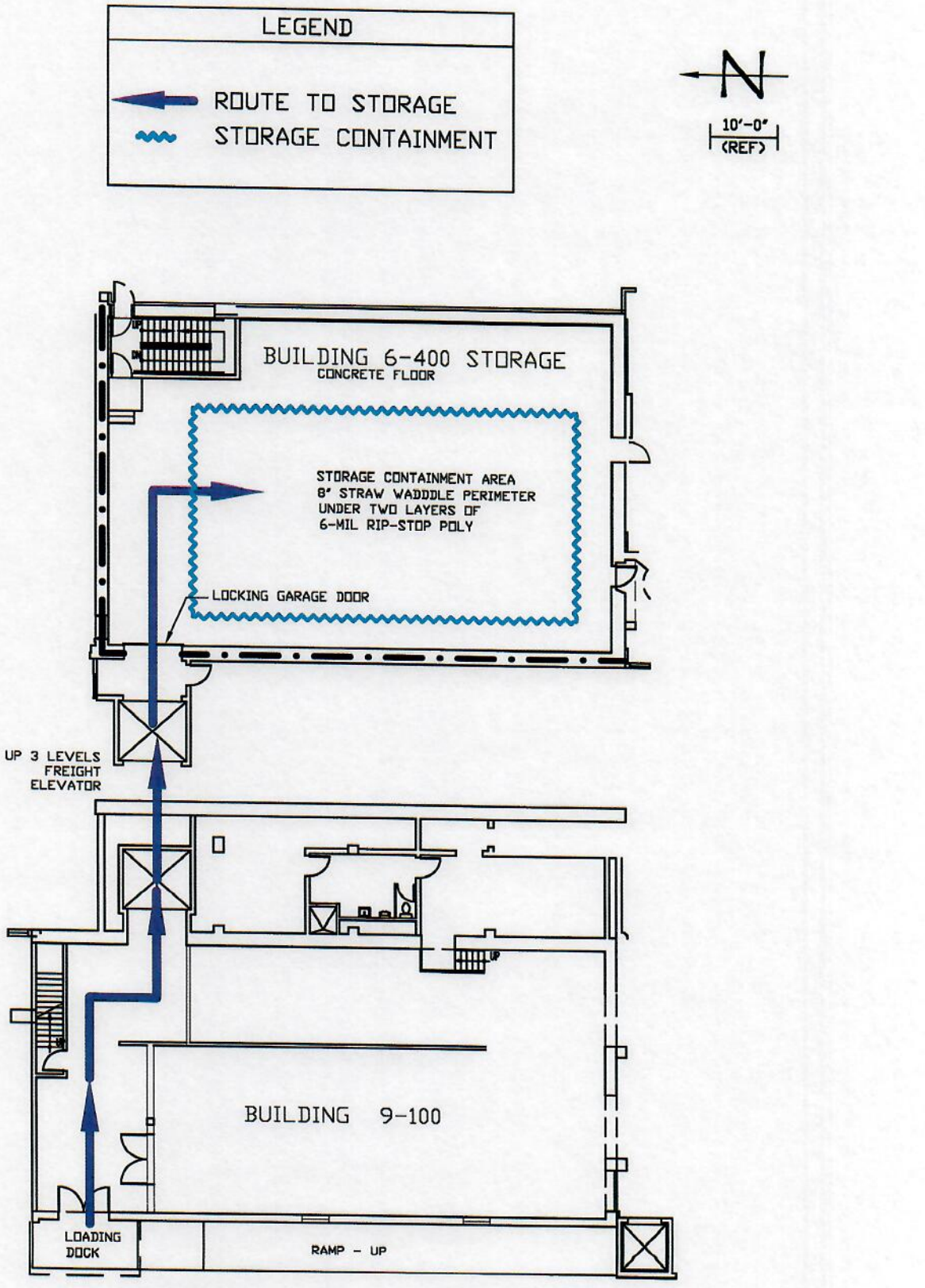
All waste generated from the work shall be transported for final disposal within 90 days of each container's Out of Service date.

TEMPORARY WASTE STORAGE FACILITY
BUILDING 6, 400 LEVEL

TEMPORARY WASTE STORAGE FACILITY

BUILDING 6, 400 LEVEL

ACCESS VIA BUILDING 9 ELEVATOR



CAUTION

CONTAINS

PCBs

(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordanee with U.S. Environmental Protection Agency Regulations 40 CFR 761. For Disposal Information contact the nearest U.S. EPA Office

---

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center

(800) 424-8802

Also Contact: _____

Tel. No.. _____

HAZARDOUS WASTE

ACCUMULATION START DATE:

_____

TOXIC

DEPARTMENT OF ECOLOGY
State of Washington

Weekly Inspection Checklist
for Dangerous Waste Container Accumulation Area

For the Month of _____, _____

Mark answers Yes or No below

Week 1	Week 2	Week 3	Week 4	Week 5	
					Are all drums and containers marked or labeled as hazardous waste (or "waste pending analysis")?
					Are all drums and containers marked with the risk associated with the waste?
					Are all containers (excluding satellite containers) marked with the accumulation start date?
					Are any drums near or exceeding the LQG 90-day or MQG 180-day timeframe?
					Are all drum labels visible and readable?
					Are all containers closed?
					Are all drums and containers in good condition?
					Are any drums leaking?
					Is there 30 inches of aisle space between rows of containers?

	Date	Time	Inspector's Printed Name AND Signature
Week 1	/ /		
Week 2	/ /		
Week 3	/ /		
Week 4	/ /		
Week 5	/ /		

Containment

					Is the secondary containment free of cracks or other failures?
					Are sumps clean and free of contamination, spills, leaks, and standing water?

Safety Equipment

This section is not required for weekly inspections but will meet some of the general facility inspection requirements.

					Are fire extinguishers charged?
					Are spill kits stocked?
					Is the first aid cabinet stocked?
					Is the emergency shower and eye wash station functioning properly?
					Are the emergency communication devices operating properly?
					Is emergency response information posted near all communication devices? **(MQG only)**

Comments: Describe the actions taken to correct each deficiency noted above, and note date each action was taken.

Reference Washington Dangerous Waste Regulations, Chapter 173-303 WAC for further information, specifically, WAC 173-303-200(1)(b) and by reference 630(6).

Ecology Publication Number 12-04-019, rev. November 2015

Rainier Commons Abatement Project Management and Oversight Process Controls

August 5, 2019

Purpose:

Several key actions, deployed throughout each individual Set-Up, represent elements critical to the success of the abatement project. Ensuring that each of these key actions are properly executed at the correct time in the abatement process is essential to ensuring the project accomplishes the objective of complete removal of all exterior paint, while continuing to ensure there is no risk to human health or the environment.

Background:

Individual Phase Work Plan Phase One (IPWP-1) received EPA approval on June 17, 2014. The work included the removal of all exterior paint from Building 13, as well as from the west elevations of Buildings 10 and 11.

From knowledge gained during this initial phase, several improvements to both engineering and management controls were identified and implemented during the next phase of work.

Engineering control improvements included the installation of a primary and secondary containment system within the interior spaces adjacent to abatement work, the use of a self-purging dust collection system, and a more robust approach to sandblasting operations.

Management control improvements included refinements in air sampling and dust monitoring protocols, as well as enhanced collection and analysis of pre and post abatement wipe samples.

IPWP-2A was approved by the EPA on July 11, 2016. The improvements discussed above were incorporated during the Phase 2A work, which consisted of the complete removal of exterior paint from the south elevation of Building 15. During the course of the Building 15 work, additional, in-depth testing (wipe sampling and air monitoring) was conducted to validate the efficacy of the improved controls.

Based on the strong, positive results from the complete body of testing performed in both phases, the EPA has provided new guidance for the control and management of Rainier's interior spaces during our remaining abatement work. The guidance streamlines the particulate monitoring process, while simultaneously enhancing the analysis of settled dust, through rigorous pre and post abatement wipe sampling. A graphic depiction of this process, or flowchart, is included as Exhibit One of this document, titled *Rainier Commons Abatement Project – Interior Protection Process*.

The remaining abatement work to be performed on the Rainier campus is documented in IPWP 2B and IPWP 3. IPWP2B describes paint removal work on limited portions of Buildings 6, 7, 8, 9,

and 10. IPWP 3 covers exterior paint abatement for the remainder of the campus, as well as including final touch-up work on the interior, 6th floor stairwell of Building 6.

In order to minimize disruption to tenant activities, as well as optimizing manpower and equipment, the remaining abatement work (IPWP 2B and 3) will be performed in a series of small "Set-ups", each representing a complete, stand-alone abatement operation. Each Set-up will consist of four sub-processes: Mobilization, Abatement, Assessment and Verification, and Breakdown and Cleanup.

Application:

Requirements and expectations for the successful completion of each of these sub-processes are found throughout the various Exhibits contained within the IPWP 2B and 3 plans, as well as the Rainier Commons Work Plan (The Plan), revised July 25, 2013, and the Risk-Based Disposal Approval (RBDA), dated December 18, 2013, with its Amendments. Industry Best Management practices were also considered in the absence of other project documentation.

Based on these requirements, a series of checklists and worksheets have been developed to assist in verifying process compliance and to further serve as project documentation of completion of each Set-up. Collectively, they will represent the technical documentation and records from which the final project Close-Out Report will be developed.

Each Set-up will include the following worksheet and checklists as a permanent exhibit in the project final Close-Out Report:

Interior Space Assessment, Protection, and Inspection Checklist: Ensures that possible points of blasting media intrusion into adjacent interior spaces are identified, mitigated, and/or protected prior to abatement operations. Describes the inspections and safeguards utilized during daily abatement operations. Documents the required post-abatement assessment, breakdown and cleaning of each tenant space affected by each Set-up.

Inventory of Set-up Specific Conditions: Based on the knowledge of campus conditions, previous abatement experiences, and Best Management Practices, this checklist provides guidance for the identification and protection of the many unique conditions associated with each Set-up. The checklist will be utilized by the Abatement Contractor, Rainier Commons, and NVL Laboratories; to ensure adequate protective measures are in place for each new Set-up.

Negative Air Machine (NAM) Worksheet: The Excel spreadsheet provides an expeditious means of determining the quantity of NAMs required for each Set-up. By entering the square footage of the exterior surface included in any given Set-up, the spreadsheet will provide the total number of NAMs needed to supply four total air exchanges per hour. Note: during active blasting operations, negative air for the containment enclosure is supplied through the use of a stand-alone dust collection machine. Upon completion of daily blasting operations, the NAMs are energized to provide sufficient negative air to meet project requirements (-0.02").

Observation Checklist and Completion Report: This checklist provides a summary of the implementation of critical engineering and management controls implemented for each, individual Set-up. Critical aspects of the mobilization, abatement, assessment, and breakdown processes are identified, as well as completion dates and person(s) making each observation. The checklist also identifies (by date) when photographs, daily field notes were generated for each Set-up, as well as active blasting dates and the dates when visual inspection of interior containment structures was performed. Photographs and daily field notes for all remaining Phases will be collected into weekly files and made available electronically upon the completion of each Set-up.

Rainier Commons Exterior Paint Abatement Project
Interior Space Assessment, Protection, And Inspection Checklist

SET-UP NUMBER _____ BUILDING _____ UNIT NUMBER _____

Prior to NPE Installation

Verify removal of all tenant-installed wall fixtures (art, clocks, pictures, curtains, etc.) on wall adjacent to planned blasting operations. (Tenant responsibility). Initials _____

Dim the lighting in the interior space adjacent to the exterior walls subject to abatement. Utilize black plastic across windows, as needed for light control. Allow time for vision to adjust to lower light level. Carefully examine interior surfaces to identify any exterior light entering the interior space. Plug any through penetrations with caulk or spray foam. Initials _____

Disable heating system by de-energizing the circuit breaker and removing the front panels on the furnace. Initials _____

Disconnect clothes dryer venting at connection to exterior wall. Cover vent opening with two layers of 4-mil polyethylene sheeting, secured with duct tape. Initials _____

Disable kitchen and bathroom fans which vent to the outside (VTOS) by de-energizing the circuit breaker and unplugging the appliance, when possible. Initials _____

Install primary and secondary interior protective barriers as described in Work Plan. 4-mil polyethylene plastic to be used, sealed with duct tape and spray adhesive, as needed. Initials _____

Install signage at entry of interior protection, indicating entry to protected area restricted to authorized personnel only. (No access by tenants). Initials _____

Provide a UV HEPA air purifier (Oransi or equivalent) inside tenant space, but outside interior protective barriers, for tenant comfort. Initials _____

Ensure windows remain closed and locked until final clearance is received. Initials _____

Rainier Commons Exterior Paint Abatement Project
Interior Space Assessment, Protection, And Inspection Checklist

SET-UP NUMBER _____ BUILDING _____ UNIT NUMBER _____

During Abatement

Prior to start of daily blasting operations, conduct a thorough inspection of all interior protective barriers, paying careful attention to possible rips and tears in the barrier poly, resulting from tenant actions, or any other causes, during non-blasting times/days. Damage to be repaired with duct tape and/or spray adhesive with additional poly used for patch materials. All existing adhesive joints shall be verified to be damage-free and holding properly. Annotate completion in Daily Field Notes.

Periodically during active blasting periods, conduct integrity verification inspections of interior tenant spaces, to ensure proper operation of protective enclosure.

Upon completion of daily blasting operations, conduct a thorough inspection of all interior protective barriers, paying careful attention for the presence of any visible dust within or nearby the containment area. If visible dust is detected, perform the testing and cleaning protocol shown on *the Rainier Commons Abatement Project Interior Protection Process Flowchart*.

To provide a daily visual indicator of each unit's access status, door tags will be hung on each unit's access door, as follows:

Green Door Tag – Unit cleared for tenant access

Red Door Tag – Unit not cleared. Tenant access not allowed.

Post-Abatement

Obtain post-abatement clearance from NVL Laboratory to initiate removal of interior protective structures. See Observation and Completion Report for NVL signature.

With secondary interior barrier in place, take down primary interior barrier, carefully rolling the side exposed to the wall into itself. Place poly into a garbage bag for proper classification and disposal. Initial _____

Inspect exposed interior wall area for any signs of foreign objects (sand, dust, streaks). Initial ___

Take down secondary interior barrier and place in garbage bag for proper disposal. Initial _____

Clean, HEPA vacuum, and dust all floor and wall surfaces previously located along the interior containment area. Initials _____

(NVL to obtain post-abatement wipe samples per sampling plan)

Rainier Commons Exterior Paint Abatement Project
Interior Space Assessment, Protection, And Inspection Checklist

SET-UP NUMBER _____ BUILDING _____ UNIT NUMBER _____

Restore heating system. As a courtesy, install new furnace air filter(s). Initials _____

Reconnect clothes dryer venting and kitchen and bath fans. Initials _____

Custodial Service to perform courtesy house cleaning of remaining unit. Initials _____

Remove HEPA air purifier Initials _____

Rainier Commons Exterior Paint Abatement Project
Inventory of Set-up Specific Conditions
Exhibit A

Setup Number _____ Date _____ Unit Number _____

HVAC

_____ Roof Mounted HVAC units. Engage mechanical and electrical lock-outs. Seal unit with two layers of 6-mil poly. Use additional tape or foam adhesive to ensure complete seal.

_____ Air Exchange Ducts. Extend ductwork 12" beyond NPE enclosure, utilizing galvanized HVAC ducting. Seal all seams and joint with a Building Code approved duct sealant. After sealant cures, apply one layer of duct tape to all seams and joints. All ductwork running through the NPE will be protected with two layers of 6-mil poly, fastened with duct tape or spray adhesive.

_____ Furnace Venting. Engage mechanical and electrical lock-outs. Protect concentric vent stacks with two layers of 6-mill poly, fastened with duct tape or spray adhesive. Seal vent's building penetration utilizing Siding Caulk, if needed.

UTILITY PENETRATIONS

_____ Gas Piping. If practical, gas service should be shut off at the nearest shutoff valve. Seal any penetrations into the building with Siding Caulk.

_____ Electrical Weather-heads. Licensed electrician to wrap/protect weather-head and entrance conduit with approved, non-conductive insulative material, secured in place with appropriate electrical tape. Exposed wires to be protected from abrasive blasting utilizing non-conductive foam tubing or other appropriate protection. Electrician to either de-energize electrical service during blasting or certify that work can be safely performed with service entrance energized.

_____ Electrical Conduit. Metal and PVC conduit inside the NPE enclosure will be protected with two layers of 6-mil poly, fastened with duct tape. Seal building penetration utilizing Siding Caulk, as needed.

_____ Low Voltage Utilities. Cable TV, telephone, and internet wiring, cabling, and/or conduit located inside the NPE enclosure shall be protected from blasting damage using an appropriate cover, including any combination of poly, cardboard, roofing paper, or tape. Seal building penetrations utilizing Siding Caulk, as needed.

Rainier Commons Exterior Paint Abatement Project
Inventory of Set-up Specific Conditions
Exhibit A

Setup Number _____ Date _____ Unit Number _____

OTHER PENETRATIONS

_____ Seismic Restraints. Cables, rods, supports, braces, or other types of earthquake restraint devices which penetrate through to interior spaces shall be protected on the interior surfaces with two layers of 4-mil polyethylene covering the through penetration. The poly shall be secured with duct tape and/or spray adhesive.

_____ URM Retrofit Connections. Bolts, plates, rods, and braces utilized to stabilize Unreinforced Masonry (URM) construction which penetrate through to interior spaces shall be protected on the interior surfaces with two layers of 4-mil polyethylene, covering the penetration. Secure poly with duct tape and/or spray adhesive.

_____ Tenant Signage. Signs, of any type (banner, lighted, address, 3-D, etc.), covering any exterior painted surface shall be removed prior to abatement. Mounting holes shall be temporarily filled with painter's caulk, to prevent infiltration into interior spaces.

_____ Roof Flashing. Metal flashing used on parapet walls, along eaves of roofs, or at other locations where roof membranes come in contact with, and cover exterior painted surfaces shall be removed prior to abatement. Once removed, a careful examination of the exposed surface shall be performed to identify any potential paths to interior spaces. If found, temporarily seal the path(s) utilizing any combination of spray foam, caulk, and/or polyethylene. If the removed flashing has any historical paint layers, the flashing shall be stripped or replaced, based on costs. Dispose of replaced flashing as PCB bulk waste.

_____ Kitchen and Bath Fans. Exhaust venting for kitchen and bathroom fans will be sealed closed with two layers of 4-mil polyethylene secured with duct tape. Remove and replace any exterior venting louvres that have been painted. Dispose of as PCB bulk waste.

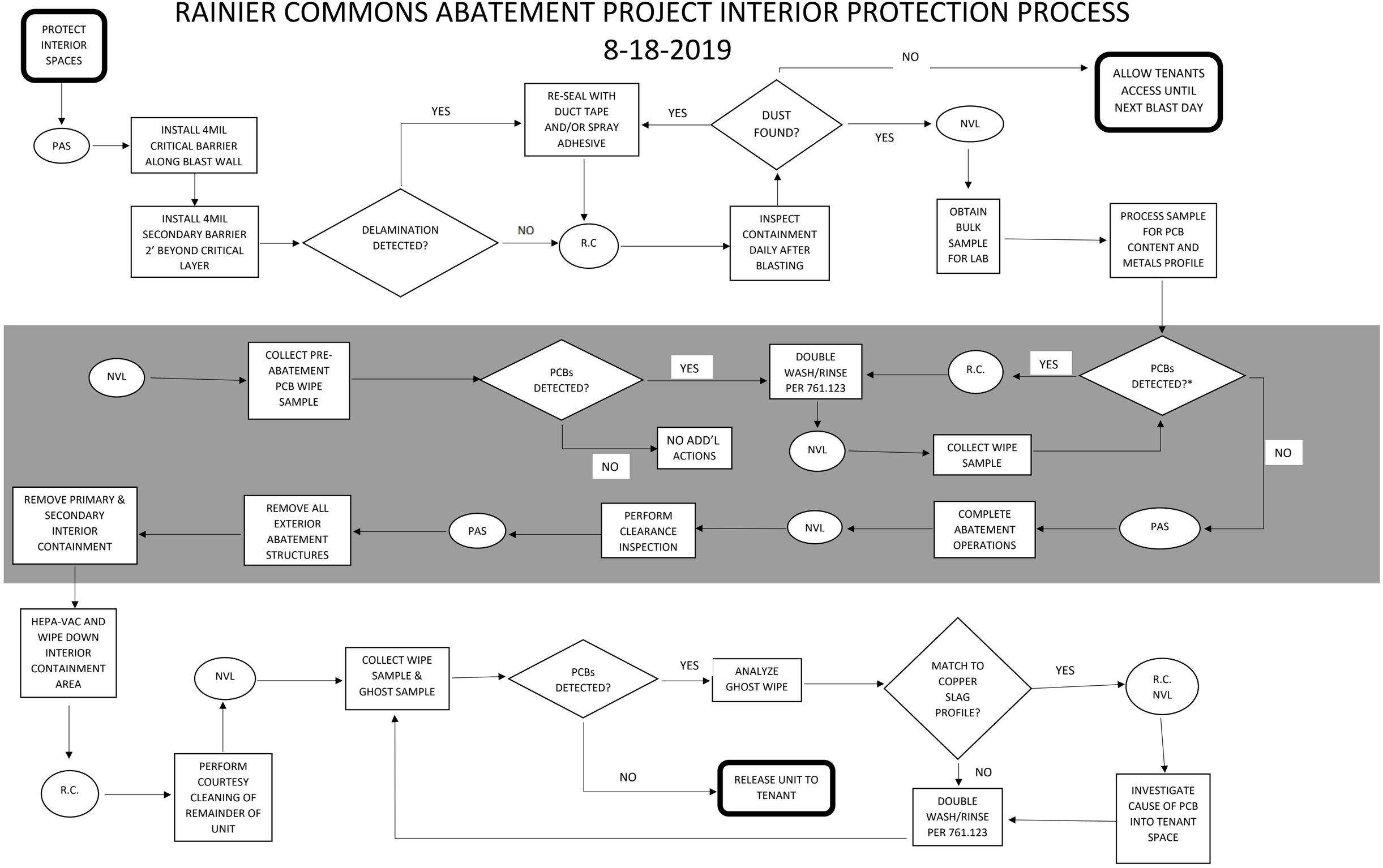
Rainier Commons Exterior Paint Abatement Project - Phase Three
Negative Air Machine (NAM) Worksheet
Exhibit B

During Non-Blasting periods prior to de-mobilization clearance by NVL Lab, the Negative Pressure Enclosure (NPE) shall be maintained at or above -0.02 inches of water, differential pressure, utilizing OmniAire 2000 NAMs. (During active blasting operations, differential pressure shall be maintained utilizing the vacuum dust collection system.)
Quantity of NAMs required for each Set-Up is determined as follows:

Enter Square Footage of Set-Up	13,000	Sq/Ft
Multipied by:		
Average Depth of NPE	4	Feet
Cubic Feet of Set-Up	52,000	Cu/Ft
Mutilply by:		
Number of Air Exchanges per Hour	4	
Air Exchanged per Hour	208,000	Cu/Ft per Hour
Divide by:		
60 Minutes	60	Minutes
Air Exchanged per Minute	3,467	Cu/Ft per Minute
Divide by:		
NAM Rated Output (CFM)	2,200	NAM CFM
Preliminary Quantity of NAMs	2	
Multiply by:		
Derated NAM Output	0.7	70% Efficiency
Number of NAM units, this Set-up	2.25	
Total Number of NAMs Required (Round Up)	**3**	

Minimum NAMs required for ANY Set-Up is Two

RAINIER COMMONS ABATEMENT PROJECT INTERIOR PROTECTION PROCESS
8-18-2019



NVL = NVL Laboratories
PAS = Performance Abatement Services
RC = Rainier Commons

* >10ug/100cm^2 (WIPES) >1ppm (BULK)
Process outlined incorporates adherence to all work plan protocols and procedures detailed elsewhere in the IPWP

Rainier Commons Exterior Paint Abatement Project
Observation Checklist and Completion Report

Setup Number _____ Start Date _____ Completion Date _____

OBSERVATION	DATE	OBSERVER

Negative Pressure Enclosure (NPE) Construction:

NPE Ground Cover Installation

One layer, rip-stop poly	_____	_____
Two layers, cardboard	_____	_____
Second layer, rip-stop poly	_____	_____
Scaffold base pads installed	_____	_____

Scaffold Erection

Tie-in penetrations performed by HAZWOPER Certified personnel	_____	_____
Only aluminum or steel planks utilized	_____	_____

NPE Wall & Roof Installation

One layer, 9 mil shrink wrap	_____	_____
Roof sloped to shed water	_____	_____
Continuous straw waddle around NPE for secondary containment	_____	_____

Protection of Exterior Penetrations (Windows/Doors)

One layer, reinforced 6 mil poly	_____	_____
Masonite/plywood covering	_____	_____
Secured with spray adhesive and/or tape	_____	_____

Protection of Set-up Specific Conditions/Components

Inventory of conditions complete (Exhibit A)	_____	_____
Utility penetrations protected	_____	_____
HVAC penetrations sealed w/two layers, 6 mil poly and tape and/or spray adhesive	_____	_____
HVAC and electrical equipment inside NPE de-energized and locked-out	_____	_____
Other penetrations sealed with mortar or foam	_____	_____
Roof-drain protection in place	_____	_____

Rainier Commons Exterior Paint Abatement Project
Observation Checklist and Completion Report

Setup Number _____ Start Date _____ Completion Date _____

OBSERVATION	DATE	OBSERVER
Personnel/Material Decontamination Unit		
Three-stage clean room	_____	_____
Personnel shower provided	_____	_____
Shower water collected/contained for subsequent characterization	_____	_____
Water source equipped w/backflow check valve	_____	_____
Unit secured to NPE w/tape and spray adhesive	_____	_____
Negative Air Machine (NAM) Installation		
NAM calculation worksheet completed (Exhibit B)	_____	_____
Correct number on NAMs installed and Secured	_____	_____
HEPA filters installed on NAMs	_____	_____
Manometer installed and functioning	_____	_____
Installation of Interior Protection		
Interior Space Assessment Checklist Complete for all units	_____	_____
Two layers, 6 mil poly covering windows and doors	_____	_____
Walls adjacent to blast surfaces draped with 6 mil poly, sealed w/tape or adhesive	_____	_____
Secondary containment barrier installed 2-3 feet from blast walls, using 6 mil poly Sealed w/tape or adhesive	_____	_____
Site Safety		
Fire Extinguishers available (One ABC extinguisher For every 2,500 sq/ft NPE)	_____	_____
Haz-Mat spill containment kit on-site	_____	_____
Security Fencing Installed	_____	_____
Construction Site Signage Posted	_____	_____
Signage at NPE Entrance Posted	_____	_____
HAZWOPER certifications on file	_____	_____

Rainier Commons Exterior Paint Abatement Project
Observation Checklist and Completion Report

Setup Number _____ Start Date _____ Completion Date _____

OBSERVATION	DATE	OBSERVER

Testing and Monitoring

Pre-Abatement wipe samples collected per plan	_____	_____
Post-Abatement wipe samples collected per plan	_____	_____
Post-Abatement metals wipe samples collected per plan	_____	_____
Attach copies of all Chain of Custody documents	_____	_____

Abatement Operations

NVL approval of NPE set-up prior to start	_____	_____
Approved blasting media utilized	_____	_____
Brand name_____		
Auxiliary dust collection system utilized	_____	_____
Blasting debris collected daily	_____	_____

Catch Basin Sampling

C/B Sampling Zone for this Set-Up _____	_____	_____
Pre-abatement sample obtained	_____	_____
Post-abatement sample obtained	_____	_____

Post-Abatement Operations

Inspection Preparation

Building surfaces dust-free and HEPA vacuumed	_____	_____
Scaffolding, frames, and gear dust-free (HEPA-vac and dust wipe)	_____	_____
NPE poly treated with “Lock Down”	_____	_____
All blasting debris removed from NPE	_____	_____
Air sample from inside NPE obtained	_____	_____

Completion Notifications

Rainier Commons notified by Contractor	_____	_____
NVL Laboratory notified by Rainier Commons	_____	_____
EPA notified by Rainier Commons	_____	_____

Rainier Commons Exterior Paint Abatement Project
Observation Checklist and Completion Report

Setup Number _____ Start Date _____ Completion Date _____

OBSERVATION	DATE	OBSERVER
Clearance Inspection		
Air Sampling results acceptable (attached)	_____	_____
General inspection acceptable	_____	_____
Elevation inspection gridline established	_____	_____
2% inspection area randomly selected (attached)	_____	_____
2% critical inspection acceptable	_____	_____
NPE cleared for dismantling	_____	_____
NPE De-mobilization		
Conducted on dry, calm day	_____	_____
Staging area established using 2 layers rip-stop poly over straw waddle perimeter	_____	_____
Scaffolding to be HEPA vacuumed and wet wiped	_____	_____
All scaffolding lowered to staging area	_____	_____
Disposable items (poly, Tyvek suits) separated for characterization and disposal	_____	_____
Interior protection removed	_____	_____
Interior surfaces adjacent to abated walls HEPA vacuumed	_____	_____
Hazardous Material Handling		
Approved transportation containers utilized	_____	_____
Out of Service Date (OSD) marked on containers	_____	_____
Containers stored in secure area	_____	_____
Storage area includes secondary containment	_____	_____
Hazardous waste profile #_____	_____	_____
Shipped by:_____	_____	_____
Shipped to:_____ _____	_____	_____
Manifest #_____	_____	_____

Photographs for this Set-Up were recorded on the following dates:

_____

_____

_____

Rainier Commons Exterior Paint Abatement Project
Observation Checklist and Completion Report

Setup Number _____ Start Date _____ Completion Date _____

OBSERVATION	DATE	OBSERVER

_____

Field Notes for this Set-Up were recorded on the following dates:

_____
_____
_____
_____

Active Blasting Dates for This Set-up:

_____
_____
_____
_____

Daily Visual Inspection of Interior Containment Structures Performed On:

_____
_____
_____
_____

NVL Project #: **2012-494**
SITE ADDRESS **Rainier Commons, LLC**
3100 Airport Way S., Seattle WA

ORIGINAL: **May 20, 2019**
REVISED: **September 8, 2020**

Revised Plan for Characterization and Clean-up, if Necessary, of Soil at Rainier Commons Non-Impervious Surface Areas

I. Introduction:

Rainier Commons, in conjunction with NVL Laboratories, has prepared this ***Revised Plan for Characterization and Clean-up, if Necessary, of Soil at Rainier Commons Non-Impervious Surface Areas*** (the Plan) to identify and address the possibility that paint chips, containing some level of PCBs, may have become detached from painted, exterior building surfaces and were subsequently transferred to on-site, pervious surfaces.

As discussed during a joint meeting with Rainier and EPA personnel on March 5, 2019, the EPA tasked Rainier Commons with the development of a plan to identify and characterize soil in landscaped areas. Upon completion of all paint removal activities, all campus pervious surface areas located directly adjacent to buildings previously abated ("Adjacent Locations") will be tested for PCBs, and if necessary, will then be appropriately cleaned up, and verified for compliance with applicable standards. Further, should any PCBs above the action level be detected during this first round of testing, all remaining pervious surface areas ("Remote Locations") shall also be tested for PCBs, and if necessary, appropriately cleaned up, and verified for compliance.

II. References:

The following lists the references used in this Plan. References are denoted in this document using the underlined titles.

- Work Plan = Rainier Commons Work Plan dated March 25, 2013 / Revised July 25, 2013
- 40 CFR 761.61 = PCB Remediation Waste *
- 40 CFR 761.265 = Sampling bulk Remediation Waste and Porous Surfaces
- 40 CFR 761.283 = Determination of the Number of Samples to Collect and Sample Collection Locations
- 40 CFR 761.286 = Sample Size and Procedure for Collecting a Sample

* Washington State soil clean up levels for unrestricted land use PCB mixtures defers to 40 C.F.R. 761.61 total value of all PCBs 1 mg/kg (WAC 173-340-900 Table 740-1).

III. Site Description:

A review of the legal description in Title Reports and aerial photographs identifies the Rainier Commons campus as a 4.6-acre site located at 3100 Airport Way South, Seattle, WA 98134. The campus is bounded by Airport Way and the Seattle Light Rail maintenance facility to the west; new office, retail, and storage buildings to the south; Washington State Department of Transportation (WSDoT) lands to the east (I-5 corridor); and a Sound Transit bus storage facility to the north.

The campus is largely covered with existing buildings and impervious or paved surfaces. These improvements include 24 buildings of various ages, along with impervious surfaces (asphalt/concrete) for access, parking, and transit. Pervious surfaces on the campus consist of two main categories. Adjacent Locations include seven small planting areas and one gravel driveway. Total pervious surfaces for these areas measure approximately 3,640 square feet. Remote Locations consist of one area containing mature trees, one grass planting area, and one area along the sidewalk containing landscape shrubs. The Remote Locations total approximately 4,204 square feet. These pervious surface areas, comprising the combined total of 7,844 square feet are the subject of this Plan. See Exhibit A – Campus Site Plan and Exhibit B – Close Up of Soils Map.

IV. Method:

A Certified Industrial Hygienist (CIH) will oversee all sample collection, analysis, data interpretation and reporting involved with this Sampling Plan.

Samples of soil in non-impervious surface areas will be selected and collected following criteria based on:

- 40 CFR 761.265
- 40 CFR 761.283
- 40 CFR 761.286

V. Selection of Soil Sample Locations:

A: Inventory of Non-impervious Surface Areas at Rainier Commons:

For purposes of the Plan, each separate pervious area has been assigned a unique identifier, as follows:

1: Adjacent Areas:

- **North (N):** Planting bed containing small to medium shrubs and small trees, located north of Building 24. 384 square feet.
- **North-East (NE):** Planting bed containing small shrubs and perennial flowers located east of Building 24 and north of Building 1. 230 square feet.
- **South-East (SE):** An area consisting of grasses and weeds located east of Building 2, bounded to the north by Building 1, and to the south by building 3. 1,152 square feet.
- **South (S):** Planting bed consisting of small shrubs located on the west side of Building 3. 466 square feet.
- **South-Central (SC):** Planting bed consisting of small shrubs and trees located on the west side of Building 2. 178 square feet.

- **North-West (NW):** Planting bed consisting of medium to tall shrubs located on the west side of Buildings 1 and 24. 348 square feet.
- **West-Central (WC):** Gravel driveway connecting access road to the north side of Building 13. 390 square feet.
- **South-West (SW):** Mostly unplanted landscape area with some medium shrubs located at the southwest end of Building 13. 492 square feet.

2: Remote Areas:

- **Remote Trees (RT):** A line of mature deciduous trees planted along the northwest quadrant, near the stand-alone coffee shop.
- **Remote Grass (RG):** Landscape grass and small shrubs located to the west of the stand-alone coffee shop.
- **Remote Shrubs (RS):** Three, four-foot-wide planting strips running north-south along the campus' border with Airport Way South.

See Exhibit C – Sampling Area Identification Assignment for individual sampling areas.

B: Establishing Characterization Sampling Grid:

Having identified all pervious surfaces subject to sampling characterization for PCBs, both combined sampling areas Adjacent and Remote were individually overlaid with a 3-meter (10 foot) square grid, as prescribed in 40 CFR 761.265. The grids are located along a north-south axis and centered on each combined sampling area. An east-west gridline was also established at the mid-point of, and perpendicular to the north-south line; following guidance provided by 40 CFR 761.283 (b). See Exhibit D – Site Plan with Grid Overlay.

Each north-south gridline was assigned a letter identifier, with the most easterly line designated "A", and each subsequent line progressing along the alphabet (B, C, D, etc.) through the letter "M". Each east-west line was assigned a numeric identifier, with the northern-most line designated "1" and each subsequent line assigned the next whole number (2, 3, 4, etc.)

Discrete sampling points are identified by an alpha-numeric Identifier at the intersection of grid lines falling within each individual pervious area (B2, C1, C2, D2, etc.) If a minimum of three individual samples in a given pervious area are not identified using the grid system (as is the case for pervious area designated "NW") additional points will be randomly assigned within the pervious area, totaling a minimum of three characterization samples. See Exhibit E – Sampling Points.

Table 1 lists all sampling points, by designation number, for the Adjacent Areas pervious surfaces.

Table 2 lists all sampling points, by designation number, for the Remote Areas pervious surfaces.

VI. Soil Sample Collection Procedure:

At each selected sample location assigned a unique alpha-numeric identifier, soil will be collected utilizing a clean soil core sampler (CMTP Soil Sampler, 36" long, or equivalent) with a minimum diameter of ¾" (2 cm) and a maximum diameter of 1 1/8" (3 cm) to obtain a sample including material from the surface to

a maximum depth of three inches (7.5 cm), as required for compliance with 40 CFR 761.286.
Once obtained, the sample will be transferred to an NVL Laboratory provided, individual sample collection bag for transfer to the testing laboratory.

To assess the potential for PCB contamination at a deeper surface level, a second and separate coring sample will be collected at the same location as the first coring sample, from the point where the first coring sample ended (3 inches) to a depth of six inches.

Each sample shall bear a unique sample identification following the established protocol indicating both samples were obtained from the same alpha-numerically identified location, but at two different depths Surface to 3-inch depth and 3-inch depth to 6-inch depth.

Both samples will not be co-mingled and shall be separately analyzed for PCBs.

If a sample identifier locates the characterization sample directly upon unyielding vegetation (e.g. bush trunk, tree root, etc.) the sample location will be relocated to the nearest point where a sample can be successfully obtained.

Clean, unused nitrile gloves will be worn for every sample. Sampling equipment (soil coring sampler) shall be cleaned in a four-stage process prior to collecting each and every sample. Equipment will first be washed in a container of warm, soapy water, followed by the second step of a clear water rinse. Third, the equipment will then be towel dried using a clean previously unused paper, or cloth towel and then wiped with clean gauze soaked in hexane. After these four steps the equipment will be allowed to air dry prior to use.

Samples will be transported to the laboratory for analysis utilizing a Chain of Custody protocol.

VII. Laboratory Analysis of Field Samples:

Samples will be submitted to Washington Department of Ecology accredited laboratories to be analyzed for PCB Aroclor content via EPA Method 8082.

NVL Laboratories will be the primary laboratory used for the analysis. NVL meets the requirements of this Condition.

Laboratory turnaround time will be between 1 to 5 days depending on the need of the project.

VIII. Quality Assurance/Quality Control (QA/QC):

QA/QC details are necessary to ensure that the resulting data are of acceptable quality, including sensitivity, for comparison to EPA decision criteria.

Field QA/QC Procedures:

- Field Duplicates:

  To measure QA/QC for reproducibility and representativeness of results, a minimum of 10% of all

of the samples collected during a sampling event will be "field duplicates", which are separate samples collected as close as possible to the same point in space and time. Further clarified, this is a minimum of 10% of the samples collected at each depth, in other words, any sampling set will have equivalent number of field duplicates collected for the two sampling depths (surface to 3-inch depth and 3-inch depth to 6-inch depth).

Duplicate samples are to be collected in the same manner as the other samples, including being stored in separate containers and analyzed independently.

The method of selection of the location to collect duplicate samples will be by using a random number generator. For example, if three locations are tested, a random number method will determine which location to collect the duplicate surface to 3-inch depth sample and the random number method will be used again to determine the duplicate 3-inch depth to 6-inch depth.

Laboratory analysis results must be within 75 to 125 percent to be acceptable.

- Split Samples:

  To measure QA/QC for accuracy and reproducibility of results, "split samples" will be submitted to another laboratory that meets the qualifications identified in this document. A minimum of 5% of samples collected in the field will be collected similar to the method described for field duplicates. Further clarified, this is a minimum of 5% of the samples collected at each depth, in other words, any sampling set will have equivalent number of split samples collected for the two sampling depths (surface to 3-inch depth and 3-inch depth to 6-inch depth).

  Split samples are collected in the same manner as the other samples with the exception of obtaining twice as much of the matrix being tested and placing it in a single container. The container is then closed and shaken to allow the material to homogenize. Half of the material is then poured into a separate container and the containers are appropriately marked as split samples.

  Laboratory analysis results must be within 75 to 125 percent to be acceptable.

NVL Laboratories QA/QC Program:

NVL Laboratories standard QA/QC procedures will also be in place. The QA/QC program in place is part of NVL Laboratories' existing multiple professional laboratory accreditations, which include recognition by The Washington State Department of Ecology (Ecology) – Accreditation ID C797 - for several listed chemicals, including PCB (Aroclor) analysis. NVL's practices and procedures in place to maintain Ecology Accreditation include:

- Periodic Laboratory Inspections by Ecology to monitor and accept NVL's laboratory facilities, laboratory procedures/practices and testing conditions.

- Routine involvement with the Proficiency Testing Program where samples are sent to NVL's laboratory and results are reviewed by Ecology to test the accuracy of analysis.

NVL Laboratories' QA/QC program includes the addition of surrogates, laboratory control sample (LCS) and LCS duplicate, matrix spike (MS) and MS duplicate and continuous calibration check (CCV) sample for all PCB analysis.

NVL Laboratories' professional laboratory accreditations and reference to QA/QC documentation can be found at: http://www.nvllabs.com/qualifications.htm

IX. Interpretation Criteria of Laboratory Results and Required Actions:

Based upon laboratory results received, the following interpretation criteria and required actions will be applied to each separate, discrete sampling intersection (e.g. B7, D2, K22, etc.) located within the pervious surface areas (e.g. N, NE, SW, etc.) sampled:

LABORATORY RESULTS		**REQUIRED ACTIONS**	**VERIFICATION TESTING REQUIRED**
Surface Samples	Equal to or less than 1 ppm	PCBs below regulated limit for unrestricted high occupancy – No further action	None
Subsurface Samples	Equal to or less than 1 ppm		
Surface Samples	Greater than 1 ppm	PCBs above regulated limit for unrestricted high occupancy at surface – Excavate to a depth of 6 inches	40 CFR 761.283(b)(ii)
Subsurface Samples	Less than 1 ppm		
Surface Samples	Any level	Continue characterization sampling at 3-inch depth intervals – Excavate to clean depth (equal to or less than 1ppm)	40 CFR 761.283(b)(ii)
Subsurface Samples	Greater than 1 ppm		

X. Clean-up Procedures (When and Where Required):

Should any pervious surface sampling grid intersection be identified with PCB levels exceeding 1 ppm, the existing soil shall be excavated to a depth of 6 inches below current grade. The clean-up, or excavation area shall consist of the Area of Inference surrounding the subject sampling grid intersection. The Area of Inference is defined as a square "box" extending out from the grid intersection (and parallel to the original Characterization Sampling Grid) five feet in all directions, forming a ten-foot square. A combination of hand and power tools may be utilized to obtain the required excavation depth. All clean-up work to be performed by HAZWOPER certified personnel. Care must be exercised to ensure excavation actions do not re-contaminate newly excavated areas by comingling clean surfaces with excavated soils. Soils in a particularly dry condition may be wetted using misting or sprinkling equipment prior to excavation to control dust during excavation. Under no circumstances shall water be used in quantities large enough to cause the excavated soils to become saturated. Prior to initiating excavation work, protect all nearby drain system inlets (catch basin, manholes, etc.) with one layer of 6-mil polyurethane sheeting, fitted over the inlet's cover. Place a heavy rubberized mat, such as a large door mat, over the poly sheeting, for additional protection. Begin excavation work from the point on the pervious area that is furthest away from a staging area outside the suspect area. Work towards the staging area, without moving across any newly excavated areas. Clean, unused polyethylene tarping may be incrementally applied to newly excavated areas to prevent contamination during clean-up activities.

Excavated materials will be staged and protected from the weather, pending further characteristics profiling for proper disposal. Staging areas will be constructed near each pervious area to be excavated over an impervious surface. Staging area construction shall consist of a straw waddle boundary completely surrounding the staging area. A double layer of 6-mil polyethylene sheeting, or heavier, shall form the floor. Layer one shall extend under the interior edge of the straw waddle barrier. Layer two shall wrap up the interior edge of the straw waddle barrier, a minimum of six inches, forming a containment edge wrap to the floor. A minimum clearance area of six inches shall be maintained between the soils being disposed and the edge of the sheeting and the straw waddle boundary. The excavated material will be covered with a single layer of 4-mil polyethylene, anchored as necessary to protect from the elements.

XI. Waste Characterization for Disposal:

All materials initially characterized as containing PCBs at a concentration greater than 1 ppm and subsequently excavated, will be sent off-site for decontamination or disposal in accordance with 40 CFR 761.61(a)(5)(i)(B).

In the unlikely possibility that excavated soils become saturated with water, the affected soils will be de-watered prior to disposal, or transported off-site in containers meeting the requirements applicable to DOT Hazardous Materials Regulations.

XII. Post-Cleanup Verification Testing:

After completion of any required excavation; individual, cleaned pervious surface areas (N, NW, SW, etc.) will be re-tested to demonstrate cleanup meets regulatory levels identified in 40 CFR 761.61(a)(4)(i)(A) – Less than or equal to 1 ppm of PCBs.

Any required post-cleanup verification testing will be performed starting with the gridlines first utilized for characterization testing. For verification sampling, the grid axis will be shifted approximately 3 feet along both the north and east axis. The original ten-foot gridline will then be further divided into a series of five-foot grids. See Exhibit F – Verification Sampling Grid. For any area where verification testing is required, each gridline intersection within a discrete pervious surface area will be assigned a numeric designation. For small or irregularly shaped areas that do not contain at least three verification grid points, a random number generator will be utilized to identify three sampling locations per designated area. If a large area requires verification testing, the same grid layout will be utilized, but samples will be obtained at each verification sampling grid location within the affected pervious area. Surface sampling will be performed following the procedures set forth in this Plan at Section VI. **Soil Sample Collection Procedures.**). See Exhibit G – Example of Verification Sampling Grid Identification

XIII. Records Retention:

Upon completion of all cleanup activities, all sampling records (characterization, waste profiling, and verification) will be kept on file for a minimum of three years, per the EPA's RBDA as amended. Files will be made available to the EPA and other regulatory agencies, upon request.

TABLE 1 – ADJACENT LOCATIONS SAMPLE LOG					
SAMPLE AREA IDENTIFICATION	SURFACE TYPE	SAMPLE INTERSECTION	SAMPLE DEPTH	SAMPLE IDENTIFICATION	LAB RESULTS
N	SOIL	B2	SURFACE	XXXXXX-B2-S	
			6 INCHES	XXXXXX-B2-6	
		C1	SURFACE	XXXXXX-C1-S	
			6 INCHES	XXXXXX-C1-6	
		C2	SURFACE-DUPLICATE	XXXXXX-C2-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-C2-S-DUP2	
			6 INCHES	XXXXXX-C2-6	
		D2	SURFACE-DUPLICATE	XXXXXX-D2-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-D2-S-DUP2	
			6 INCHES	XXXXXX-D2-6	
NE	SOIL	B7	SURFACE	XXXXXX-B7-S	
			6 INCHES-DUPLICATE	XXXXXX-B7-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-B7-6-DUP2	
			6 INCHES-SPLIT	XXXXXX-B7-6-SPLT1	
			6 INCHES-SPLIT	XXXXXX-B7-6-SPLT2	
		B8	SURFACE	XXXXXX-B8-S	
			6 INCHES	XXXXXX-B8-6	
		B9	SURFACE-DUPLICATE	XXXXXX-B9-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-B9-S-DUP2	

NE	SOIL	B9	6 INCHES	XXXXXX-B9-6	
SE	GRASS/WEEDS	B13	SURFACE	XXXXXX-B13-S	
			6 INCHES	XXXXXX-B13-6	
		B14	SURFACE	XXXXXX-B14-S	
			6 INCHES	XXXXXX-B14-6	
		B15	SURFACE	XXXXXX-B15-S	
			6 INCHES	XXXXXX-B15-6	
		B16	SURFACE	XXXXXX-B16-S	
			6 INCHES-SPLIT	XXXXXX-B16-6-SPLT1	
			6 INCHES-SPLIT	XXXXXX-B16-6-SPLT2	
		B17	SURFACE	XXXXXX-B17-S	
			6 INCHES	XXXXXX-B17-6	
		B18	SURFACE	XXXXXX-B18-S	
			6 INCHES	XXXXXX-B18-6	
		B19	SURFACE	XXXXXX-B19-S	
			6 INCHES-SPLIT	XXXXXX-B19-6-SPLT1	
			6 INCHES-SPLIT	XXXXXX-B19-6-SPLT2	
		B20	SURFACE	XXXXXX-B20-S	
			6 INCHES-DUPLICATE	XXXXXX-B20-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-B20-6-DUP2	
		B21	SURFACE	XXXXXX-B21-S	
			6 INCHES	XXXXXX-B21-6	
NW	SOIL	F4	SURFACE	XXXXXX-F4-S	
			6 INCHES	XXXXXX-F4-6	

NW	SOIL	E7:F7	SURFACE	XXXXXX-E7-S	
			6 INCHES-DUPLICATE	XXXXXX-E7-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-E7-6-DUP2	
		E10:F10	SURFACE	XXXXXX-E10-S	
			6 INCHES	XXXXXX-E10-6	
SC	SOIL	E17	SURFACE	XXXXXX-E17-S	
			6 INCHES-DUPLICATE	XXXXXX-E17-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-E17-6-DUP2	
		E18	SURFACE-SPLIT	XXXXXX-E18-S-SPLT1	
			SURFACE-SPLIT	XXXXXX-E1S-SPLT2	
			6 INCHES	XXXXXX-E18-6	
		E19	SURFACE	XXXXXX-E19-S	
			6 INCHES	XXXXXX-E19-6	
		E20	SURFACE	XXXXXX-E20-S	
			6 INCHES	XXXXXX-E20-6	
S	SOIL	E22	SURFACE	XXXXXX-E22-S	
			6 INCHES	XXXXXX-E22-6	
		E23	SURFACE	XXXXXX-E23-S	
			6 INCHES	XXXXXX-E23-6	
		E24	SURFACE-DUPLICATE	XXXXXX-E24-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-E24-S-DUP2	
			6 INCHES	XXXXXX-E24-6	

S	SOIL	E25	SURFACE	XXXXXX-E25-S	
			6 INCHES	XXXXXX-E25-6	
		E26	SURFACE	XXXXXX-E26-S	
			6 INCHES	XXXXXX-E26-6	
		E27	SURFACE	XXXXXX-E27-S	
			6 INCHES	XXXXXX-E27-6	
		E28	SURFACE	XXXXXX-E28-S	
			6 INCHES-DUPLICATE	XXXXXX-E28-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-E28-6-DUP2	
		E29	SURFACE	XXXXXX-E29-S	
			6 INCHES	XXXXXX-E29-6	
WC	GRAVEL	H18	SURFACE	XXXXXX-H18-S	
			6 INCHES	XXXXXX-H18-6	
		I18	SURFACE-SPLIT	XXXXXX-I18-S-SPLT1	
			SURFACE-SPLIT	XXXXXX-I18-S-SPLT2	
			6 INCHES	XXXXXX-I18-6	
		I19	SURFACE	XXXXXX-I19-S	
			6 INCHES	XXXXXX-I19-6	
SW	SOIL	K20	SURFACE	XXXXXX-K20-S	
			6 INCHES	XXXXXX-K20-6	
		K21	SURFACE	XXXXXX-K21-S	
			6 INCHES	XXXXXX-K21-6	
		K22	SURFACE-SPLIT	XXXXXX-K22-S-SPLT1	
			SURFACE-SPLIT	XXXXXX-K22-S-SPLT2	
			6 INCHES	XXXXXX-K22-6	

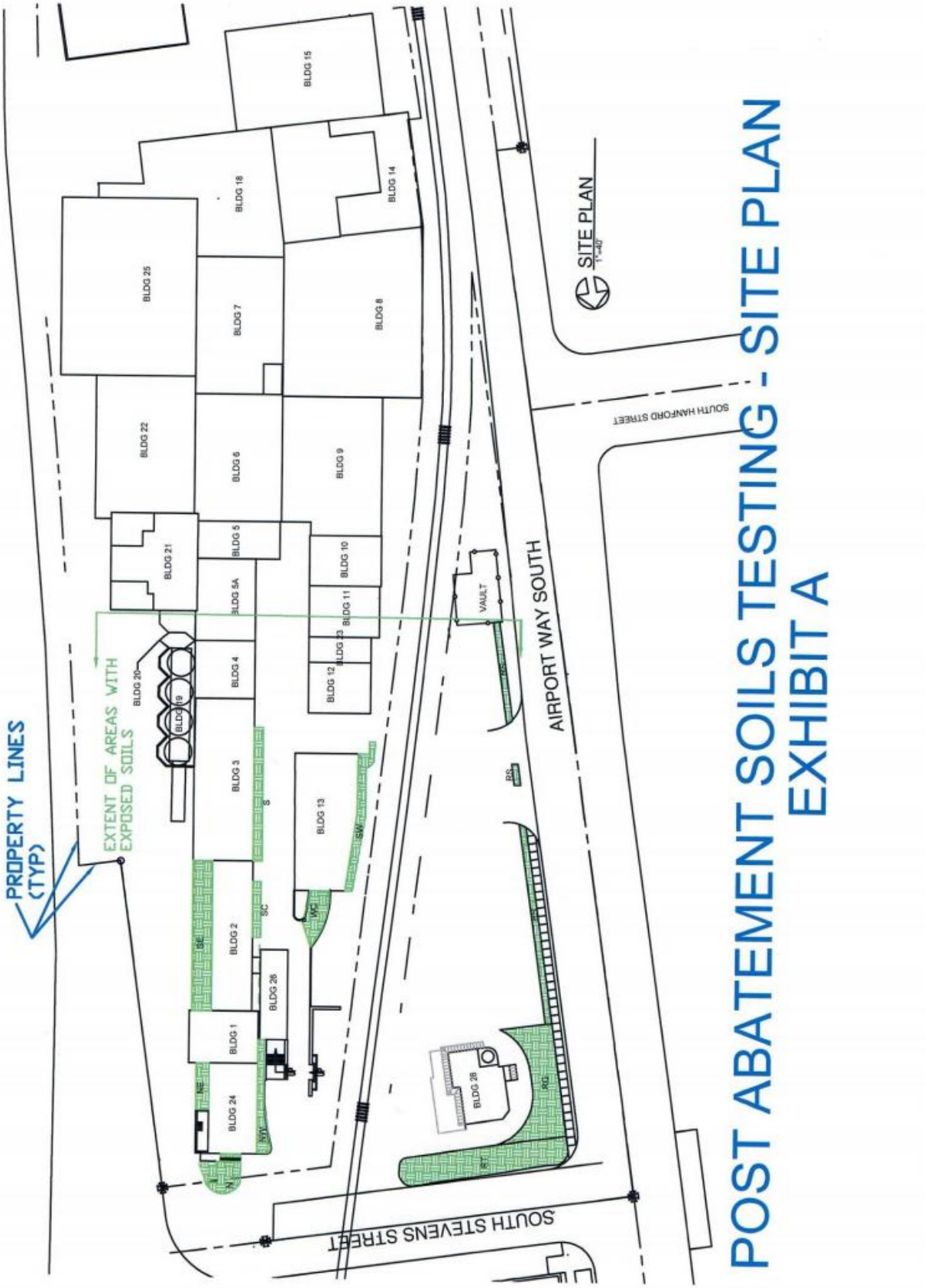
SW	SOIL	L28	SURFACE-DUPLICATE	XXXXXX-L28-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-L28-S-DUP2	
			6 INCHES	XXXXXX-L28-6	
		L29	SURFACE	XXXXXX-L29-S	
			6 INCHES	XXXXXX-L29-6	

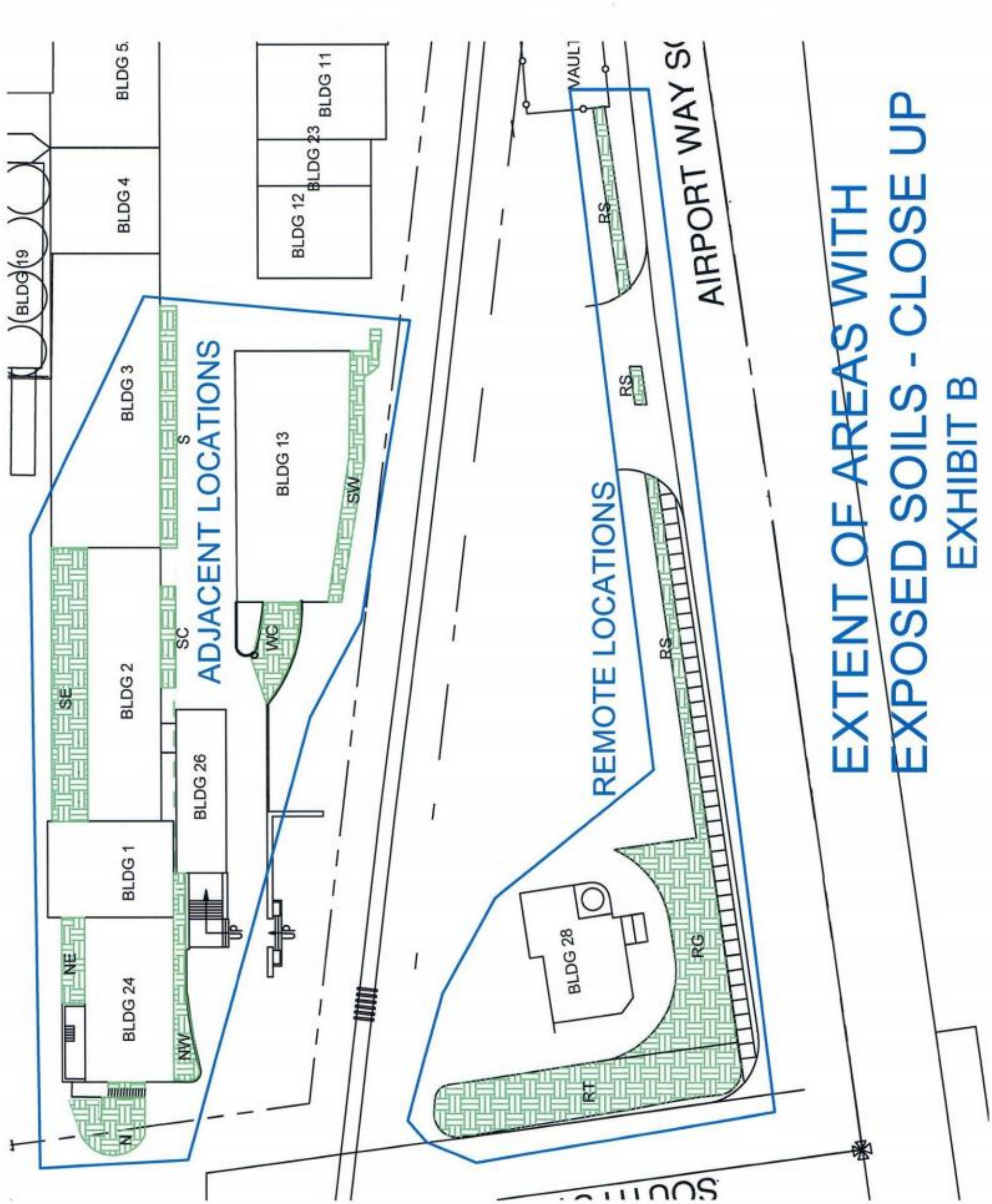
TABLE 2 – REMOTE LOCATIONS SAMPLE LOG					
SAMPLE AREA IDENTIFICATION	SURFACE TYPE	SAMPLE INTERSECTION	SAMPLE DEPTH	SAMPLE IDENTIFICATION	LAB RESULTS
RT	TREES	O2	SURFACE	XXXXXX-O2-S	
			6 INCHES	XXXXXX-O2-6	
		P1	SURFACE	XXXXXX-P1-S	
			6 INCHES	XXXXXX-P1-6	
		P2	SURFACE	XXXXXX-P2-S	
			6 INCHES	XXXXXX-P2-6	
		Q2	SURFACE	XXXXXX-Q2-S	
			6 INCHES	XXXXXX-Q2-6	
		R2	SURFACE-SPLIT	XXXXXX-R2-S-SPLT1	
			SURFACE-SPLIT	XXXXXX-R2-S-SPLT2	
			6 INCHES	XXXXXX-R2-6	
		R3	SURFACE	XXXXXX-R3-S	
			6 INCHES	XXXXXX-R3-6	
		S2	SURFACE-SPLIT	XXXXXX-S2-S-SPLT1	
			SURFACE-SPLIT	XXXXXX-S2-S-SPLT2	
			6 INCHES	XXXXXX-S2-6	
		S3	SURFACE	XXXXXX-S3-S	
			6 INCHES	XXXXXX-S3-6	
		T2	SURFACE	XXXXXX-T2-S	
			6 INCHES	XXXXXX-T2-6	
		T3	SURFACE	XXXXXX-T3-S	
			6 INCHES	XXXXXX-T3-6	

RT	TREES	U2	SURFACE	XXXXXX-U2-S	
			6 INCHES	XXXXXX-U2-6	
		U3	SURFACE-DUPLICATE	XXXXXX-U3-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-U3-S-DUP2	
			6 INCHES	XXXXXX-U3-6	
		V2	SURFACE	XXXXXX-V2-S	
			6 INCHES	XXXXXX-V2-6	
		W2	SURFACE	XXXXXX-W2-S	
			6 INCHES-DUPLICATE	XXXXXX-W2-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-W2-6-DUP2	
		W3	SURFACE	XXXXXX-W3-S	
			6 INCHES	XXXXXX-W3-6	
		X3	SURFACE	XXXXXX-X3-S	
			6 INCHES	XXXXXX-X3-6	
		Y3	SURFACE	XXXXXX-Y3-S	
			6 INCHES	XXXXXX-Y3-6	
RG	GRASS	V3	SURFACE	XXXXXX-V3-S	
			6 INCHES	XXXXXX-V3-6	
		V10	SURFACE	XXXXXX-V10-S	
			6 INCHES	XXXXXX-V10-6	
		W4	SURFACE-DUPLICATE	XXXXXX-W4-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-W4-S-DUP2	
			6 INCHES-DUPLICATE	XXXXXX-W4-6-DUP1	

RG	GRASS	W4	6 INCHES-DUPLICATE	XXXXXX-W4-6-DUP2	
		W5	SURFACE	XXXXXX-W5-S	
			6 INCHES	XXXXXX-W5-6	
		W6	SURFACE	XXXXXX-W6-S	
			6 INCHES	XXXXXX-W6-6	
		W7	SURFACE-DUPLICATE	XXXXXX-W7-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-W7-S-DUP2	
			6 INCHES	XXXXXX-W7-6	
		W8	SURFACE	XXXXXX-VW8-S	
			6 INCHES	XXXXXX-W8-6	
		W9	SURFACE	XXXXXX-W9-S	
			6 INCHES	XXXXXX-W9-6	
		W10	SURFACE-DUPLICATE	XXXXXX-W10-S-DUP1	
			SURFACE-DUPLICATE	XXXXXX-W10-S-DUP2	
			6 INCHES-SPLIT	XXXXXX-W10-6-SPLT1	
			6 INCHES-SPLIT	XXXXXX-W10-6-SPLT2	
		X4	SURFACE	XXXXXX-X4-S	
			6 INCHES-DUPLICATE	XXXXXX-X4-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-X4-6-DUP2	
			6 INCHES-SPLIT	XXXXXX-X4-6-SPLT1	
			6 INCHES-SPLIT	XXXXXX-X4-6-SPLT2	

RG	GRASS	X5	SURFACE	XXXXXX-X5-S	
			6 INCHES	XXXXXX-X5-6	
		X6	SURFACE	XXXXXX-X6-S	
			6 INCHES	XXXXXX-X6-6	
		X7 X7	SURFACE	XXXXXX-X7-S	
			6 INCHES	XXXXXX-X7-6	
		X8	SURFACE	XXXXXX-X8-S	
			6 INCHES	XXXXXX-X8-6	
		X9	SURFACE	XXXXXX-X9-S	
			6 INCHES	XXXXXX-X9-6	
		X10	SURFACE	XXXXXX-X10-S	
			6 INCHES	XXXXXX-X10-6	
		X11	SURFACE	XXXXXX-X11-S	
			6 INCHES-DUPLICATE	XXXXXX-X11-6-DUP1	
			6 INCHES-DUPLICATE	XXXXXX-X11-6-DUP2	
RS	SHRUBS	U31	SURFACE	XXXXXX-U31-S	
			6 INCHES	XXXXXX-U31-6	
		U32	SURFACE	XXXXXX-U32-S	
			6 INCHES	XXXXXX-U32-6	
		W18	SURFACE	XXXXXX-W18-S	
			6 INCHES	XXXXXX-W18-6	


POST ABATEMENT SOILS TESTING - SITE PLAN
EXHIBIT A
SITE PLAN
1"=40'
AIRPORT WAY SOUTH
SOUTH HANFORD STREET
SOUTH STEVENS STREET
PROPERTY LINES (TYP)
EXTENT OF AREAS WITH EXPOSED SOILS
BLDG 15
BLDG 18
BLDG 14
BLDG 25
BLDG 7
BLDG 8
BLDG 22
BLDG 6
BLDG 9
BLDG 21
BLDG 5
BLDG 5A
BLDG 10
BLDG 11
BLDG 23
BLDG 12
BLDG 20
BLDG 19
BLDG 4
BLDG 3
BLDG 13
BLDG 2
BLDG 26
BLDG 1
BLDG 24
BLDG 28
VAULT


EXTENT OF AREAS WITH
EXPOSED SOILS - CLOSE UP
EXHIBIT B
ADJACENT LOCATIONS
REMOTE LOCATIONS
AIRPORT WAY S
BLDG 1
BLDG 2
BLDG 3
BLDG 4
BLDG 5
BLDG 11
BLDG 12
BLDG 13
BLDG 19
BLDG 23
BLDG 24
BLDG 26
BLDG 28
VAULT
N
NE
NW
SE
S
SC
SW
WC
RS
RS
RS
RG
RT
UP
UP
SOUTH

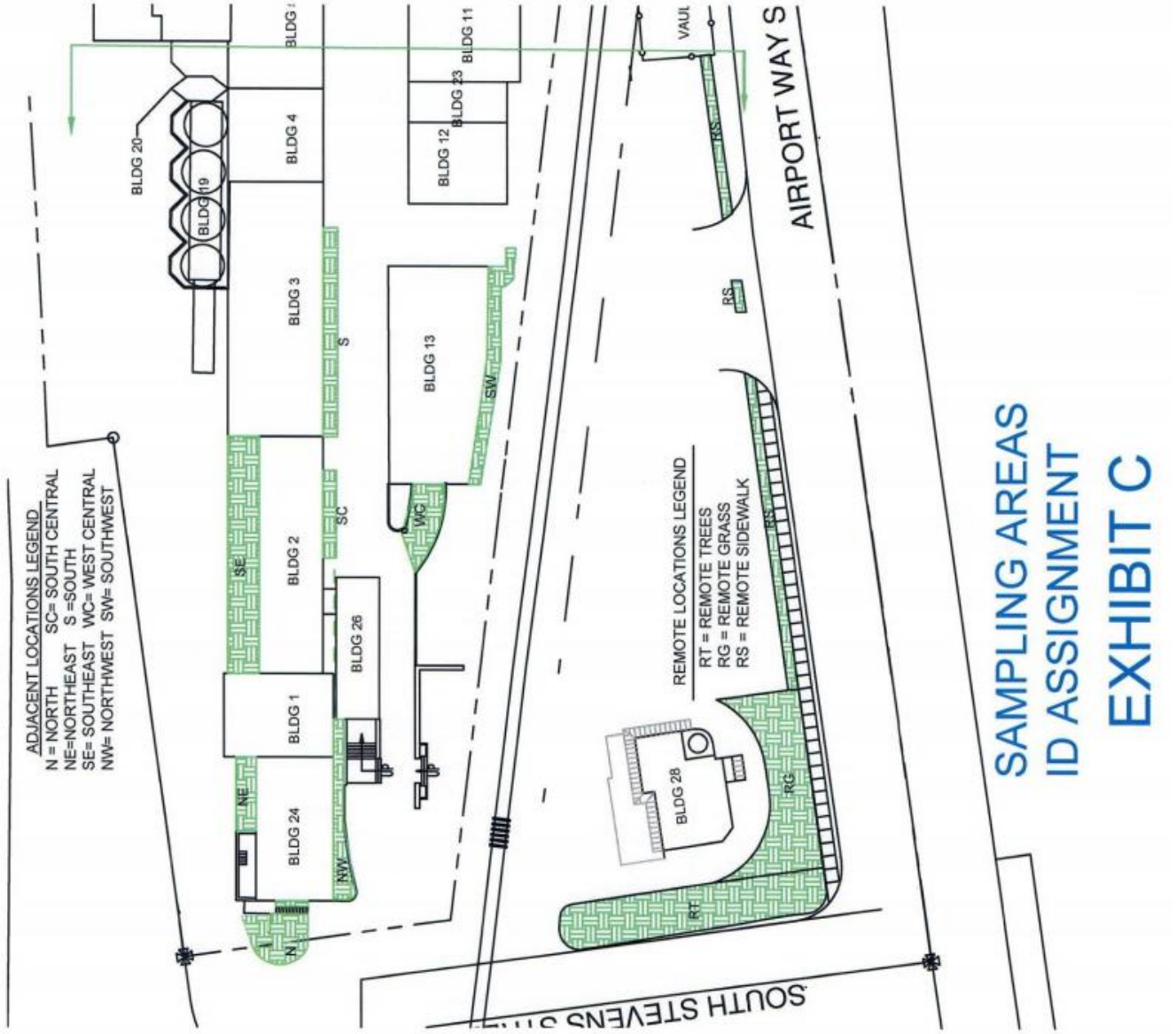
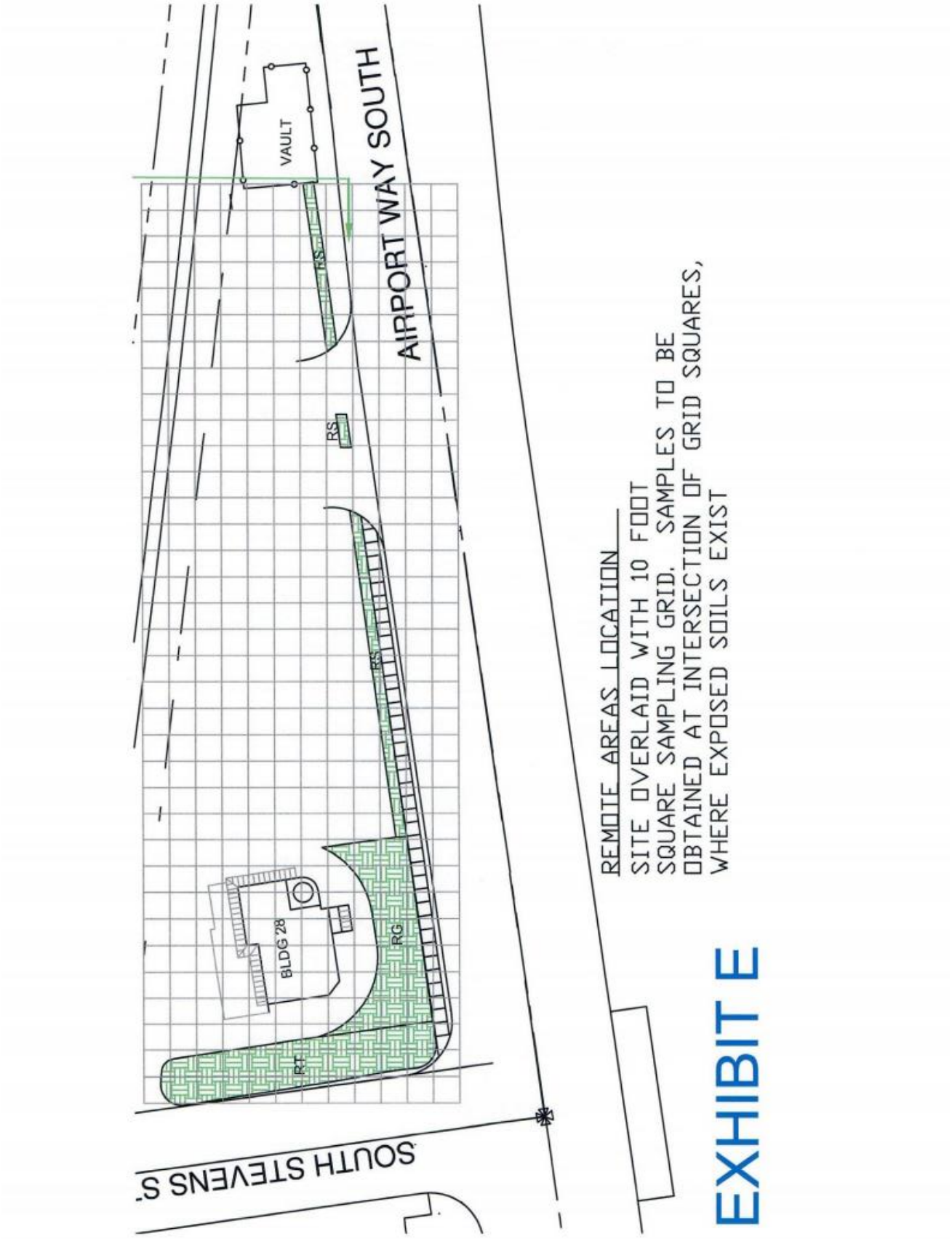

SAMPLING AREAS
ID ASSIGNMENT
EXHIBIT C
AIRPORT WAY S
SOUTH STEVENS
BLDG 1
BLDG 2
BLDG 3
BLDG 4
BLDG 10
BLDG 11
BLDG 12
BLDG 13
BLDG 20
BLDG 23
BLDG 24
BLDG 26
BLDG 28
VAULT
ADJACENT LOCATIONS LEGEND
N = NORTH SC= SOUTH CENTRAL
NE=NORTHEAST S =SOUTH
SE= SOUTHEAST WC= WEST CENTRAL
NW= NORTHWEST SW= SOUTHWEST
REMOTE LOCATIONS LEGEND
RT = REMOTE TREES
RG = REMOTE GRASS
RS = REMOTE SIDEWALK

EXHIBIT D
ADJACENT AREAS LOCATION
SITE OVERLAID WITH 10 FOOT
SQUARE SAMPLING GRID. SAMPLES TO BE
OBTAINED AT INTERSECTION OF GRID SQUARES,
WHERE EXPOSED SOILS EXIST
BLDG 3
BLDG 13
BLDG 2
BLDG 26
BLDG 1
BLDG 24
SE
SC
SW
NE
NW
N
S
WC
UP
UP
TREET


AIRPORT WAY SOUTH
VAULT
RS
RS
RS
BLDG 28
RG
RT
SOUTH STEVENS ST
REMOTE AREAS LOCATION
SITE OVERLAID WITH 10 FOOT SQUARE SAMPLING GRID. SAMPLES TO BE OBTAINED AT INTERSECTION OF GRID SQUARES, WHERE EXPOSED SOILS EXIST
EXHIBIT E

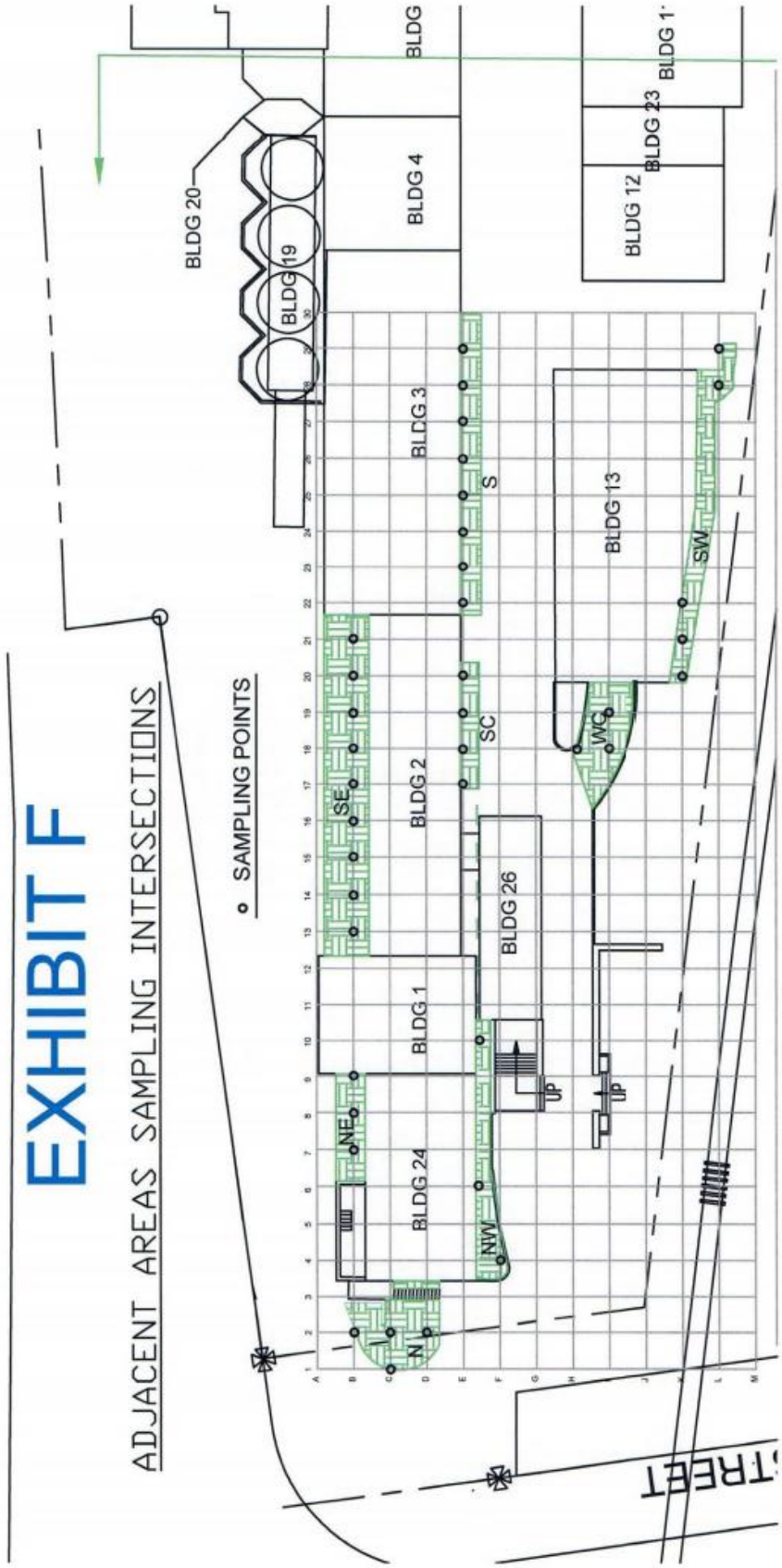
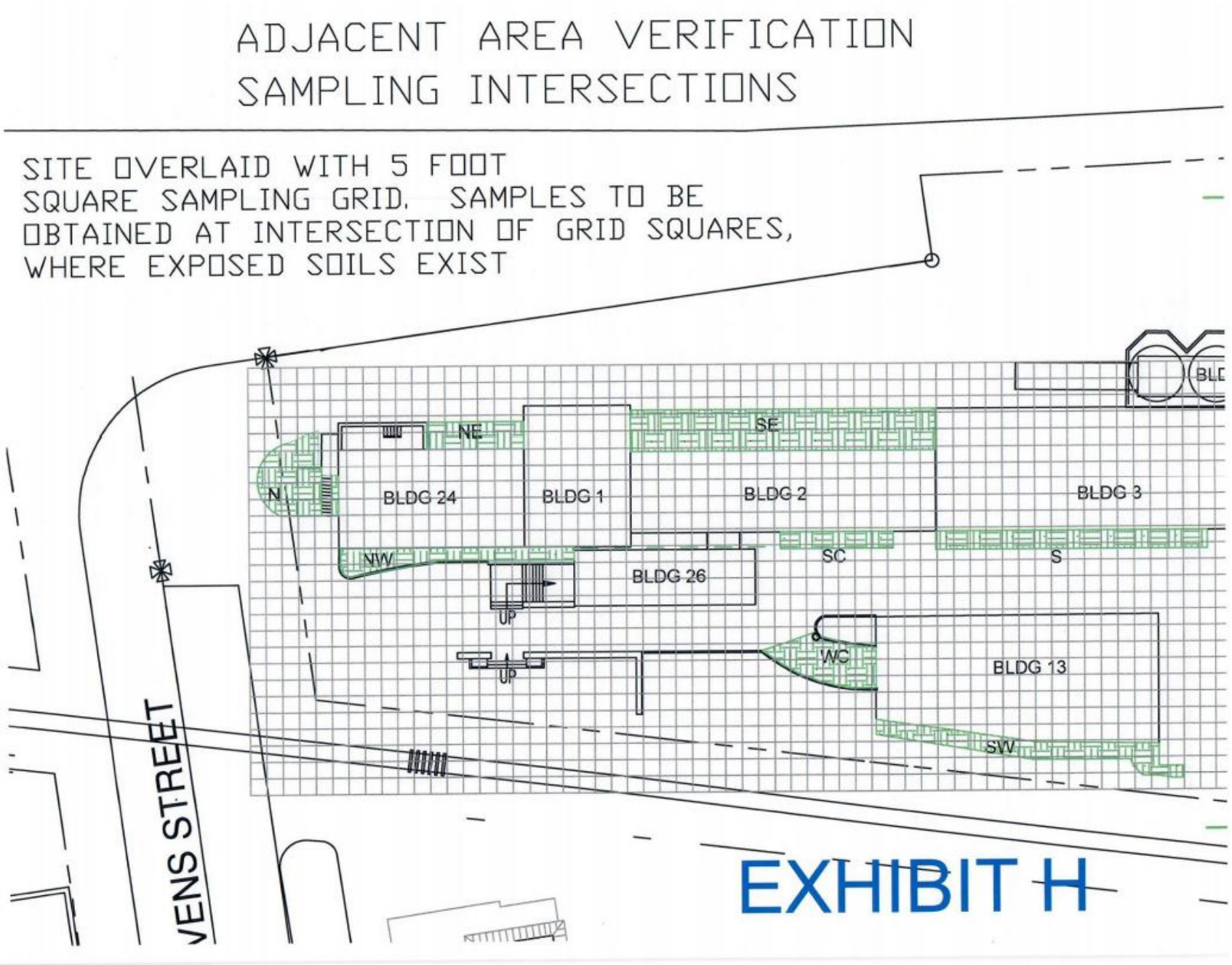


EXHIBIT F
ADJACENT AREAS SAMPLING INTERSECTIONS
SAMPLING POINTS
BLDG 20
BLDG 19
BLDG 4
BLDG 12
BLDG 23
BLDG 3
BLDG 13
BLDG 2
BLDG 26
BLDG 1
BLDG 24
S
SW
SC
WC
SE
NE
NW
N
UP
UP
STREET


AIRPORT WA
RS
RS
RS
BLDG 28
RG
RT
REMOTE AREAS SAMPLING INTERSECTIONS
SAMPLING POINTS
EXHIBIT G


ADJACENT AREA VERIFICATION
SAMPLING INTERSECTIONS
SITE OVERLAID WITH 5 FOOT SQUARE SAMPLING GRID. SAMPLES TO BE OBTAINED AT INTERSECTION OF GRID SQUARES, WHERE EXPOSED SOILS EXIST
NE
SE
N
BLDG 24
BLDG 1
BLDG 2
BLDG 3
NW
SC
S
BLDG 26
UP
UP
WC
BLDG 13
SW
VENS STREET
EXHIBIT H

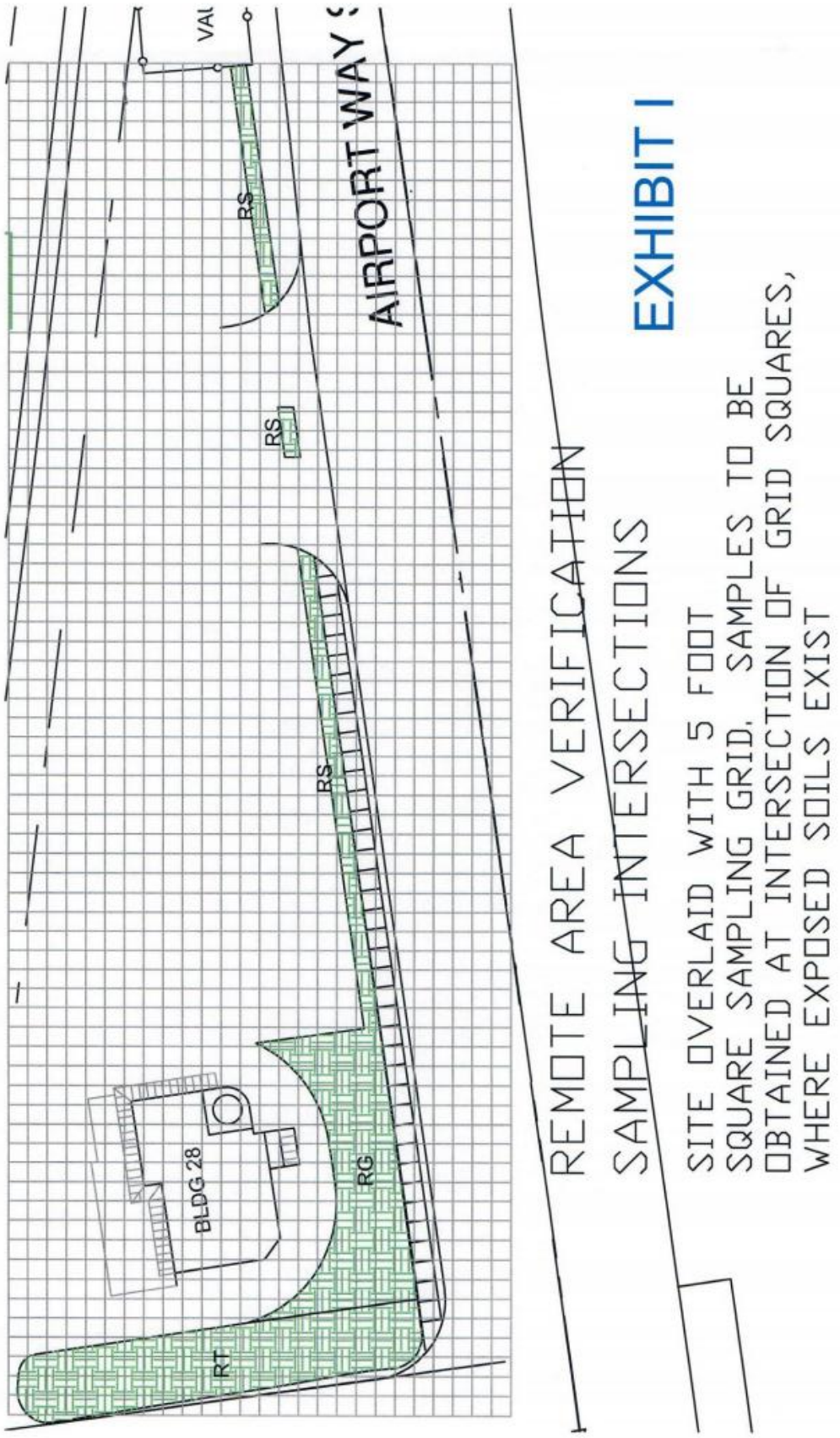
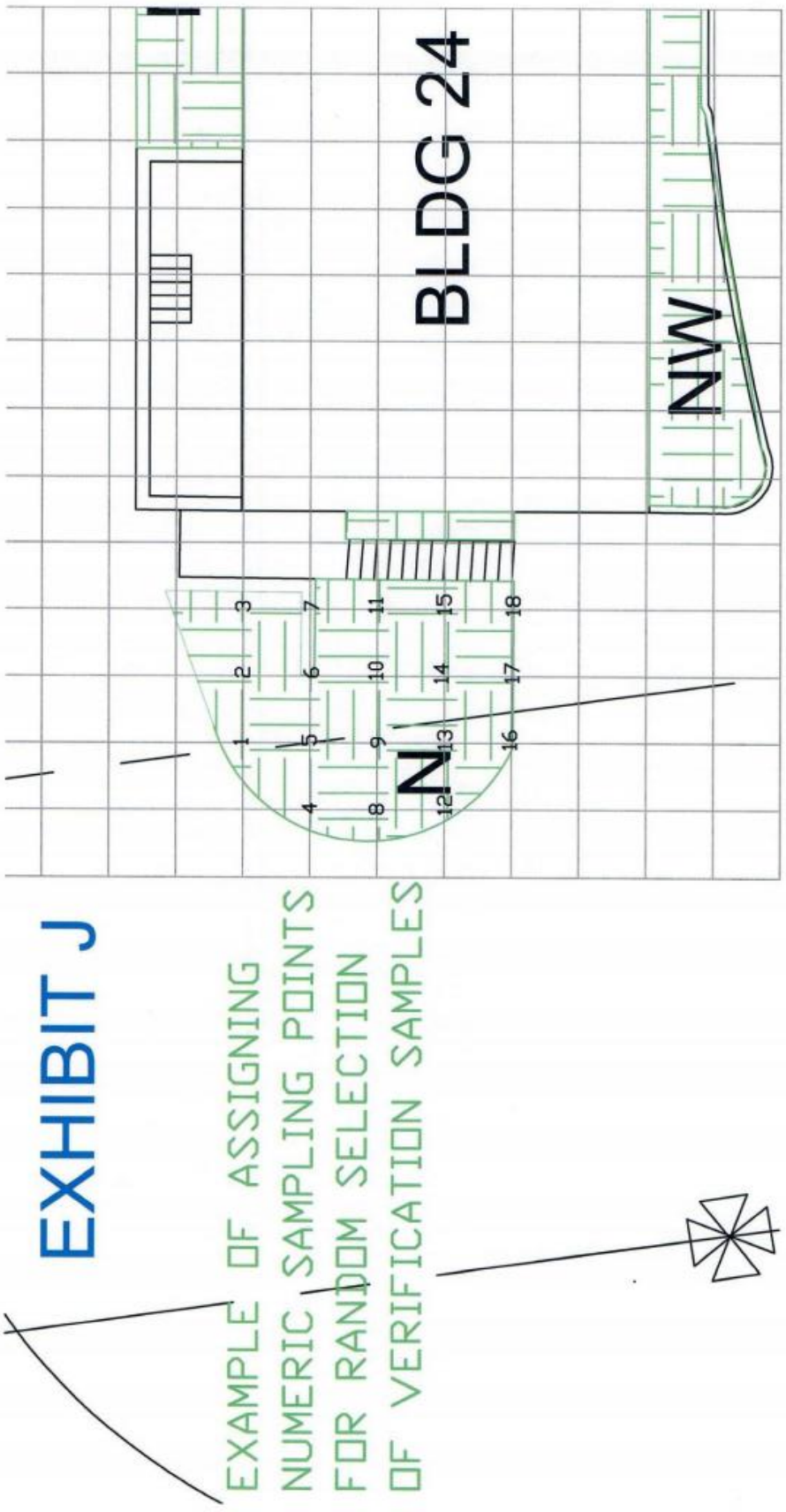


EXHIBIT I
REMOTE AREA VERIFICATION
SAMPLING INTERSECTIONS
SITE OVERLAID WITH 5 FOOT
SQUARE SAMPLING GRID. SAMPLES TO BE
OBTAINED AT INTERSECTION OF GRID SQUARES,
WHERE EXPOSED SOILS EXIST
AIRPORT WAY
RS
RS
RS
RG
RT
BLDG 28


BLDG 24
NW
N
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
EXHIBIT J
EXAMPLE OF ASSIGNING
NUMERIC SAMPLING POINTS
FOR RANDOM SELECTION
OF VERIFICATION SAMPLES

Plan for the Final Cleaning of Storm and Combined Sanitary Sewer Lines at Rainier Commons – September 9, 2020

I. Introduction:

Rainier Commons, in conjunction with its consultants, has prepared this ***Plan for the Final Cleaning of Storm and Combined Sanitary Sewer Lines at Rainier Commons*** (the Plan) to describe and document the methods, personnel, material and equipment that will be employed to provide the final cleaning of the on-site storm and combined sanitary sewer conveyances (hereafter referred to as Storm Drains) at Rainier Commons. The Plan closely parallels previous Strom Drain cleaning activities performed in May 2010 and February 2013 at Rainier Commons. These previous cleaning activities were coordinated with applicable utility purveyors (King County Industrial Waste Program and Seattle Public Utilities (SPU), respectively) with completion results also provided to the Environmental Protection Agency (EPA).

The Plan has been developed in response to the Risk-Based Disposal Approval for Polychlorinated Biphenyl Bulk Product Waste at the Rainier Commons Facility (the RBDA), April 13, 2020 revision. Condition #3 of the RBDA states "The Final IPWP will also include detailed plans for cleaning the storm and combined sanitary sewer lines at RC." Final Storm Drain cleaning, utilizing the Plan, will occur subsequent to all paint abatement activities, verifying the absence of any Polychlorinated Biphenyls (PCBs) within the Storm Drains.

After completion of initial Storm Drain cleaning (2010 and 2013), ongoing laboratory testing of aqueous and sediment samples of Storm Drain discharges have confirmed the efficacy of both the cleaning process as well as the continued application of Rainier Commons' formal Site Source Controls, utilizing current Best Management Practices (BMPs). Additional scheduled testing of the Storm Drain system during the course of Phase IIb and III of the exterior paint removal work will provide further substantiation of the efficacy of controls in place.

The Plan establishes the procedures for mobilization, cleaning, decontamination, sample collection, testing, and demobilization for resources used for final cleaning of the on-site Storm Drain system.

II. References:

The following lists the references used in this Plan. References are denoted in this document using the underlined titles.

- *Bravo Completion Report* = Bravo Environmental Summary Report of Storm Drain cleaning of campus stormwater infrastructure connecting to SPU conveyances, dated February 12, 2013

- *CleanHarbors Completion Report* = CleanHarbors Environmental Service Summary Report of Storm Drain cleaning of campus infrastructure connecting to King County Industrial Waste conveyances, dated August 24, 2010

- *Catch Basin Monitoring Plan* = Rainier Commons Catch Basin Monitoring Plan for Abatement Work Performed in Phase IIb and Phase III, dated August 15, 2019 and approved by EPA April 13, 2020

- *Inventory of Storm Sewer Inlets* = Graphic depiction of all on-site Storm Drain structures, pipes, and access points, revised August 1, 2019. Inventory included with the approved Catch Basin Monitoring Plan referenced above, approved by EPA on April 13, 2020

III. Plan Overview:

The Rainier Commons campus consists of multiple buildings with a variety of small businesses and residential units. There is heavy vehicle traffic and moderate foot and bicycle traffic. Accordingly, this plan incorporates specific work methodologies, protocols and preventative measures that will eliminate any likelihood of interference with the work, or an accidental release of storm water and sediment resulting from work performed during the course of this Plan, as well as contingency response measures, should a chemical emergency arise. All field work will be performed by CleanHarbors Environmental Services (CHES), utilizing commercially accepted methods and materials during the cleaning process.

CHES will remove and collect standing storm water, water used during the cleaning process, and sediment to the maximum extent possible from the combined storm/sanitary sewer lines and storm line outfall to SPU and King County. These areas include Storm Drain features that were described and cleaned in the 2010 *CleanHarbors Completion Report* and the 2013 *Bravo Completion Report* and from time to time as a part of on-going site source control measures. Storm Drain features described throughout the Plan refer to the components depicted on the approved *Inventory of Storm Sewer Inlets*.

Collected storm water and sediments will be temporarily stored on-site in a secured, signed and protected storage area designated by Rainier Commons for this purpose, while laboratory waste characterization is underway. Based upon characterization results, all collected waste will be appropriately treated and/or disposed of, following applicable and controlling Federal or State hazardous waste disposal requirements.

IV. Site Safety:

CHES will conduct a daily safety meeting and will update the crew of onsite changes to include scope redirect or new or previously unidentified safety risks.

It is the policy of CHES not to attempt to assess, treat, or provide private transport of seriously injured personnel except in immediate life-threatening situations. Professional emergency personnel and conveyance should always conduct movement of an injured person. In all cases involving a serious injury, the CHES emergency response preventive plan is to be implemented and emergency services contacted as listed on the contact page, below.

CHES will not attempt to move or transport a seriously injured patient should the nature of injury relate to back, neck or head injury or signs of internal bleeding.

Event	Contact	Emergency Number
Clean Harbors PM	Brian Slaton	(206) 549-1790
Clean Harbors Supervisor	Nelson Ocasio	(206) 402-8502
Spill, Chemical Release	Doug Lansing	(206) 963-6656
Fire, Explosion	911	911
Emergency Number (injuries)	911	911

V. **Materials:**

The following parts and materials will be utilized during the execution of the Plan. All materials are commercially available, with proven application in similar utility work. Additional information on these items can be found in Exhibit A:

Steel Tank (Frac Tank) – Stainless steel tank used as a holding tank for water and sediment collected during the cleaning process

Spillguard E-Contain – Secondary containment components utilized during the collection/transfer process

Spillguard Hose Guard – Secondary containment component used as a protected path for interconnecting hoses utilized during the collection/transfer process

Spillguard Hose Bridges – Device to provide weight support for transfer hoses, preventing collapse of secondary containment barriers

Sodium hypochlorite - Virucide and bactericide solution added at a 10-1 ratio to eliminate any bio-hazard risks to the decontamination team and the environment. (SDS included)

VI. **Machines/equipment:**

The following equipment and machines will be utilized during the execution of the Plan. All materials are commercially available, with proven application in similar utility work. Additional information on these items can be found in Exhibit B:

PPE – Hard hats, safety glasses, steel toed boots, Tyvek suits or similar, face shield, double hearing protection, gloves cut resistant level III, full face mask with GME-P100 cartridges and latex gloves.

Vacuum straight tanker.

Vactor (combination truck).

Combo jetting trailer system.

Vehicle with emergency lights for traffic control.

Confined Space Entry Equipment (SCBA, Davit system, 5 gas meter, blower and emergency rescue equipment), see SOP for details.

VII. **Manpower:**

All equipment operators will be appropriately trained and certified for the type of equipment in use.

All personnel participating in Confined Space Entry operations will be certified for such activities.

Personnel involved in the collection, transfer, testing, and/or decontamination of Storm Drain effluents will be HAZWOPER certified.

VIII. **Methods:**

Mobilization:

Order and stage all equipment (in designated area shown on attached aerial photo) to be used during for the duration of the project.

- Frac tank to be placed in secondary spill containment during staging.

Place a copy of the Plan and Hazardous Work Permit in a visible location next to the work.

Perform pre-project Health and Safety, work plan, PTP meeting with crew. As a minimum this meeting is will address:

- Anticipated chemical and physical hazards relating to work.
- Review required safety practices.
- Discuss appropriate protective equipment necessary to promote the highest degree of safety for each worker.
- Review specific personnel assignments.
- Identify and address all chemical and physical hazards located on site, to include piping and valves, electrical and plumbing lines.
- Map out decontamination route.
- Locate communication phone.
- Locate eyewash.
- Plan evacuation routes for personnel in the event of an emergency.
- Review previous activities and suggestions for safety improvements.

Place appropriate Signage:

- Signage must indicate the work being performed, provide hazard identification, and include a contact information.
- Signage must be posted in the area so as to be easily detected by all personnel entering the area (on danger tape, barricades, and entry doors).
- Install Barricades, warning signs and vehicle traffic control devices.

Cleaning:

The process of cleaning the storm water lines, sewer lines, and components will be conducted in multiple Stages to minimize impact to local business, pedestrians, and vehicle traffic. Each Stage represents a section of the campus' Storm Drain system, shown on the *Inventory of Storm Sewer Inlets*. At the downstream end of each Stage, an appropriately sized inflatable sewer line plug will be installed, to prevent water and sediment from entering the public conveyance system.

High pressure water will be introduced at the upstream end of each stage, utilizing the trailer mounted line jetting equipment. Each segment of pipe, catch basin, manhole, and other features identified in every stage will receive appropriate cleaning via jetting or hand cleaning.

At the downstream catch basin of each stage, a vactor truck or vacuum tanker will collect all water and materials flushed downstream by the line jetting process.

Upon completion of each Stage's cleaning procedure, the cleaned section of Storm Drain will be visually inspected utilizing a CCTV video inspection system. Video will be saved to appropriate storage media for reference.

The following Stages form the individual work statements for the Plan:

a. Stage One

1. Setup traffic control signs and devices at the SPU Manhole located at the intersection of Stevens and Airport Way. Man-Hole is located on the west side of Airport Way, second lane of travel going southbound.
2. Install inflatable sewer lines plugs at Stormceptor and CB22 and outflow sewer line at the SPU Manhole.
2. Place vacuum truck at CB13 to flush 8" PVC pipe starting from trench drain at Building 25 and CB18
3. Place vacuum truck at Stormceptor to finalize the cleaning of the upper east side behind building 24, including CB13, CB19, and CB22. Place vacuum truck at SPU Manhole to finalize cleaning of storm line running from Stormceptor to the SPU Man-Hole and the outflow of CB1.
4. Transfer water and sediment to frac tank located at CB3 across from building 13 (see waste transfer details, below).
5. Inspect sewer / storm lines using CCTV video inspection system.

b. Stage Two

1. Setup traffic control signs and devices at the north-west corner of building 28, at the King County Manhole located at the intersection of Stevens and Airport Way. Manhole is located near south-east corner of intersection.
2. Install inflatable plugs at MH28 and at the K.C. Manhole near the corner of building 28.
3. Setup vactor combination truck at CB28 and vactor from CB28 to collect water and sediment from CB20, D1 through D10, and MH10.
   Relocate vactor combination truck to K.C. Manhole near Building 28. Vactor remaining combined storm/sewer line from CB28 to K.C. Manhole, including CB22A.
4. Transfer water and sediment to frac tank located at staging area (see waste transfer details, below).
5. Inspect sewer / storm lines using CCTV video inspection system.

c. Stage Three

1. Setup vactor combination at CB2 and place combo jetting trailer at CB4.
2. Install inflatable plug at CB3 outflow line.
3. Place vaccum straight at CB3 to collect water and sediments and clean lines from CB4, CB3, CB2,
4. Transfer water and sediments to frac tank, located at staging area (see waste transfer details, below).
5. Inspect sewer / storm lines using CCTV video inspection system.

d. Stage Four

1. Install inflatable plug at MH2 to block outflow line.
2. Setup vacuum straight truck at MH2.
3. Placed vactor combination truck at MH1/CB5 to clean line fromMH7/CB14 and from Mh8 CB15 Place vactor combination truck at MH2 to clean line from MH1.
4. Setup jetter combination trailer at the CB17 located at the east side of building 25.
5. Flush and jet line through building 25 and collect sediments at Clean-Out 1 (CO1).
7. Transfer water and sediments into frac tank at staging area (see waste transfer details, below).
8. Inspect sewer / storm lines using CCTV video inspection system.

e. Stage five

1. Install inflatable plug at MH6 to block outflow line.
2. Setup vacuum straight truck at MH6.
3. Placed vactor combination truck at MH6 to clean line fromMH2 through MH3, MH4, MH5 and from CB16 to MH6 and from the SS line from Bldg 7 through MH6.
4. Transfer water and sediments into frac tank at staging area (see waste transfer details, below).
5. Inspect sewer / storm lines using CCTV video inspection system.

During the course of the Plan's execution, the vactor truck's waste contents will be periodically transferred to the storage (frac) trailer for collection pending final disposition. The waste transfer will be conducted using Cleanharbors Standard Operating Procedures for PCB's contaminated waste and Viral Infectious Material Decontamination SOP. The transfer process will be accomplished in such a manner that will prevent the wastewater and sediments from being released into the surrounding area or Storm Drain system.

1. CHES will place the frac steel tank, vacuum truck and support equipment inside a secondary spill containment, including support equipment such as hoses, pumps and other gear; to protect against an accidental release of the wastewater and sediments to the environment (see appendix A).
2. CHES will verify all connections to ensure a tight seal and place the hoses inside a secondary spill containment with a spill guard bridge during the transfer.
3. Transfer of waste will be conducted by gravity feed initially to verify proper operation of equipment and hoses. Once equipment is inspected for leakage, pressure will be utilized to overcome gravity and to assist in moving any solids.
4. The process will be repeated, as necessary.
5. The vacuum truck will be place inside a secondary spill containment at the end of each day.
6. CHES will be made aware of and will follow the Spill Clean-up Policy at 40 C.F.R. 761.120-761.135. Any decontamination of any affected areas, in the event of a spill, will be performed in accordance with 40 C.F.R. 761.79.

<u>Decontamination:</u>

After completion of all Storm Drain cleaning identified by the Plan, and following final disposal of collected wastewater and sediment, equipment used during the cleaning/storage process will be thoroughly decontaminated. Decontamination cleaning will be performed using the "triple rinse" method (40 CFR § 261.7 - Residues of hazardous waste in empty containers), as follows:

1. CHES will stage a Frac steel tank and vacuum truck inside a secondary spill containment during the decontamination process in accordance with the following standard operating procedures (see appendix A and SOP's CHES.00018.SOP-10HS - CHES.00070.SOP-10HS). CHES will introduce a virucide and bactericide solution such as sodium hypochlorite 10-1 ration to eliminate any bio-hazard risks to the decontamination team and the environment.

2. CHES will provide a CSE team with proper rescue equipment to clean the onsite equipment.

3. For Confined Space Entry, the following PPE is required:

    a. Poly Coated Tyvek suits.
    b. MSA4000 APR's with GME P100 cartridges.
    c. Neoprene Gloves.
    d. Inner nitrile gloves.
    e. Harness and Lanyard; Technician must maintain 100% connection during entire operation.

4. CHES will provide a diesel scrub to the inside of frac tank and pressure wash equipment as needed.

5. CHES will collect all decontamination waste into DOT approved shipping containers or similar equipment and will assist with the waste profiles to ship and dispose of properly.

6. After the decontamination process is completed and frac steel tank dry, CHES will re-enter the space and take wipe samples to be sent off for analysis using the test methods listed below.

7. Equipment may require additional decontamination, based on lab analysis results.

<u>Testing:</u>

Aqueous and sediment materials collected and stored during the cleaning process will be allowed to de-cant for seven days, inside the frac trailer. After decanting, both aqueous and sediment samples will be obtained to test for the following:

a. PH Test, EPA150.0/9040
b. PCB's Test, EPA608/8082GC
c. Metals, Total RCRA 8
d. Fecal Coliform Bacteria Test

Based on test results the waste will be shipped to a hazardous waste disposal facility and/or filter utilizing a granulated activated carbon system before final disposition of the waste.

<u>Demobilization:</u>

Upon completion of all decontamination, testing, and disposal activities; CHES will:

- Remove all equipment, materials, secondary containment, and trash from the campus.
- Restore catch basin protection to pre-cleaning standards (C/B socks, filters)
- Remove any traffic control warning signs
- Remove any remaining pedestrian barricades and/or warning devices
- Restore campus to pre-process condition/configuration

EXHIBIT A

EXHIBIT A – STORM LINE CLEANING PLAN

Steel Tank

Frac Stainless Steel

Overview:

The 304 stainless steel 21,000 gallon frac tanks from Rain for Rent come with a "V" shaped floor for ease of cleaning.

Features:

Store liquids with confidence with Rain for Rent's 21,000 frac tank. Permanently attached axels for maximum maneuverability allow this21,000 gallon tank to be moved with ease on the jobsite.

Specs:

Manways	Four 22" hatches
Material	Stainless Steel
Capacity	21,000 gallons
Dry weight	26,000 lbs.
Footprint:	540" x 102" x 132"

Accessories:

- Spillguard
- Suction and Discharge Hoses
- Optional vapor recovery fitting
- Level gauges
- Steam coils

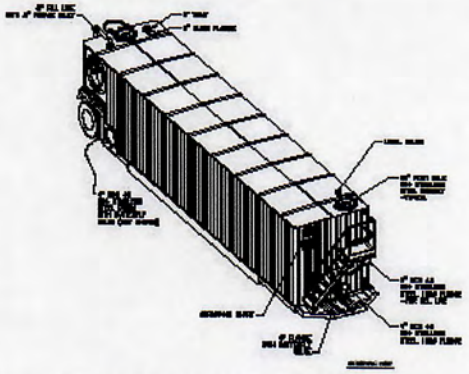


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EXHIBIT A – STORM LINE CLEANING PLAN

Spillguard

E-CONTAIN®

Part of the WORKSAFE™ family of products

Overview:

Spillguards provide a safe and easy solution for secondary containment to help prevent costly incidents. Available in sizes from 6' to 50' with custom sizes available, the portable, lightweight, polyurethane Spillguards are puncture resistant and come with Rigid-Lock supports. The WORKSAFE™ E-CONTAIN® Spillguard features safety improvements, space savings, ease and reduced clean-up costs. The E-CONTAIN® Spillguard is also lighter and easier to maintain, deploy and

Features:

- No inside or outside support straps, which decreases tripping hazards and strap damage from vehicle drive-over
- One piece Spillguard, no assembly required
- Smaller footprint
- Easy to clean and repair damaged supports in the field
- Strong wind resistance
- Puncture resistant track belts and ground mats come standard with each Spillguard
- Patent pending design

Specs:

- Sizes from 6'x10'x8" to 48'x50'x1'
- Acid model (black) Spillguards approved for a temperature range of -10°F to 160°F
- Standard model (tan) Spillguards are approved for use in temperatures ranging from -50°F to 160°F
- Can be used in numerous applications to contain acids, caustics, hydrocarbons, fuels, fertilizers and many other hazardous materials
- Acid Spillguard models can be used in applications with Sulfuric acid, Sodium Hydroxide, Hydrochloric acid and Sodium Hypochlorite
- Spillguards require engineering review prior to use with Diesel, Gasoline, Crude oil and Mineral-based Hydraulic Fluid

Accessories:

- SolidGround® Traction Mat
- Spillguard Hose Bridge
- Pipe & Hoses
- PipeStax®
- PipeStax® XL
- HoseTrax™
- Puncture resistant track belts (Standard)
- Puncture resistant ground mats (Standard)

E-CONTAIN® SPILLGUARD AVAILABLE SIZES		
LENGTH (FT)	WIDTH (FT)	WALL HEIGHT (IN)
6'	10'	8"
8'	14'	8"
10'	18'	8"
10'	30'	12"
10'	50'	12"
12'	18'	12"
24'	50'	12"
48'	50'	12"

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Rain for Rent is a registered trademark of Western Oilfields Supply Company. Features and specifications are subject to change without notice.

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Spillguard

Hose Guard

Overview:

Modular design allows for zip-together fluid-tight construction. All components are 2 feet wide and 8 inches tall. Hose Guard Spillguards are completely modular, allowing for runs, corners, intersections that work best under your hose and pipe configuration to prevent accidental spills or leaks on your sensitive jobsite.

Features:

- Available in Straight runs, Corners, Intersections and end caps.
- Customizeable to the size and position of your hose requiring additional spill protection.

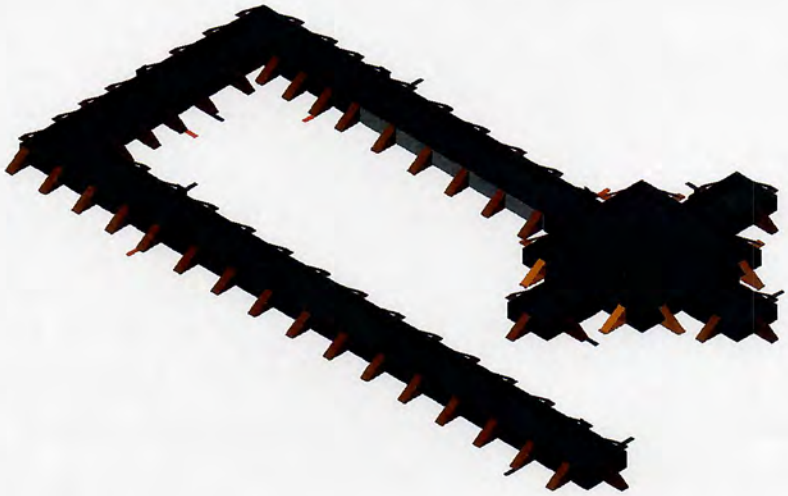
Specs:

Modular hose guard building blocks:

- End cap: 2' x 2'
- 10 foot runner: 2' x 10'
- 20 foot runner: 2' x 20'
- Right Angle: Two 2' wide and 6' runs connected
- 4-way Intersection: 6' square with four 2' outlets

Accessories:

- Modular spillguards to run under pipeline
- Puncture resistant track belts
- Puncture-resistant ground mats
- SolidGround™ Traction Mats
- Create reusable blast water system when you combine the SprayGuard with Rain for Rent pumps, filtration and tanks. Closed-loop filtration systems available.



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Spillguard Hose Bridge

Overview:

The durable, lightweight and chemical resistant WORKSAFE™ Spillguard Hose Bridges U.S. Patent # 6,648,281 feature a nesting design for easy transport of multiple bridges.

Features:

- High-density polyethylene construction.
- Support hoses up to 12 inches.
- Protect Spillguard berms from collapsing under hose weights.
- Pass over short obstacles with ease.
- Stack for transport ease.

Specs:

- 30" x 30" x 24"

Accessories:

- Modular spillguards to run under pipeline
- Puncture resistant track belts
- Puncture-resistant ground mats
- SolidGround™ Traction Mats

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SAFETY DATA SHEET

M7745 - ANSI - EN

Occidental Chemical Corporation
A subsidiary of Occidental Petroleum Corporation

SODIUM HYPOCHLORITE (EPA)

SDS No.: M7745 **SDS Revision Date:** 01-Apr-2016

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**SODIUM HYPOCHLORITE (EPA)**
Synonyms:	Chlorine bleach, Soda bleach
Product Use:	Bleaching agent, Chemical Intermediate, Water treatment (chlorination)
Uses Advised Against:	None identified
Note:	Sodium Hypochlorite (EPA) is a registered antimicrobial pesticide: EPA Registration Number 935-20007.

SECTION 2. HAZARDS IDENTIFICATION

M7745 - ANSI - EN

SODIUM HYPOCHLORITE (EPA)

SDS No.: M7745 **SDS Revision Date:** 01-Apr-2016

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

****

EMERGENCY OVERVIEW:

Color: Colorless to yellow
Physical State: Liquid
Appearance: Clear
Odor: Characteristic bleach odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SERIOUS EYE DAMAGE. CAUSES SEVERE SKIN BURNS. CAUSES DAMAGE TO RESPIRATORY SYSTEM WHEN INHALED. TOXIC IF SWALLOWED. MAY CAUSE DAMAGE TO GASTROINTESTINAL TRACT WHEN SWALLOWED.

PHYSICAL HAZARDS: CORROSIVE TO METALS.

AQUATIC TOXICITY: Toxic to fish and aquatic organisms.

PRECAUTIONARY STATEMENTS: Do not breathe mist, vapors, or spray. Do not taste or swallow. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye, and face protection. Do not eat, drink or smoke when using this product. Keep only in original container. Avoid release to the environment. Store in a secure manner. Store in corrosive resistant container with a resistant inner liner.

****

GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Corrosive to Metals
GHS: CONTACT HAZARD - SKIN:	Category 1C - Causes severe skin burns and eye damage.
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 1 - Causes damage to: Respiratory System
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

UNKNOWN ACUTE TOXICITY: Listed below.

Unknown Acute Dermal Toxicity:
100% of this product consists of ingredient(s) of unknown acute dermal toxicity.

Unknown Acute Inhalation Toxicity:
100% of this product consists of ingredient(s) of unknown acute inhalation toxicity.

GHS SYMBOL: Corrosion, Health hazards

SODIUM HYPOCHLORITE (EPA)

SDS No.: M7745 **SDS Revision Date:** 01-Apr-2016


GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
• May be corrosive to metals

GHS - Health Hazard Statement(s)
• Causes severe skin burns and eye damage
• Causes serious eye damage
• Causes damage to organs (Respiratory System)

GHS - Precautionary Statement(s) - Prevention
• Do not breathe mist, vapors, or spray
• Wear protective gloves, protective clothing, eye, and face protection
• Wash thoroughly after handling
• Do not eat, drink or smoke when using this product
• Keep only in original container

GHS - Precautionary Statement(s) - Response
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
• IF INHALED: Remove person to fresh air and keep comfortable for breathing
• Immediately call a POISON CENTER or doctor/physician
• Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
• Wash contaminated clothing before reuse
• IF exposed: Call a POISON CENTER or doctor/physician
• Absorb spillage to prevent material damage

GHS - Precautionary Statement(s) - Storage
• Store in a secure manner
• Store in corrosive resistant container with a resistant inner liner

GHS - Precautionary Statement(s) - Disposal
• Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)
Contact with acids liberates toxic gas

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Chlorine bleach, Soda bleach

Contains Sodium hypochlorite, Sodium Hydroxide

Component	Percent [%]	CAS Number
Water	70-76	7732-18-5
Sodium hypochlorite	12.5-15	7681-52-9
Sodium Chloride	11-14.5	7647-14-5
Sodium Hydroxide	0.5-1.5	1310-73-2

SECTION 4. FIRST AID MEASURES

INHALATION: If inhalation of mists, vapors, or spray occurs and adverse effects result, remove to uncontaminated area. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. GET MEDICAL ATTENTION IMMEDIATELY. There is no specific antidote, treat symptomatically.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with large amounts of water. GET MEDICAL ATTENTION IMMEDIATELY. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods.

EYE CONTACT: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately contact a physician. Immediate and thorough decontamination of the eye is essential followed by ophthalmological assessment. Follow protocol for corrosive injury.

INGESTION: If swallowed, DO NOT INDUCE VOMITING. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. Never give anything by mouth to an unconscious or convulsive person. GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed): :.

Acute Symptoms/Effects: Listed below.
Inhalation (Breathing): Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.
Skin: Skin Corrosion. Skin exposure to gas or liquid may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.
Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.
Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

Delayed Symptoms/Effects:
- Repeated and prolonged skin contact may cause a dermatitis

Interaction with Other Chemicals Which Enhance Toxicity: Mixing with ammonia, acids, detergents, or organic matter will release chlorinated compounds, which are irritating to eyes, lungs, and mucus membranes.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as:. Eye disorders that decrease tear production or have reduced integrity. Skin disorders that compromise the integrity of the skin. Respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Do not ingest. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Treat as a corrosive due to the pH of this material. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. Probable mucosal damage may contraindicate the use of gastric lavage. There is no specific antidote. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: May release toxic gases.

Fire Fighting: Wear an approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Component	Immediately Dangerous to Life/ Health (IDLH)
Sodium Hydroxide 1310-73-2	10 mg/m³ IDLH

Hazardous Combustion Products: Hydrogen chloride, Chlorine

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not flammable

Upper Flammability Level (air): Not flammable

Flash point: Not flammable

Auto-ignition Temperature: Not applicable

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Avoid contact with skin, eyes and clothing. Avoid breathing fumes, vapor, mist, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS. Vacate poorly ventilated areas as soon as possible, and do not return until odors have dissipated. Evacuation of surrounding area may be necessary for large spills. Stay upwind and keep out of low areas. Consider evacuation of personnel located downwind. Refer to Section 7, Handling and Storage, for additional precautionary measures.

Methods and Materials for Containment and Cleaning Up:
Remove sources of ignition. Stop leak if possible without personal risk. Keep people away from and upwind of spill/leak. Evacuation of surrounding area may be necessary for large spills. Absorb spillage to prevent material damage. Absorb with inorganic absorbents. Liquid material may be removed with a vacuum truck. Shovel dried residue into suitable container. See Section 13, Disposal considerations, for additional information.

Environmental Precautions:
Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling:
Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Use only with adequate ventilation. Vacate poorly ventilated areas as soon as possible, and do not return until odors have dissipated.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. If possible, store in original container. If not possible, store in a corrosion resistant container with a resistant inner liner and with an adequate relief device. Keep container tightly closed and upright when not in use. Store in a cool, dry area. Store out of direct sunlight. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Do not freeze. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Store in a secure manner.

Incompatibilities/ Materials to Avoid:
Material is a strong oxidizing agent and should only be mixed with water. Mixing this product with chemicals (e.g. ammonia compounds, acids, detergents) or organic matter will release chlorinated compounds, which are irritating to eyes, lungs, and mucous membranes, Other materials to avoid include: most metals, peroxides, reducing agents, oxidizing agents

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

SODIUM HYPOCHLORITE (EPA)

SDS No.: M7745 **SDS Revision Date:** 01-Apr-2016

Regulatory Exposure Limit(s): As listed below.

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PELCeiling
Sodium Hydroxide 1310-73-2	2 mg/m³	-----	-----

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): As listed below.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Sodium Hydroxide	-----	-----	2 mg/m³	-----	-----	2 mg/m³

- *The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).*

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Sodium hypochlorite 7681-52-9 (12.5-15)		2 mg/m³	-----
Sodium Chloride 7647-14-5 (11-14.5)	-----	-----	-----

ENGINEERING CONTROLS: Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear splash resistant safety goggles with a face-shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Contaminated clothing should be removed, then discarded or laundered.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types:
Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC)

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. Acid gas cartridges may be required if decomposition products are present. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Component	Immediately Dangerous to Life/ Health (IDLH)
Sodium Hydroxide 1310-73-2	10 mg/m³ IDLH

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear
Color:	Colorless to yellow
Odor:	Characteristic bleach odor
Odor Threshold [ppm]:	0.3 ppm (0.9 mg/m³).
Decomposition Temperature:	230 °F (110 °C)
Boiling Point/Range:	230 °F (110 °C)
Freezing Point/Range:	-3 to -14 °F (-19.4 to -25.6 °C).
Melting Point/Range:	Not applicable to liquids
Vapor Pressure:	No data available
Vapor Density (air=1):	No data available
Relative Density/Specific Gravity (water=1):	1.22
Density:	9.9 - 10.5 lb/gal
Water Solubility:	100%
pH:	12
Volatility:	No data available
Evaporation Rate (ether=1):	No data available
Partition Coefficient (n-octanol/water):	No data available
Flash point:	Not flammable
Flammability (solid, gas):	Not applicable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Auto-ignition Temperature:	Not applicable
Viscosity:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity: May decompose upon heating and exposure to sunlight.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions: No data available.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Direct sunlight.

Incompatibilities/ Materials to Avoid: Material is a strong oxidizing agent and should only be mixed with water. Mixing this product with chemicals (e.g. ammonia compounds, acids, detergents) or organic matter will release chlorinated compounds, which are irritating to eyes, lungs, and mucous membranes. Other materials to avoid include: most metals, peroxides, reducing agents, oxidizing agents.

Hazardous Decomposition Products: hydrogen chloride, Chlorine, oxygen

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

PRODUCT TOXICITY DATA: SODIUM HYPOCHLORITE (EPA)

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
8910 mg/kg (Rat)	No data available	No data available

COMPONENT TOXICITY DATA:

Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Sodium hypochlorite 7681-52-9 (12.5-15 %)	8200 mg/kg (Rat)	10000 mg/kg (Rabbit)	Not listed
Sodium Chloride 7647-14-5 (11-14.5 %)	3000 mg/kg (Rat)	Not listed	42 g/m³ (1 hr-Rat)
Sodium Hydroxide 1310-73-2 (0.5-1.5 %)	140-3400 mg/kg	1350 mg/kg (Rabbit)	Not listed

****

POTENTIAL HEALTH EFFECTS:

Eye contact: Causes serious eye damage. Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

Skin contact: Skin contact may be irritating and corrosive. Can cause skin burns.

Inhalation: Inhalation may cause coughing, choking, irritation (possibly severe), chemical burns, shortness of breath, and pulmonary edema. Pulmonary edema may develop several hours after a severe acute exposure.

Ingestion:	Not a likely route of exposure in occupational settings. If swallowed, may cause irritation, swelling, pain, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.
Chronic Effects:	Repeated or prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:
Listed below.

Inhalation (Breathing): Respiratory System Effects: Inhalation exposure may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.
Skin: Skin Corrosion. Skin exposure to gas or liquid may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.
Eye: Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye.
Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

TOXICITY:
Carefully controlled sensitization studies on animal have not resulted in any reproducible positive findings. Standard sensitization patch tests in healthy human volunteers show no potential to induce contact sensitization. In tests using rats and mice, there was no evidence of carcinogenicity.

Interaction with Other Chemicals Which Enhance Toxicity: Mixing with ammonia, acids, detergents, or organic matter will release chlorinated compounds, which are irritating to eyes, lungs, and mucus membranes.

****

GHS HEALTH HAZARDS:
Listed below.

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CONTACT HAZARD - SKIN: Category 1C - Causes severe skin burns and eye damage.

Skin Absorbent / Dermal Route? No.

GHS: CARCINOGENICITY:
Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 1 - Respiratory system

MUTAGENIC DATA:
Not classified as a mutagen per GHS criteria. Sodium hypochlorite has tested positive in in vitro test systems and negative in in vivo test systems. These results are consistent with other germicides.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Aquatic Toxicity:
Data provided are for sodium hypochlorite.

Component	Freshwater Fish	Invertebrate Toxicity:	Algae Toxicity:	Other Toxicity:
Sodium hypochlorite 7681-52-9 (12.5-15)	- LC50 clupea harengus 0.033 - 0.097 mg//l/96 hr, flow through bioassay (pH: 8) - LC50 cymatogaster aggregata 0.045 - 0.098 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 gasterosteus aculeatus 0.141 - 0.193 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 oncorhynchus gorbuscha 0.023 - 0.052 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 oncorhynchus kisutch 0.026 - 0.038 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 parophrys vetulus 0.044 - 0.144 mg/l/96 hr, flow through bioassay (pH: 8) - LC50 pimephales promelas 0.22 - 0.62 mg/l/96 hr, flow through bioassay (pH: 7)	- EC50 ceriodaphnia sp. 0.006 mg/l/24 hr - EC50 daphnia magna 0.07 - 0.7 mg/l/24 hr - EC50 daphnia magna 2.1mg/l/96 hr - EC50 gammarus fasciatus 4 mg/l/96 hr - EC50 nitocra spinipes 40 mg/l/96 hr - EC50 palaemonetes pugio 52 mg/l/96 hr	- ErC50 dunaliella sp. 0.6 mg/l/24 hr - ErC50 dunaliella tertiolecta 0.11 mg/l/24 hr -ErC50 skeletonema costatum 0.095 mg/l/24 hr	

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is believed not to persist in the environment.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or reprocess, if possible. May be subject to disposal regulations. Dispose of in accordance with federal, state and local regulations.

Container Management:
See product label for container disposal information. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER:	UN1791
PROPER SHIPPING NAME:	Hypochlorite solutions (SODIUM HYPOCHLORITE)
HAZARD CLASS/ DIVISION:	8
PACKING GROUP:	III
LABELING REQUIREMENTS:	8
MARINE POLLUTANT:	Marine Pollutant (Sodium Hypochlorite)
RQ (lbs):	RQ 100 Lbs. (Sodium hypochlorite)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER:	UN1791
SHIPPING NAME:	Hypochlorite Solution (Sodium Hypochlorite)
CLASS OR DIVISION:	8
PACKING/RISK GROUP:	III
LABELING REQUIREMENTS:	8
CAN. MARINE POLLUTANT:	Marine Pollutant (Sodium Hypochlorite)

MARITIME TRANSPORT (IMO / IMDG) :

UN NUMBER:	UN1791
PROPER SHIPPING NAME:	Hypochlorite solutions (SODIUM HYPOCHLORITE)
HAZARD CLASS / DIVISION:	8
Packing Group:	III
LABELING REQUIREMENTS:	8
MARINE POLLUTANT:	Marine Pollutant (Sodium Hypochlorite)

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	CERCLA Reportable Quantities:
Sodium hypochlorite	100 lb (final RQ)
Sodium Hydroxide	1000 lb (final RQ)

SARA EHS Chemical (40 CFR 355.30)
Not regulated

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Acute Health Hazard

EPCRA SECTION 313 (40 CFR 372.65):
Not regulated

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated

FIFRA REGULATIONS: Registered pesticide under 40 CFR 152.10, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

M7745 - ANSI - EN

SODIUM HYPOCHLORITE (EPA)

SDS No.: M7745 **SDS Revision Date:** 01-Apr-2016

FIFRA LABELING REQUIREMENTS: - This chemical is a pesticide product registered by the United States Environmental Protection Agency (EPA) and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.
- FIFRA Signal Word - DANGER
- Corrosive
- May cause burns to eyes, skin, and mucus membranes
- Causes eye damage
- This pesticide is toxic to fish and aquatic organisms
- STRONG OXIDIZING AGENT
- Mix only with water according to label directions
- Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs, and mucus membranes

FDA: This product is not produced under all current Good Manufacturing Practices (cGMP) requirements as defined by the Food and Drug Administration (FDA).

NATIONAL INVENTORY STATUS

Component	U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):
Sodium hypochlorite 7681-52-9 (12.5-15 %)	Listed
Sodium Chloride 7647-14-5 (11-14.5 %)	Listed
Sodium Hydroxide 1310-73-2 (0.5-1.5 %)	Listed

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Sodium hypochlorite 7681-52-9	Not Listed	Not Listed	Not Listed	Listed	1707	Not Listed
Sodium Chloride 7647-14-5	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Hydroxide 1310-73-2	Not Listed	Not Listed	Not Listed	Listed	1706	Corrosive

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List

Sodium hypochlorite 7681-52-9	Not Listed	Listed	Not Listed	Present	Not Listed
Sodium Chloride 7647-14-5	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Hydroxide 1310-73-2	Not Listed	Listed	Not Listed	Present	Listed

CANADIAN REGULATIONS

• This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations

WHMIS - Classifications of Substances:

• E - Corrosive material

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 01-Apr-2016

Reason for Revision:

• Updated Transportation Information: SEE SECTION 14
• Updated First Aid Measures: SEE SECTION 4
• Format change to sections: 2, 5, 8, 11, 12, 15, and 16

IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws
OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

SODIUM HYPOCHLORITE (EPA)

End of Safety Data Sheet

EXHIBIT B

EXHIBIT B – STORM LINE CLEANING PLAN

COMPACT DESIGN. BIG iMPACT.™

VACTOR®
iMPACT

EXHIBIT B – STORM LINE CLEANING PLAN

INTRODUCING iMPACT.

Ergonomic. Economic. Easy-to-operate.

Our newest combination sewer cleaner may be smaller than some of our other models, but it's no less powerful. Built with the same emphasis on performance and reliability, these machines offer outstanding versatility and the ability to maneuver through tight spaces. As with all Vactor® equipment, the iMPACT allows communities to protect, clean and repair their infrastructure. It is also engineered for optimal operator comfort and control. Features contributing to the ease of use include:

- The revolutionary IntuiTouch® control system
- Superior vacuum performance
- Low-maintenance Jet Rodder® water pump
- Exclusive Modul-Flex design
- Quiet engine design, high ground clearance, low water fill point, and twist-and-lock pipe restraints
- Hose reel that can rotate up to 180°
- Precise digital hose footage counter
- Water tanks featuring superior corrosion resistance and backed by a 10-year standard warranty

The new iMPACT makes the innovations of the 2100i more accessible without sacrificing Vactor's high standards.

EXHIBIT B – STORM LINE CLEANING PLAN

A TRAILER JETTER THAT LEADS THE WAY.

VACTOR®
RAMJET

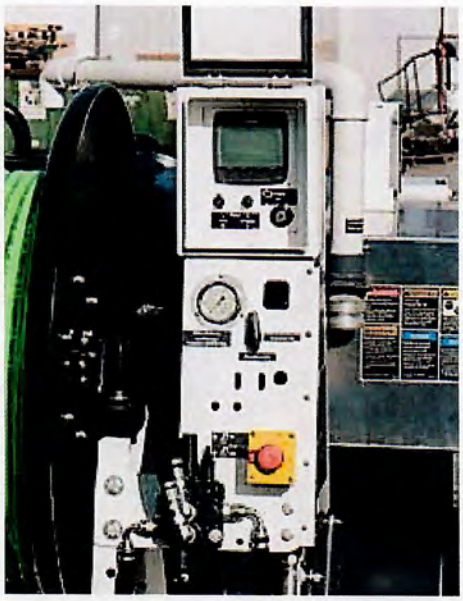
EXHIBIT B – STORM LINE CLEANING PLAN

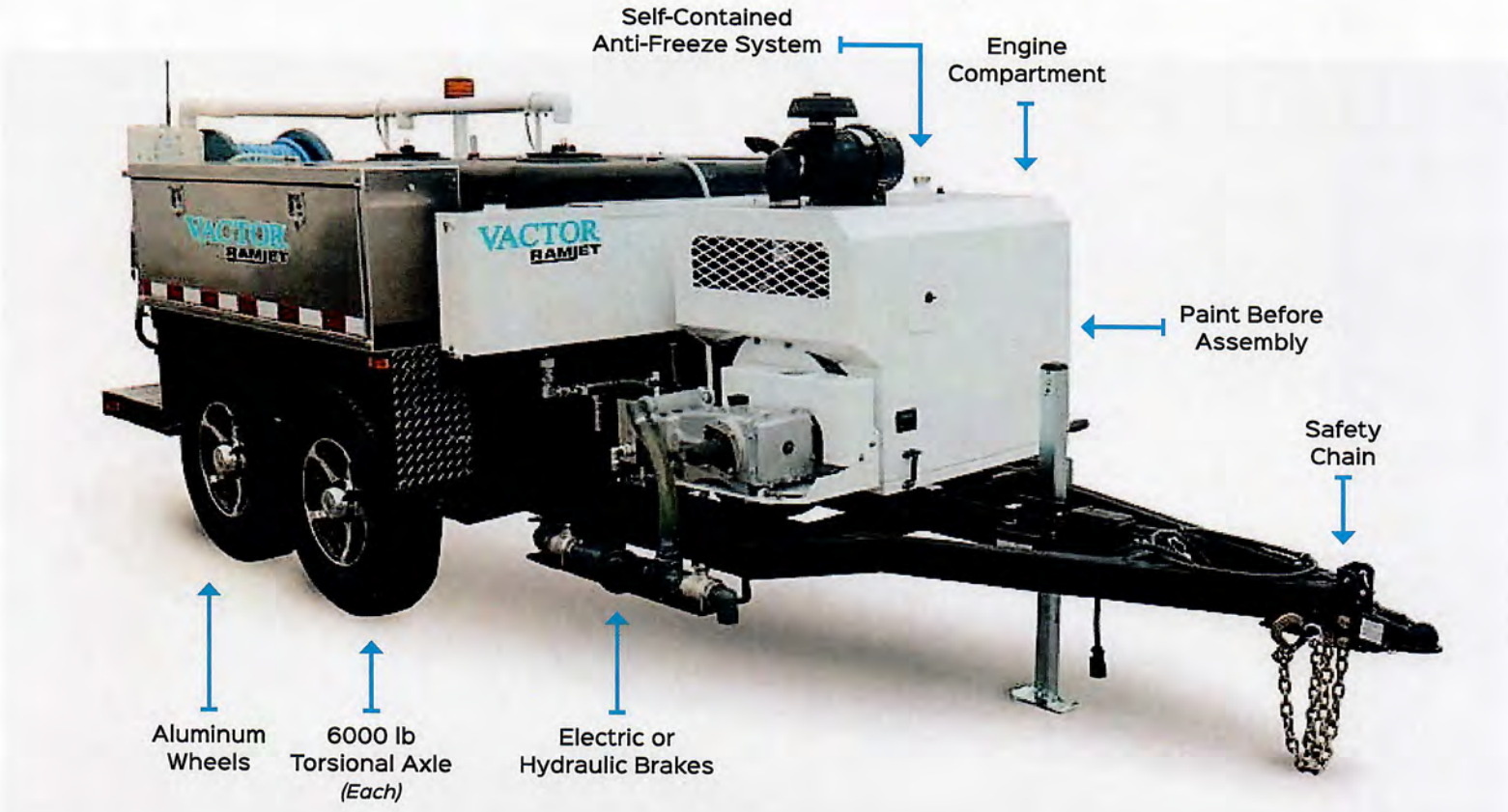
VACTOR® RAMJET® TRAILER & SKID-MOUNTED JETTERS

If you're looking for a cost-effective, yet powerful, sewer maintenance tool, the Vactor Ramjet trailer and skid-mounted series offers you more than just performance and convenience. With more configuration choices in engines and pumps, plus water tanks up to 1,000 gallons, and a wide range of productivity-building options, the Ramjet series is simply your best choice.

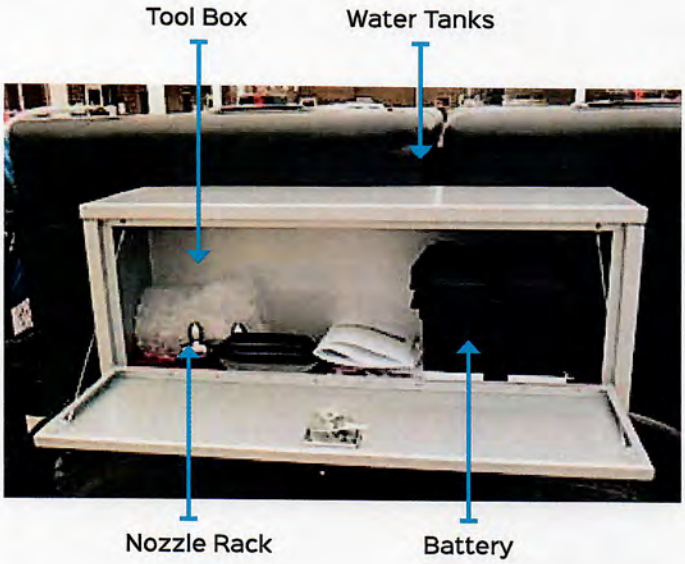
To effectively clean sewers, drains, pipelines and culverts, the Ramjet offers you:

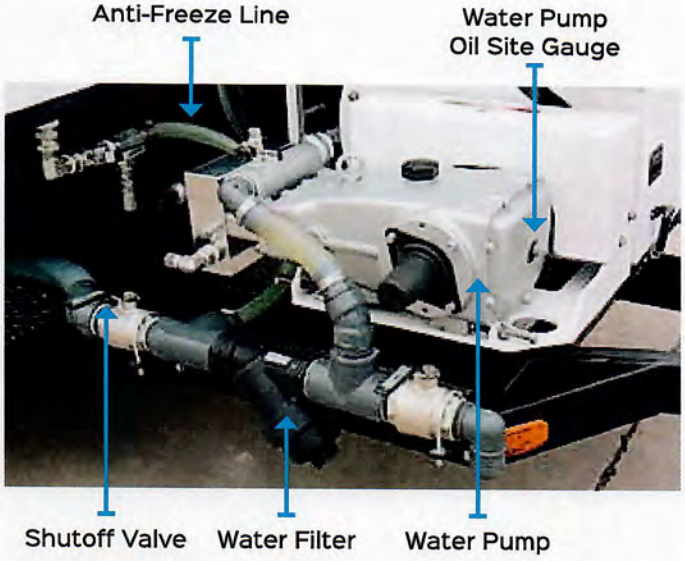
- Five available water systems: 18 GPM at 4,000 PSI, 30 GPM at 3,000 PSI, 36 GPM at 3,000 PSI, 40 GPM at 2,000 PSI and 40 GPM at 3,000 PSI
- State-of-the-art control panel with complete jetter management system and optional wireless remote
- Pivot hose reel for greater operating ease and precision
- Self-contained anti-freeze system for improved cold weather operation
- Advanced hydraulic controls including pay in/out and speed control
- Optional hydraulic pull out reel
- Rugged construction engineered for years of reliable service
- Performance enhancing options that allow you to create a jetter suited to your specific needs and applications





WATER SYSTEMS





BASIC FEATURES

18 GPM at 4,000 PSI

- 300 Gallon single axle trailer
- 600 gallon tandem axle trailer
- 3 Cylinder engine
- Tier 4 diesel engine
- 3 Cylinder run-dry water pump*
- Water recirculation, anti-freeze, and pulsation system
- 800' x ½ " cap rotating hose reel

30 GPM @ 3,000 PSI

- 375 Gallon single axle trailer
- 750 gallon tandem axle trailer
- Tier 4 diesel engine
- 3 Cylinder ceramic plunger run-dry water pump*
- Water recirculation, anti-freeze, and pulsation system
- 600' x ¾" cap rotating hose reel

36 GPM @ 3,000 PSI

- 375 Gallon single axle trailer
- 750 gallon tandem axle trailer
- Tier 4 diesel engine
- 3 Cylinder ceramic plunger run-dry water pump*
- Water recirculation, anti-freeze, and pulsation system
- 600' x ¾" cap rotating hose reel

40 GPM @ 2,000 PSI

- 375 Gallon single axle trailer
- 750 gallon tandem axle trailer
- Tier 4 diesel engine
- 3 Cylinder ceramic plunger run-dry water pump*
- Water recirculation, anti-freeze, and pulsation system.
- 600' x ¾" cap rotating hose reel

40 GPM @ 3,000 PSI

- 375 Gallon single axle trailer
- 750 gallon tandem axle trailer
- Tier 4 diesel engine
- 3 Cylinder direct gear box driven water pump
- Water recirculation, anti-freeze, and pulsation system
- 600' x ¾" cap rotating hose reel

OPTIONAL EQUIPMENT

- Engine shroud silent pak
- Electronic throttle control
- JMS remote control system
- Power telescoping hose reel
- Dual hose reel
- Washdown system
- Tool storage

** Run-dry plunger pumps provide the ability of running dry of water without sustaining pump damage. It is not intended to run for long periods of time and/or at high RPM levels without water.*

EXHIBIT B – STORM LINE CLEANING PLAN

TRUVAC®
by Vactor Mfg., Inc.

PRODIGY

6" VACUUM SYSTEM
Fully powered extendable boom

COMPACT YET POWERFUL
A powerful vacuum system in a smaller, more maneuverable frame

AIR AND HYDRO
Multiple excavation options for all conditions

FAST AND EFFICIENT
Locate underground utilities while protecting vulnerable infrastructure

DIGGING CUSTOMIZED. DIGGING DURABLE. DIGGING SMART.

The perfect safe-digging machine for a wide range of demanding applications, the Prodigy® delivers incredible versatility in a powerful yet smaller package, with lower operating costs than larger machines. All backed by the TRUVAC® commitment to quality.

THIS TRUCK CAN:

- Excavate precisely with water or air
- Power pneumatic, hydraulic, or electric tools
- Control water pressure with the press of a button using DigRight® patented technology
- Be customized to fit your specific needs

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