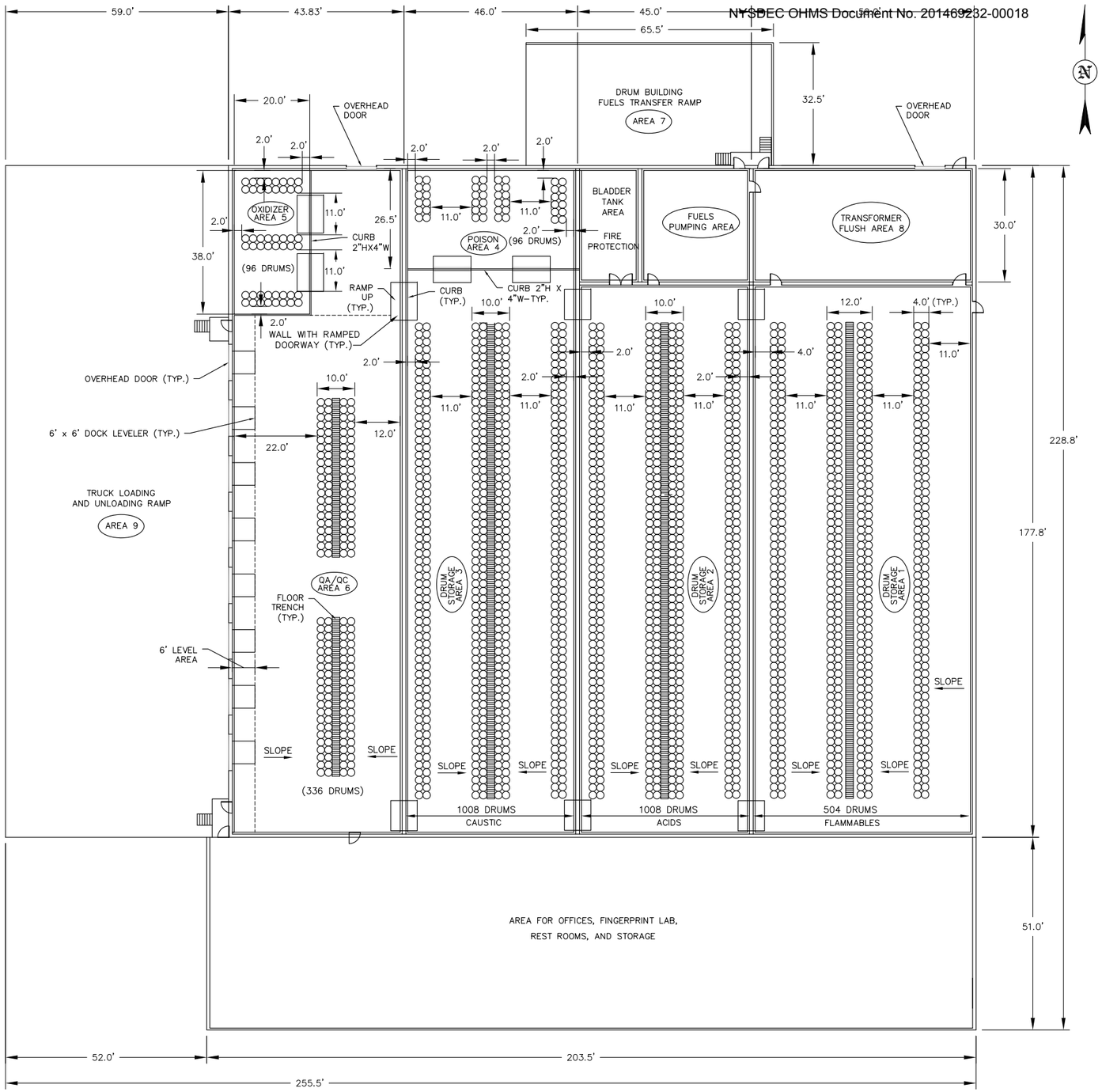
NOTE: This Page to be added.

FIGURE D-1B

NEW DRUM MANAGEMENT BUILDING LAYOUT

NYSDEC OHMS Document No. 201469232-00018

NOTE: This Figure to be added.



NOTES:

1. THE ARRANGEMENT SHOWN MAY BE MODIFIED TO SUIT THE NEEDS OF SPECIFIC STORAGE REQUIREMENTS.
2. A MINIMUM OF TWO FEET BETWEEN ROWS OF DRUM PAIRS (FOUR FEET FOR FLAMMABLES) WILL BE USED AS GUIDANCE FOR AISLE SPACING THROUGHOUT THE FACILITY.
3. DRUMS WILL BE STORED A MINIMUM OF TWO FEET FROM CURBING OR EDGE OF WALLS IF NO CURBING EXISTS (FOUR FEET FOR FLAMMABLES), AND MAY BE STACKED TWO HIGH (ONE HIGH FOR FLAMMABLES).
4. INCOMPATIBLES WILL NOT BE STORED WITHIN THE SAME STORAGE AREA.
5. MAXIMUM STORAGE CAPACITY: CALCULATED AS 55-GALLON DRUMS
   AREA 1: FLAMMABLES – 504 (LIQUID OR SOLID)
   AREA 2: ACIDS – 1008 (LIQUID OR SOLID)
   AREA 3: CAUSTIC – 1008 (LIQUID OR SOLID)
   AREA 4: POISONS – 96 (LIQUID OR SOLID)
   AREA 5: OXIDIZER – 96 (LIQUID OR SOLID)
   AREA 6: QA/QC – 336 (LIQUID OR SOLID)
6. MAXIMUM TOTAL BUILDING STORAGE (55-GALLON DRUMS) – 3,044

   AREAS MAY STORE LIQUIDS, SOLIDS, OR A COMBINATION OF LIQUID AND SOLID DRUMS. OTHER COMPATIBLE LIQUIDS AND SOLIDS MAY ALSO BE STORED IN THESE AREAS.
7. THE TRUCK LOADING/UNLOADING RAMP IS PERMITTED FOR SOLIDS OR LIQUIDS CONTAINER STORAGE EXCLUDING FLAMMABLES. MAXIMUM CAPACITY FOR UNLOADING/LOADING AREA IS 13 FLATBEDS OR 13 TRAILERS CONTAINING APPROXIMATELY 80 DRUMS EACH (i.e., 1040 DRUMS MAXIMUM).
8. MAXIMUM CAPACITY FOR FUELS TRANSFER RAMP IS TWO TANKERS CONTAINING UP TO 5,500 GALLONS EACH.
9. MAXIMUM CAPACITY FOR TRANSFORMER FLUSH AREA IS 2,065 GALLONS.
10. FLOOR PLAN SHOWS TYPICAL MAXIMUM LAYOUT USING 55-GALLON DRUMS. OTHER TYPES, SIZES, AND ARRANGEMENT OF CONTAINERS ARE POSSIBLE PROVIDED THE SECONDARY CONTAINMENT CAPACITY IS NOT EXCEEDED.
11. THE DRUM MANAGEMENT BUILDING CONTAINMENT STORAGE AREA LAYOUT CONFORMS TO ALL APPLICABLE PROVISIONS IN THE NFPA CODES.
12. CORROSIVES IN AREAS 2 AND 3 MAY BE EITHER ACIDS OR CAUSTICS, BUT NOT BOTH IN THE SAME AREA AT ANY TIME.

REVISION	BY	DATE
CHANGED SHEET NO. TO FIGURE D-1B	TAS	1/21/13
REVISED NOTE 7 TO EXCLUDE FLAMMABLES. ADDED AREA 9.	JCD	5/10/12
REVISED PER GLE FOUNDATION PLAN S-1 DATED 1/19/19	JCD	2/6/12

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

BRIAN D. SHIAH, P.E.
NYSPE LICENCE NO. 079072

EnSol, Inc.
Environmental Solutions
661 MAIN STREET
NIAGARA FALLS, NY 14301
PHONE (716) 285-3920 FAX (716) 285-3928

PROJECT NO:	09-7011		
SCALE:	20' 0' 20' 40'		
DWG:	09-7011-D01-Drum Bldg Design Rev 3.dwg		
DES. BY: MJM	DRW. BY: AMW	CHK. BY: BDS	
DATE:	SEPTEMBER 2009		

TITLE: PROPOSED DRUM MANAGEMENT BUILDING LAYOUT

PROJECT: DRUM MANAGEMENT BUILDING RELOCATION

PREPARED FOR: CWM CHEMICAL SERVICES, LLC.

TOWN OF LEWISTON | COUNTY OF NIAGARA | STATE OF NEW YORK

FIGURE D-1B

X:\AA\dgl\CWM\09-2009 Projects\09-7011 Drum Mgmt. Bldg Relocation Dwgs. & Design (Task 4 & 5)\ACAD\09-7011-D01-Drum Bldg Design Rev 3.dwg, 1/21/2013 11:05:17 PM

EnSol, Inc.
Environmental Solutions

PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT:** New Drum Building Warehouse **Prepared By:** JCD **Date:** 6/22/2012
SUBJECT: Secondary Containment Calculations **Reviewed By:** BDS **Date:** 6/22/2012

NEW DRUM BUILDING WAREHOUSE

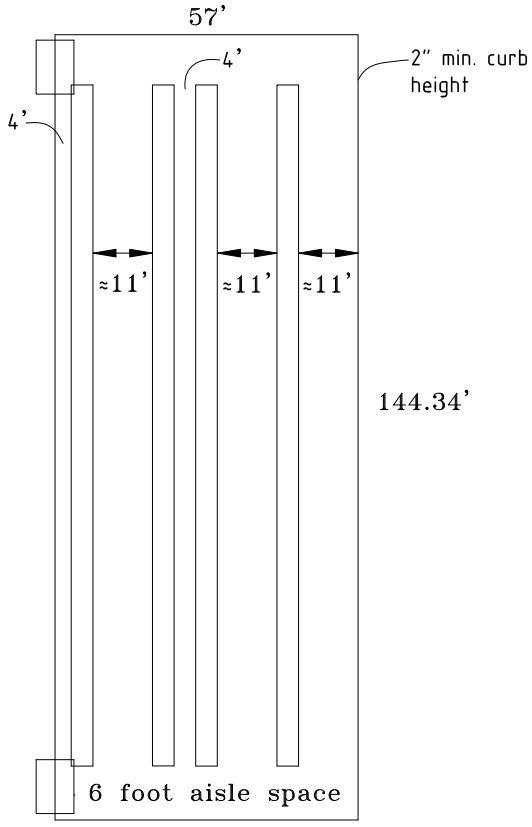
TASK:

Calculate the total available and required volumes within the secondary containment areas. All dimensions are interior.

CALCULATIONS:

AREA 1 – FLAMMABLE LIQUID STORAGE AREA:

Dimensions:



There are 4 *sections in Area 1*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with approximately 11-foot aisle space, and minimum 4-foot from wall; 63 *drums* each row x 2 rows of *drums* (126 *drums total*, Single-Stacked).

4 *sections* x 126 *drums/section* = 504 *drums*

Required Secondary Containment per *Area 1*:

504 *drums* x 55 *gallons/drum* = 27,720 *gallons* x 10% = 2,772 *gallons*

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PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
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Available Secondary Containment per *Area 1*:

Gross Dimensions and Volume (less floor trench volume):

57' x 144.34' x 0.167' (2-inches curb height)

57' x 144.34' x 0.167' = 1374 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 1374 ft^3 ≅ 10,277.5 *gallons*

Floor Trench System Volume:

126'*L* x 1.0'*W* x 0.75'*D* = 94.5 ft^3

7.48 *gallons*/ft^3 x 94.5 ft^3 ≅ 706.9 *gallons*

Total Secondary Containment Volume:

10,277.5 *gallons* + 706.9 *gallons* = 10,984.4 *gallons*

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

503 *drums* x [3.14 x $(2')^2$/4 x 0.167'] = 263.8 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 263.8 ft^3 ≅ 1973.2 *gallons*

Net Available Secondary Containment Volume:

10,984.4 *gallons* – 1973.2 *gallons* = 9,011.2 *gallons*

CONCLUSIONS:

Area 1 has sufficient secondary containment for the flammable liquid storage capacity of 504 55-gallon drums.

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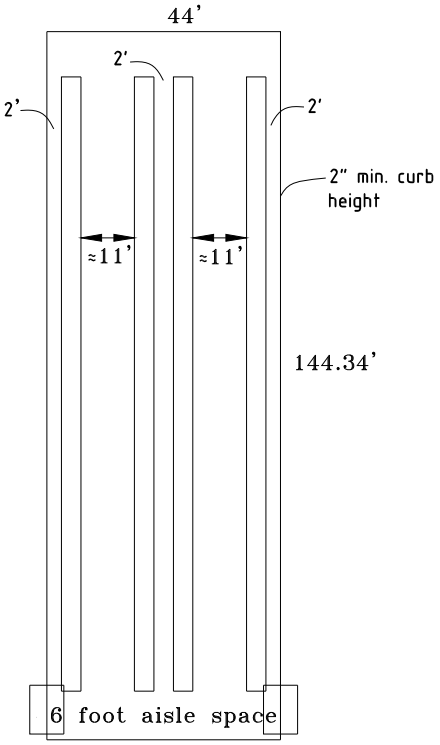
PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

NEW DRUM BUILDING WAREHOUSE (continued)

AREA 2 – ACIDS LIQUID STORAGE AREA:

Dimensions:



There are 4 *sections in Area 2*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with approximately 11-foot aisle space and 2-foot minimum from wall; 63 *drums* each row x 2 rows of *drums* (126 *drums total,* Single-Stacked; 252 *drums total*, Double-Stacked).

4 *sections* x 126 *drums/section* x 2 *drums/stack* = 1,008 *drums*

Required Secondary Containment per *Area 2*:

1,008 *drums* x 55 *gallons/drum* = 55,440 *gallons* x 10% = 5,544 *gallons*

Available Secondary Containment per *Area 2* :

Gross Dimensions and Volume (less floor trench volume):

44' x 144.34' x 0.167' (2-inches curb height)

44' x 144.34' x 0.167' = 1,060.6 ft^3

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CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 1,060.6 ft^3 ≅ 7,933.3 *gallons*

Floor Trench System Volume:

126'*L* x 1.0'*W* x 0.75'*D* = 94.5 ft^3

7.48 *gallons*/ft^3 x 94.5 ft^3 ≅ 706.9 *gallons*

Total Secondary Containment Volume:

7,933.3 *gallons* + 706.9 *gallons* = 8,640.2 *gallons*

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

503 *drums* x [3.14 x $(2')^2$/4 x 0.167'] = 263.8 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 263.8 ft^3 ≅ 1973.2 *gallons*

Net Available Secondary Containment Volume:

8,640.2 *gallons* – 1973.2 *gallons* = 6,667 *gallons*

CONCLUSIONS:

Area 2 has sufficient secondary containment for the acids liquid storage capacity of 1,008 55-gallon drums.

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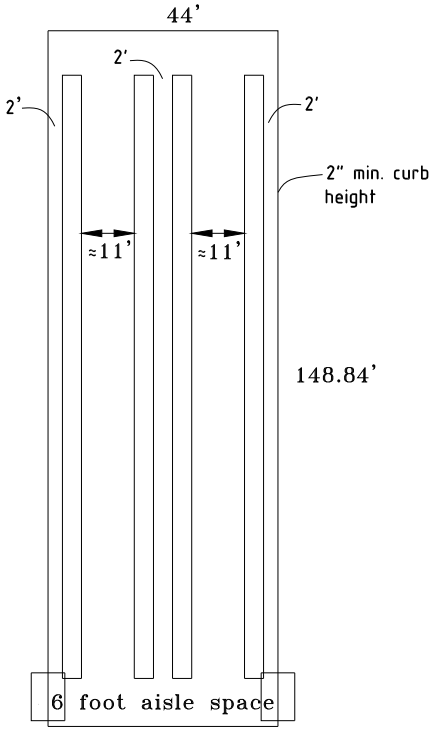
PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

NEW DRUM BUILDING WAREHOUSE (continued)

AREA 3 – CAUSTICS STORAGE AREA:

Dimensions:



There are 4 *sections in Area 3*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with approximately 11-foot aisle space and 2-foot minimum from wall; 63 *drums* each row x 2 rows of *drums* (126 *drums total,* Single-Stacked; 252 *drums total*, Double-Stacked).

4 *sections* x 126 *drums/section* x 2 *drums/stack* = 1,008 *drums*

Required Secondary Containment per *Area 3*:

1,008 *drums* x 55 *gallons/drum* = 55,440 *gallons* x 10% = 5,544 *gallons*

Available Secondary Containment per *Area 3*:

Gross Dimensions and Volume (less floor trench volume):

44' x 148.84' x 0.167' (2-inches curb height)

44' x 148.84' x 0.167' = 1,093.7 ft^3

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PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 1,093.7 ft^3 ≅ 8,180.9 *gallons*

Floor Trench System Volume:

126'*L* x 1.0'*W* x 0.75'*D* = 94.5 ft^3

7.48 *gallons*/ft^3 x 94.5 ft^3 ≅ 706.9 *gallons*

Total Secondary Containment Volume:

8,180.9 *gallons* + 706.9 *gallons* = 8,887.8 *gallons*

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

503 *drums* x [3.14 x $(2')^2$/4 x 0.167'] = 263.8 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 263.8 ft^3 ≅ 1973.2 *gallons*

Net Available Secondary Containment Volume:

8,887.8 *gallons* – 1973.2 *gallons* = 6,914.6 *gallons*

CONCLUSIONS:

Area 3 has sufficient secondary containment for the caustics storage capacity of 1,008 55-gallon drums.

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PROJECT NO.: 09-7011

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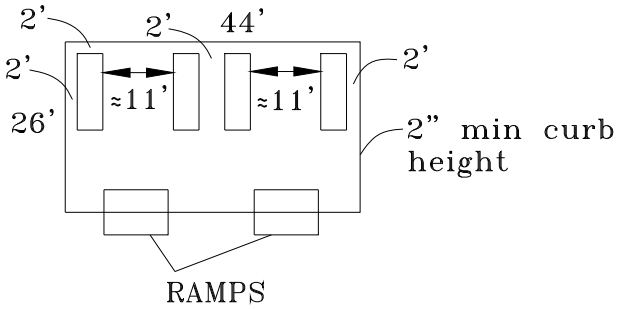
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

NEW DRUM BUILDING WAREHOUSE (continued)

AREA 4 – POISONS STORAGE AREA:

Dimensions:



There are 4 *sections in Area 4*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with approximately 11-foot aisle space and 2-foot minimum from wall or curb; 6 *drums* each row x 2 rows of *drums* (12 *drums total,* Single-Stacked, 24 *drums total* Double Stacked).

4 *sections* x 12 *drums/section* x 2 *drums/stack* = 96 *drums*

Required Secondary Containment per *Area 4*:

96 *Drums* x 55 *gallons/Drum* = 5,280 *gallons* x 10% = 528 *gallons*

Available Secondary Containment per *Area 4*:

Gross Dimensions and Volume:

44' x 26' x 0.167' (2-inches curb height)

44' x 26' x 0.167' = 191 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 191 ft^3 ≅ 1,428.7 *gallons*

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

47 drums x [3.14 x $(2')^2$/4 x 0.167'] = 24.6 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 24.6 ft^3 ≅ 184 *gallons*

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PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

Net Available Secondary Containment Volume:

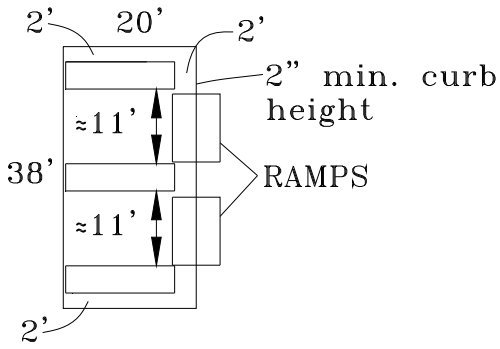
1,428.7 *gallons* – 184 *gallons* = 1,244.7 *gallons*

CONCLUSIONS:

Area 4 has sufficient secondary containment for the poisons storage capacity of 96 55-gallon drums.

AREA 5 - OXIDIZER STORAGE AREA:

Dimensions:



There are 3 *sections in Area 5*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with approximately 11-foot aisle space and 2-foot minimum from wall or curb; 8 *drums* each row x 2 rows of *drums* (16 *drums total,* Single-Stacked, 32 *drums total* Double Stacked).

3 *sections* x 16 *drums/section* x 2 *drums/stack* = 96 *drums*

Required Secondary Containment per *Area 5*:

96 *Drums* x 55 *gallons/Drum* = 5,280 *gallons* x 10% = 528 *gallons*

Available Secondary Containment per *Area 5*:

Gross Dimensions and Volume:

20' x 38' x 0.167' (2-inches curb height)

20' x 38' x 0.167' = 126.9 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 126.9 ft^3 ≅ 949.2 *gallons*

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SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

47 drums x [3.14 x (2')^2/4 x 0.167'] = 24.6 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 24.6 ft^3 ≅ 184 *gallons*

Net Available Secondary Containment Volume:

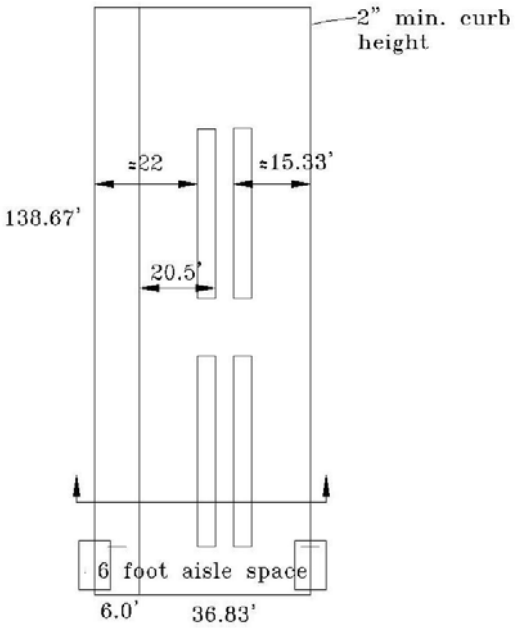
949.2 *gallons* – 184 *gallons* = 765.2 *gallons*

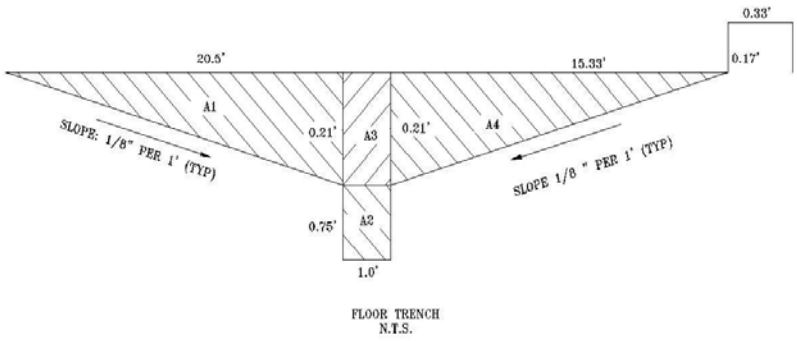
CONCLUSIONS:

Area 5 has sufficient secondary containment for the oxidizer storage capacity of 96 55-gallon drums.

AREA 6 – QA/QC STORAGE AREA:

Dimensions:





There are 4 *sections in Area 6*.
A *section* is defined as 2 *drums* side by side (4.0 feet total) with a minimum of 11-foot aisle space and 12-foot from closest wall; 21 *drums* each row x 2 rows of *drums* (42 *drums total,* Single-Stacked, 84 *drums total*, Double Stacked).

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PROJECT NO.: 09-7011

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SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

4 *sections* x 42 *drums/section* x 2 *drums/stack* = 336 *drums*

Required Secondary Containment per *Area 6*:

336 *drums* x 55 *gallons/drum* = 18,480 *gallons* x 10% = 1,848 *gallons*

Available Secondary Containment per *Area 6*:

Gross Dimensions and Volume (less floor trench volumes):

A1 + A4 + A3:

(0.5 x 20.5' x 138.67' x 0.21') + (0.5 x 15.33' x 138.67' x 0.21') + (0.21' x 1' x 138.67')

(298.49 ft^3) + (223.21 ft^3) + (29.12 ft^3)= 550.82 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 550.86 ft^3 ≅ 4,120.1 *gallons*

Floor Trench System Volume:

A2: 2 x 42'*L* x 1.0'*W* x 0.75'*D* = 63 ft^3

7.48 *gallons*/ft^3 x 63 ft^3 ≅ 471.2 *gallons*

Total Secondary Containment Volume:

4120.1 *gallons* + 471.2 *gallons* =4,591.3 *gallons*

Reduction in Gross Available Volume Due to Presence of Drums (assume 1 drum leaks):

167 drums x [3.14 x $(2')^2$/4 x 0.21'] = 110.1 ft^3

7.48 *gallons* / ft^3

7.48 *gallons*/ft^3 x 110.1 ft^3 ≅ 823.7 *gallons*

Net Available Secondary Containment Volume:

4591.3 *gallons* – 823.7 *gallons* = 3,768 *gallons*

CONCLUSIONS:

Area 6 has sufficient secondary containment for the QA/QC storage capacity of 336 55-gallon drums.

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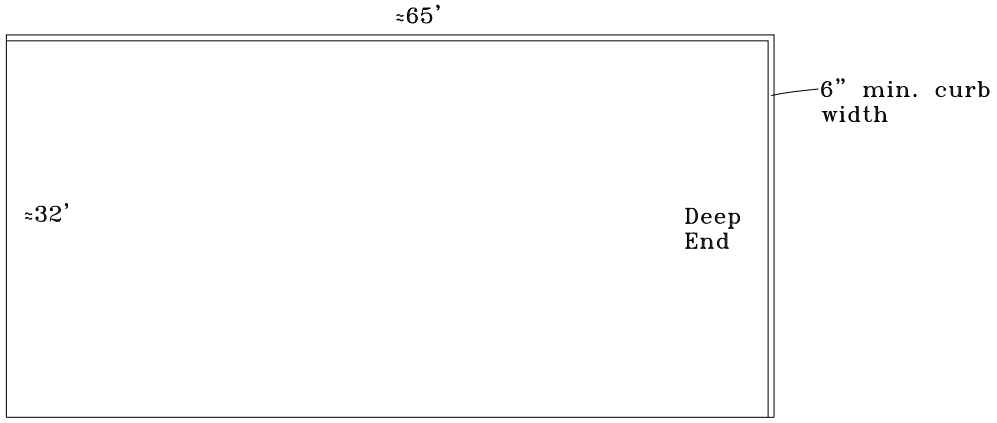
Environmental Solutions

PROJECT NO.: 09-7011

CLIENT: CWM Chem. Svcs. **PROJECT: New Drum Building Warehouse** **Prepared By: JCD** **Date: 6/22/2012**
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

AREA 7 - DRUM BUILDING FUELS TRANSFER RAMP:

Dimensions:



32' x 65' x 2'-9"' (*Deep End*)

Available Secondary Containment:

0.50 x (32' x 65' x 2.75') = 2,860ft^3 ≅ 21,392 *gallons*

Required Secondary Containment:

2 tankers; 5,500 gallons each:
Largest single container equals 5,500 gallons.

25 Year, 24 Hour Precipitation Event:

32' x 65' x 0.333' = 692.6 ft^3 ≅ 5,181 *gallons*
0.333 feet is equivalent to 4.0 inches of precipitation (i.e., rain).

Required Secondary Containment Including Precipitation Event:

5,500 *gallons* + 5,181 *gallons* = 10,681 *gallons*

CONCLUSIONS:

Area 7, the Fuels Transfer Ramp/Drum Building North Ramp, has sufficient secondary containment capacity for (2) 5,500-gallon tankers.

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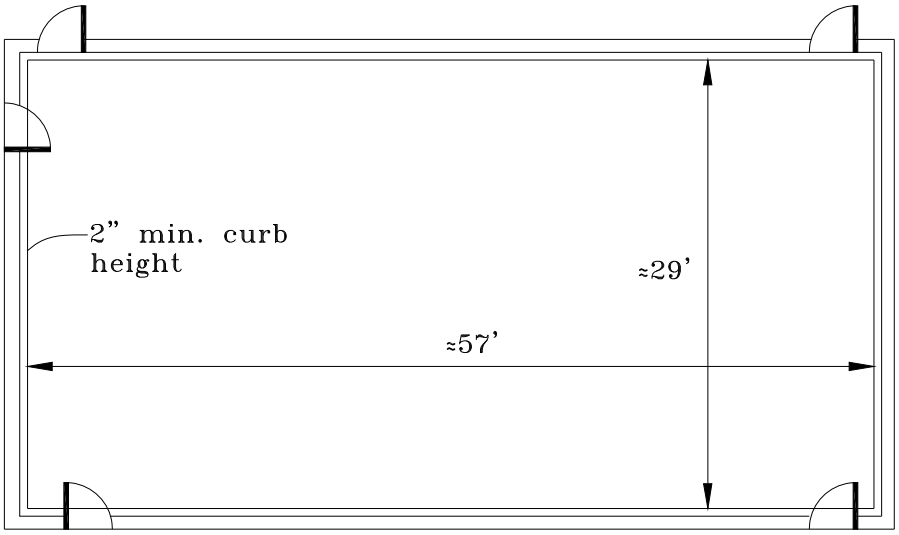
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

NEW DRUM BUILDING WAREHOUSE (continued)

AREA 8 – TRANSFORMER FLUSH AREA:

Dimensions:



29'*W* x 57'*L* x 0.167'*D*

Available Secondary Containment:

(29' x 57' x 0.167') = 276.1 ft^3 ≅ 2,065.2 *gallons*

CONCLUSIONS:

The Transformer Flush Area has secondary containment capacity of 2,065.2 *gallons*.

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PROJECT NO.: 09-7011

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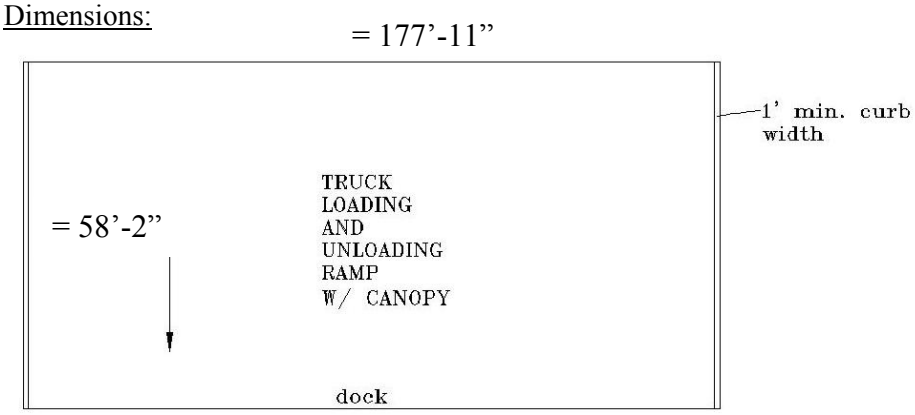
SUBJECT: Secondary Containment Calculations **Reviewed By: BDS** **Date: 6/22/2012**

AREA 9 – TRUCK LOADING AND UNLOADING RAMP:

Dimensions:



58'-2" x 175'-11" x 2'-6" (*Deep End*)

Available Secondary Containment:

0.50 x (58.17' x 175.92' x 2.5') = 12,792 ft^3 ≅ 95,681 *gallons*

Required Secondary Containment:

13 flatbeds or trailers x 80 drums per trailer = 1,040 drums
1,040 drums x 55 gallons = 57,200 gallons x 10% = 5,720 *gallons*

CONCLUSIONS:

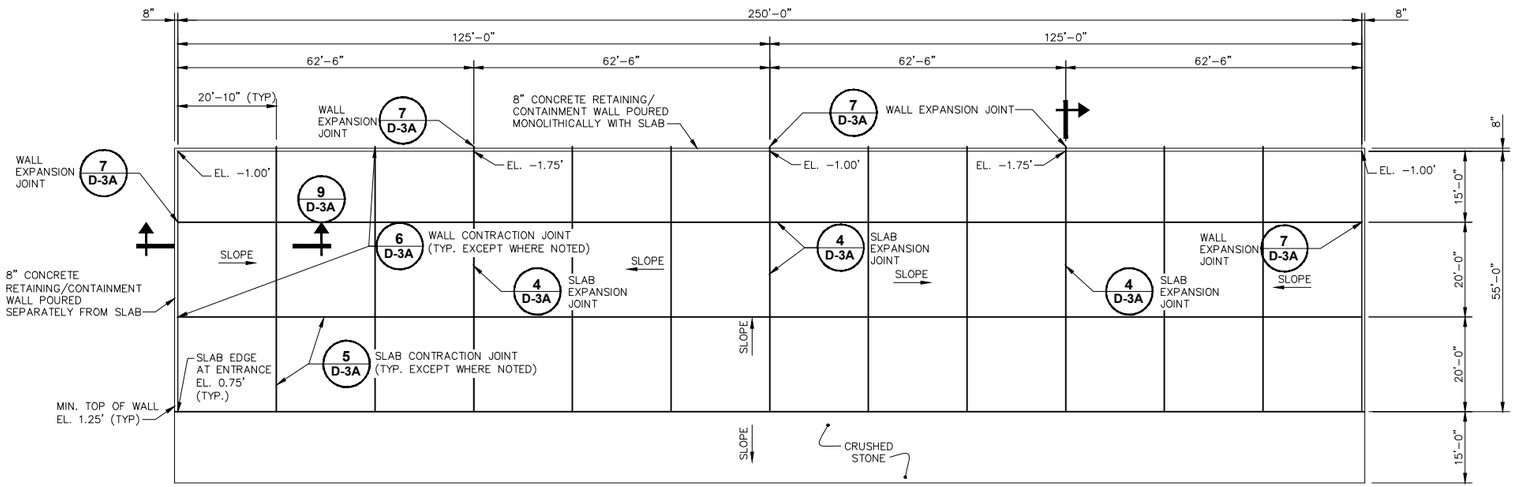
The Truck Loading and Unloading Ramp, has sufficient secondary containment capacity of a minimum of 10% of the total volume of all containers.

NOTE: This Page to be added.

FIGURE D-3A

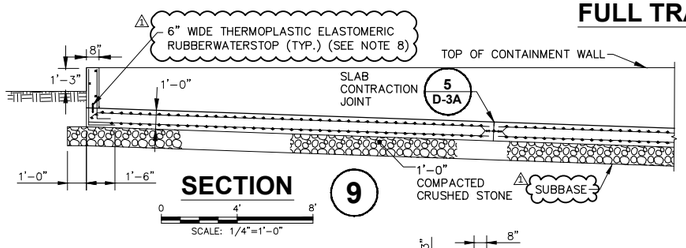
NEW FULL TRAILER PARKING AREA

NYSDEC OHMS Document No. 201469232-00018



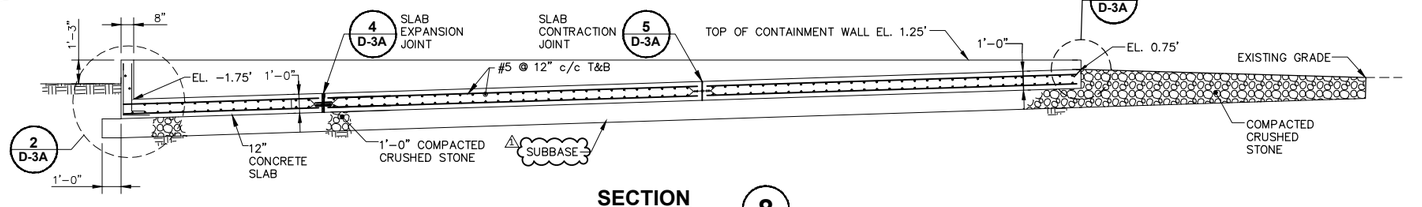
FULL TRAILER PARKING AREA 1

SCALE: 1/16"=1'-0"



SECTION 9

SCALE: 1/4"=1'-0"



SECTION 8

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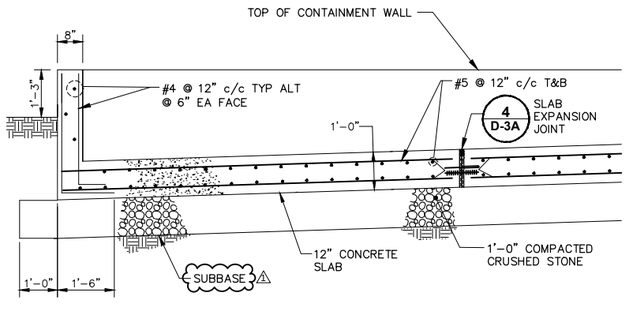

SECTION 2

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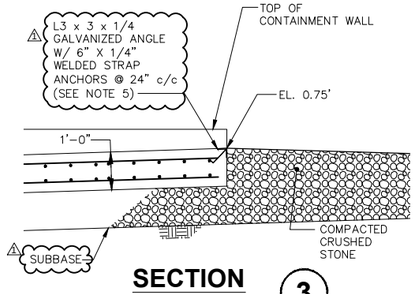
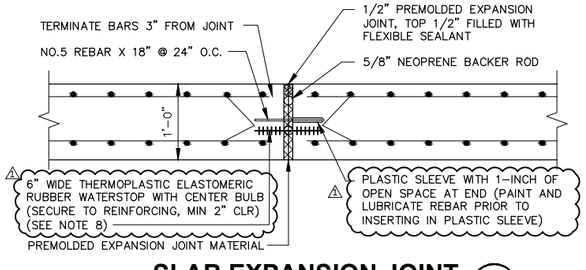


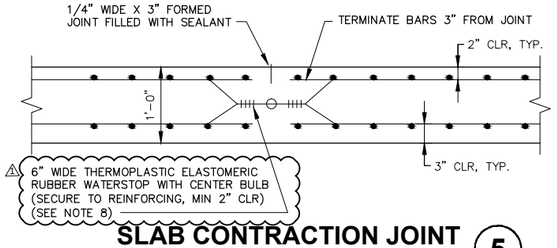
SECTION 3

SCALE: 1/2"=1'-0"



SLAB EXPANSION JOINT 4

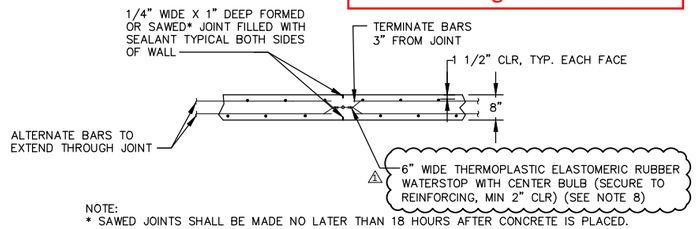
SCALE: 1"=1'-0"



SLAB CONTRACTION JOINT 5

SCALE: 1"=1'-0"

NOTE: This Figure to be added.

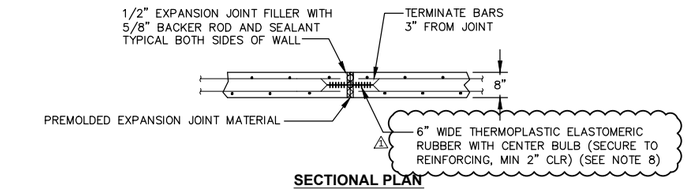


NOTE:
* SAWED JOINTS SHALL BE MADE NO LATER THAN 18 HOURS AFTER CONCRETE IS PLACED.

SECTION PLAN

WALL CONTRACTION JOINT DETAIL 6

SCALE: 1/2"=1'-0"



SECTIONAL PLAN

WALL EXPANSION JOINT 7

SCALE: 1/2"=1'-0"

NOTES:

1. CONCRETE MIX SHALL BE 4000 PSI AT 28 DAYS WITH AIR ENTRAINING ADMIXTURE 6±1%. STEEL FIBER REINFORCEMENT SHALL BE ADDED TO MIX AS MANUFACTURED BY MITCHELL FIBERCON, INC.,MEETING ASTM A820 TYPE II SPECIFICATIONS.
2. ALL EXPOSED CONCRETE SURFACES TO RECEIVE CHEMTEC ONE CONCRETE PROTECTION SEALANT, OR APPROVED EQUAL.
3. REINFORCED CONCRETE BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. LAP REINFORCING BARS MINIMUM 36 BAR DIAMETERS.
4. DESIGN ELEVATIONS ARE RELATIVE. EXISTING GROUND SURFACE IS ASSUMED TO BE ELEVATION 0.0 FOR REFERENCE PURPOSES.
5. STEEL ANGLE SHALL BE FABRICATED IN LENGTHS CORRESPONDING TO JOINT LOCATIONS. STEEL ANGLE SHALL NOT SPAN ANY SLAB JOINT. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM AI23. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1.
6. ⚠1 SUBBASE SHALL BE PROOF-ROLLED AND INSPECTED BY ENGINEER PRIOR TO PLACING CRUSHED STONE. IF SOFT SOILS OR AREAS OF PUMPING ARE OBSERVED, SOILS WITHIN THESE AREAS SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE OR STRUCTURAL FILL AND PROOF ROLLED.
7. CRUSHED STONE SHALL BE COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY BASED ON MODIFIED PROCTOR.
8. WATERSTOP SHALL BE WESTEC'S ENVIROSTOP™ TPE-R (THERMOPLASTIC ELASTOMERIC RUBBER) 600 SERIES OR APPROVED EQUAL.

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: K. DAVIS G. STOWELL L. FORAKER LD: PIC: W. POPHAM PM: W. RANKIN TM: B. STONE LYR: ON=*OFF=*REF*
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XREFS: 23725X00 IMAGES: PROJECTNAME: ----

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	7/2013	GENERAL REVISIONS	NWF	BMS

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Professional Engineer's Name: JOSEPH MOLINA
Professional Engineer's No.: 072644

State	Date Signed	Project Mgr.
NY		WAR
Designed by	Drawn by	Checked by
LAB	LAF	BMS

ARCADIS OF NEW YORK, INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
FULL TRAILER PARKING AREA AND LEACHATE TRANSFER RAMP PERMIT DRAWINGS

FULL TRAILER PARKING AREA

GENERAL

ARCADIS Project No. B0023725.2009.00006

Date FEBRUARY 2013

ARCADIS of New York, Inc.
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Syracuse, New York
TEL. 315.446.9120

D-3A

NOTE: This Page to be added.

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Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-2 Design Calculations **Project No.:** B0023725.2011

Subject: New Full Trailer Parking Area – Secondary Containment Calculations

Prepared By: GNG **Date:** August 2013

Reviewed By: BMS **Date:** August 2013

Checked By: BMS **Date:** August 2013

OBJECTIVE:

Determine the capacity of the new Full Trailer Parking Area (new Parking Area) for solids and liquid storage containers. Demonstrate that adequate secondary containment volume exists for management of free liquids anticipated within the new Parking Area including precipitation.

REFERENCES:

1. Permit Drawing No. D-3A entitled "Full Trailer Parking Area," contained in Attachment D-1 of the Overall Site/RMU-1 Part 373 Permit, ARCADIS, August 2013.

2. New York State Department of Environmental Conservation Regulations, Subpart 373.2.9 (f).

ASSUMPTIONS:

1. The new Parking Area is wide enough (55 ft from the entrance to the back wall) to contain roll-offs (for solids), semi tanker trailers (for liquids), or some combination of these containers. Because roll-offs sit much closer to the pavement, they consume secondary containment volume, whereas semi tanker trailers consume only negligible volume. Thus, when calculating the available secondary containment volume, this analysis assumes that the new Parking Area is filled to capacity with roll-offs. When calculating the required secondary containment volume, this analysis assumes that the new Parking Area is filled to capacity with semi tanker trailers. Although this combination cannot physically occur, it provides the most extreme case in terms of assessing secondary containment volume. Any physically possible combination of roll-offs and semi tanker trailers can therefore be accommodated with adequate secondary containment volume.

2. The secondary containment system must have sufficient capacity to contain 10 percent of the total volume of liquid storage containers or the volume of the largest liquid container, whichever is greater.

3. The precipitation volume considered in this calculation is based on the 25-year, 24-hour storm event which contributes 4-inches or 0.333 feet of runoff.

4. The liquid storage container volume is 5,500 gallons (gal) per container.

5. Roll-offs are assumed to rest on approximately 6-inch-diameter rollers and thus sit 6 inches off the pavement.

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Imagine the result

Calculation Sheet

CALCULATIONS:

1. Capacity for Solids and Liquid Storage Containers

The capacity of the new Parking Area for solids and liquid storage containers is based on the geometry of the parking area and the typical size of individual storage containers and is calculated as follows:

Solids Storage Container Dimensions

- Width of a typical container = 8 ft
- Aisle space requirement between containers = 2 ft
- Adjusted width of a typical container = 10 ft (8 ft + 2 ft)
- Length of a typical solids container = 22 ft

Maximum Number of Solids Storage Containers

- Adjusted row length taking into account a required 2 ft distance between the last container in the end row to the edge of the containment area = 250 ft – 2 ft = 248 ft
- Maximum number of rows = 248 ft ÷ 10 ft = 24.8 ≈ 24 rows
- Maximum number of solids storage containers end-to-end in each row = 50 ft ÷ 22 ft (solids storage container length) = 2.3 ≈ 2 containers
- Maximum number of solids storage containers = 24 rows x 2 containers per row = 48 containers

Liquid Storage Container Dimensions

- Width of a typical container = 8 ft
- Aisle space requirement between containers = 2 ft
- Adjusted width of a typical container = 10 ft (8 ft + 2 ft)
- Length of a typical liquid container = 50 ft

Maximum Number of Liquid Storage Containers

- Adjusted row length taking into account a required 2 ft distance between the last container in the end row to the edge of the containment area = 250 ft – 2 ft = 248 ft
- Maximum number of rows = 248 ft ÷ 10 ft = 24.8 ≈ 24 rows
- Maximum number of liquid storage containers end-to-end in each row = 50 ft ÷ 50 ft (liquid storage container length) = 1 container
- Maximum number of liquid storage containers = 24 rows x 1 containers per row = 24 containers

2. Secondary Containment Analysis

Total Available Secondary Containment Volume

The new Parking Area consists of a sloped, reinforced concrete pad that measures 55ft wide by 250 ft long. Access to the new Parking Area is from the full length of the southern edge (250 ft) where the concrete pad is approximately flush with surrounding grade. The reinforced concrete pad is sloped toward the center and back of the two drain areas within the new Parking Area. Reinforced concrete curbing and the slope of the reinforced concrete pad provide the secondary containment for the new Parking Area. Due to its complex dimensions, the total available secondary containment volume of the new Parking Area was determined based on 3-dimensional surface computations performed using computer aided design software (Terramodel).

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Calculation Sheet

As discussed in Assumption 1, the new Parking Area is assumed to be filled to capacity with roll-offs for the purposes of determining available secondary containment volume. Because the roll-offs sit approximately 6 inches off the pavement, liquid can spread across the pavement for the first 6 inches within the entire footprint of the new Parking Area, except near the entrance edge where the liquid cannot have an elevation greater than the entrance elevation. This volume was modeled with Terramodel and determined to be 47,380 gal. As confirmation, one can multiply 6 inches by the plan dimensions of the new Parking Area (55 ft by 250 ft) to yield 51429 gal. This slightly larger volume is attributable to the loss at the entrance where liquid cannot be 6 inches above the entrance elevation.

The volume available between rows of containers and above the aforementioned 6-inch-thick layer of storage is calculated manually based on an average depth of 1.63 ft at the back wall, an aisle width of 2 ft, a length of 43 ft, and 25 aisles. Using the area formula for a triangle multiplied by the aisle width and the number of aisles, this volume is estimated to be 13,107 gal. Similarly, the volume available along the back wall and above the 6-inch-thick layer of storage is calculated manually based on an average depth of 1.63 ft at the back wall, an aisle width of 2 ft, and a length of 250 ft. Using the area formula for a rectangle multiplied by the aisle width, this volume is estimated to be 6,096 gal.

Summing the above components, a worst-case available secondary containment volume of 66,583 gal is calculated.

Required Secondary Containment Volume

As discussed in Assumption 1, the new Parking Area is assumed to be filled to capacity with semi tanker trailers for the purposes of determining required secondary containment volume. The required secondary containment volume for liquid storage containers is based on one of two possible conditions. The first condition (Condition 1) provides storage for 10 percent of the total liquid volume of containers stored within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event. The second condition (Condition 2) provides storage for the entire volume of the single largest liquid container stored within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event. Calculations for both conditions are presented below.

Condition 1

Total Container Volume (assuming all containers store liquid)

- Total Container Volume: Maximum number of containers x volume per container (Assumption 4) x 0.10 (10 percent) = 24 containers x 5,500 gal/container x 0.10 = 13,200 gal

Precipitation Runoff Volume

- Runoff Volume: 55 ft x 250 ft x 0.333 ft = 4,579 cf or 34,249 gal

Required Secondary Containment Volume

- Total Container Volume + Precipitation Runoff Volume = 13,200 gal + 34,249gal = 47,449gal

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NOTE: This Page to be added.

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Calculation Sheet

Condition 2

Single Largest Liquid Storage Container Volume

- The volume of the largest liquid storage container stored within the secondary containment area = 5,500 gal

Required Secondary Containment Volume

- Largest Liquid Storage Container Volume + Precipitation Runoff Volume (from Condition 1 above) = 5,500 gal + 34,249gal = 39,749 gal

Based on a comparison of the required secondary containment volumes calculated for Conditions 1 and 2 above, the greatest required secondary containment volume is 47,449 gal (Condition 1).

Excess Secondary Containment Volume

The excess secondary containment volume condition is based on the total secondary volume available within the new Parking Area compared with the greatest required secondary containment volume. The resultant volume condition is as follows:

Total Secondary Containment Volume: 66,583 gal
Required Secondary Containment Volume: 47,449 gal
Excess Volume: 66,583 gal – 47,449 gal = 19,134 gal

It is noted that this is a worst-case scenario because it is based on extremes of all roll-offs for available volume and all semi tanker trailers for required volume. Any physically possible combination of roll-offs and semi tanker trailers will yield additional reserve capacity beyond this calculated minimum.

SUMMARY:

The new Parking Area has a worst-case secondary containment volume of 66,583 gal. Based on the required secondary containment volume of 47,449 gal, which accounts for 10 percent of the maximum volume in all liquid storage containers within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event, the new Parking Area provides adequate secondary containment. A maximum of 48 solids storage containers or 24 liquid containers or any combination of the two container types may be stored in the new Parking Area assuming the required aisle spaces considered herein are maintained.

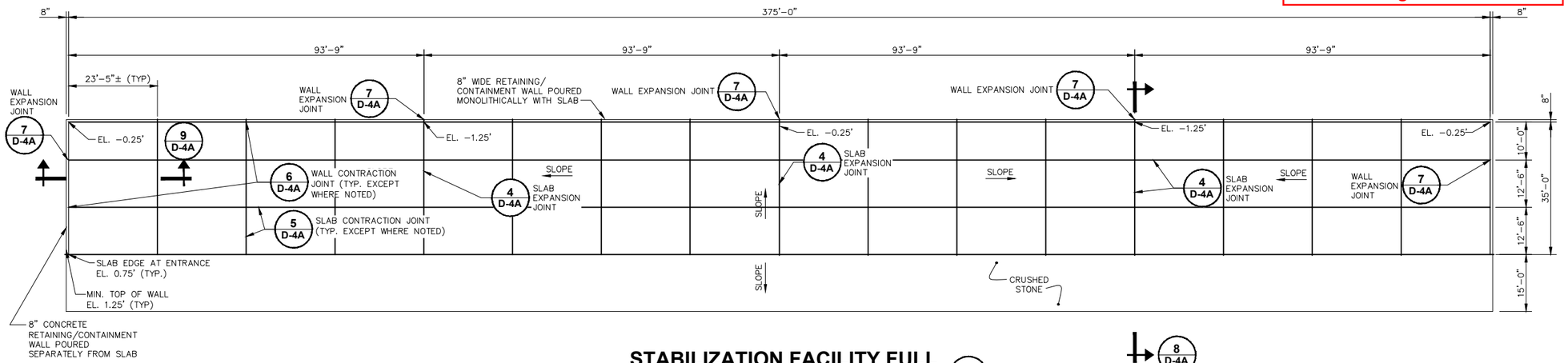
NOTE: This Page to be added.

FIGURE D-4A

NEW STABILIZATION FACILITY FULL TRAILER PARKING AREA

NYSDEC OHMS Document No. 201469232-00018

NOTE: This Figure to be added.

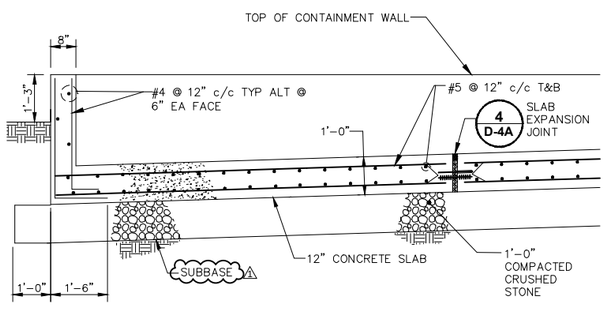


STABILIZATION FACILITY FULL TRAILER PARKING AREA 1

SCALE: 1/16"=1'-0"

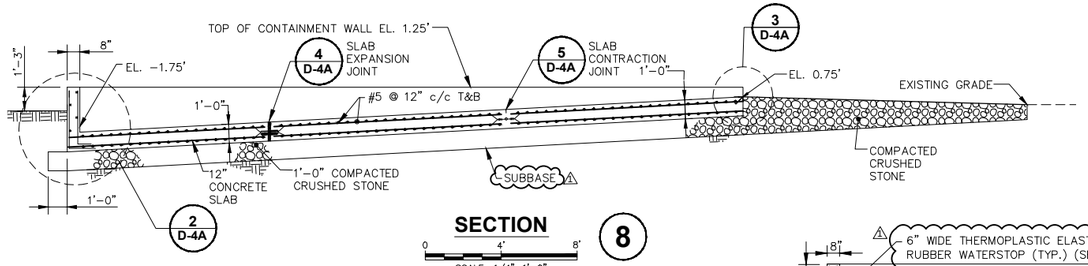
NOTES:

1. CONCRETE MIX SHALL BE 4000 PSI AT 28 DAYS WITH AIR ENTRAINING ADMIXTURE 6±1%. STEEL FIBER REINFORCEMENT SHALL BE ADDED TO MIX AS MANUFACTURED BY MITCHELL FIBERCON, INC., MEETING ASTM A820 TYPE II SPECIFICATIONS.
2. ALL EXPOSED CONCRETE SURFACES TO RECEIVE CHEMTEC ONE CONCRETE PROTECTION SEALANT, OR APPROVED EQUAL.
3. REINFORCED CONCRETE BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. LAP REINFORCING BARS MINIMUM 44 BAR DIAMETERS.
4. DESIGN ELEVATIONS ARE RELATIVE. EXISTING GROUND SURFACE IS ASSUMED TO BE ELEVATION 0.0 FOR REFERENCE PURPOSES.
5. STEEL ANGLE SHALL BE FABRICATED IN LENGTHS CORRESPONDING TO JOINT LOCATIONS. STEEL ANGLE SHALL NOT SPAN ANY SLAB JOINT. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM AI23. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1.
6. SUBBASE SHALL BE PROOF-ROLLED AND INSPECTED BY ENGINEER PRIOR TO PLACING CRUSHED STONE. IF SOFT SOILS OR AREAS OF PUMPING ARE OBSERVED, SOIL WITHIN THESE AREAS SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE OR STRUCTURAL FILL AND PROOF ROLLED. ⚠1
7. CRUSHED STONE SHALL BE COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY BASED ON MODIFIED PROCTOR.
8. WATERSTOP SHALL BE WESTEC'S ENVIROSTOP™ TPE-R (THERMOPLASTIC ELASTOMERIC RUBBER) 600 SERIES OR APPROVED EQUAL.



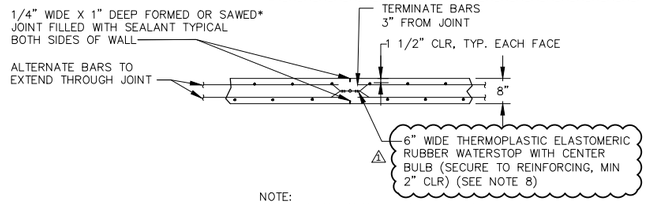
SECTION 2

SCALE: 1/2"=1'-0"



SECTION 8

SCALE: 1/4"=1'-0"

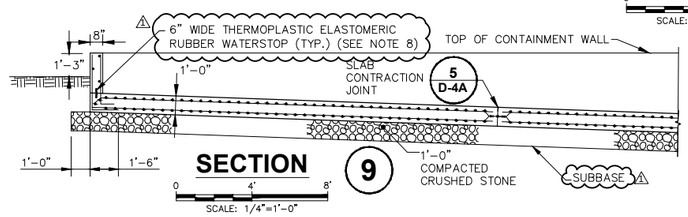


NOTE:
* SAWED JOINTS SHALL BE MADE NO LATER THAN 18 HOURS AFTER CONCRETE IS PLACED.

SECTION PLAN

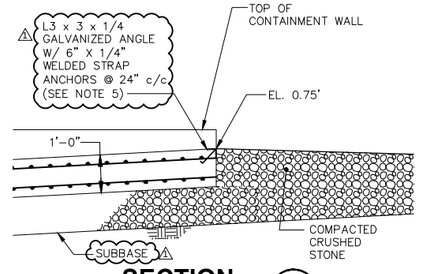
WALL CONTRACTION JOINT DETAIL 6

SCALE: 1/2"=1'-0"



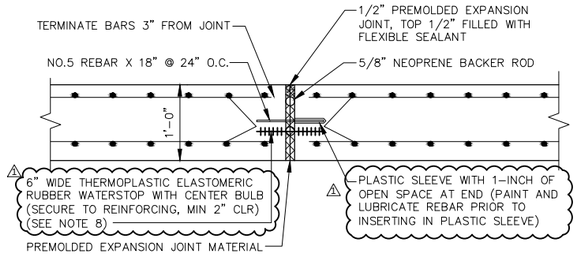
SECTION 9

SCALE: 1/4"=1'-0"



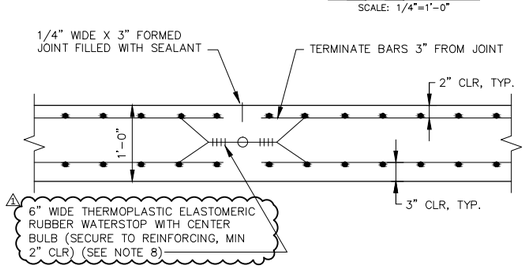
SECTION 3

SCALE: 1/2"=1'-0"



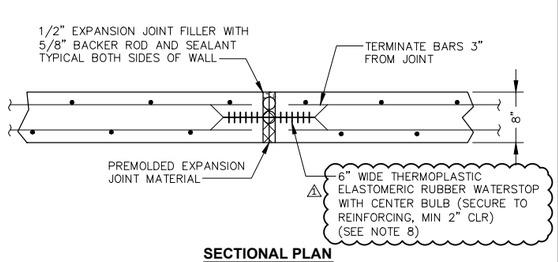
SLAB EXPANSION JOINT 4

SCALE: 1"=1'-0"



SLAB CONTRACTION JOINT 5

SCALE: 1"=1'-0"



SECTIONAL PLAN

WALL EXPANSION JOINT 7

SCALE: 1"=1'-0"

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: K. DAVIS G. STOWELL L. FORAKER LD: PIC: W. POPHAM PM: W. RANKIN TM: B. STONE LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0023725\2011\00008\DWG\FULL_TRAILER_PARKING\23725D04A.dwg LAYOUT: D-4A SAVED: 7/8/2013 12:42 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 7/8/2013 12:42 PM BY: SARTORI, KATHERINE
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THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
⚠1	7/2013	GENERAL REVISIONS	NWF	BMS

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Professional Engineer's Name: JOSEPH MOLINA
Professional Engineer's No.: 072644

State	Date Signed	Project Mgr.
NY		WAR
Designed by	Drawn by	Checked by
LAB	SJK	BMS

ARCADIS OF NEW YORK, INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
FULL TRAILER PARKING AREA AND LEACHATE TRANSFER RAMP PERMIT DRAWINGS

STABILIZATION FACILITY FULL TRAILER PARKING AREA

GENERAL

ARCADIS Project No. B0023725.2009.00006
Date FEBRUARY 2013

ARCADIS of New York, Inc.
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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-2 Design Calculations **Project No.:** B0023725.2011

Subject: New Stabilization Full Trailer Parking Area – Secondary Containment Calculations

Prepared By: NWF **Date:** August 2013

Reviewed By: BMS **Date:** August 2013

Checked By: BMS **Date:** August 2013

OBJECTIVE:

Determine the capacity of the new Stabilization Full Trailer Parking Area (new Parking Area) for solids and liquid storage containers. Demonstrate that adequate secondary containment volume exists for management of precipitation within the new Parking Area.

REFERENCES:

1. RMU-2 Permit Drawing No. D-4A entitled "Stabilization Facility Full Trailer Parking Area," contained in Attachment D-1 of the Overall Site/RMU-1 Part 373 Permit, ARCADIS, August 2013.

2. New York State Department of Environmental Conservation Regulations, Subpart 373.2.9 (f).

ASSUMPTIONS:

1. The new Parking Area may contain roll-offs (for solids), tanker trucks (for liquid), or some combination of these containers. Because roll-offs sit much closer to the pavement, they consume secondary containment volume, whereas tankers consume only negligible volume. Thus, when calculating the available secondary containment volume, this analysis assumes that the new Parking Area is filled to capacity with roll-offs. When calculating the required secondary containment volume, this analysis assumes that the new Parking Area is filled to capacity with tankers. Although this scenario cannot physically occur, it provides the most extreme case in terms of assessing secondary containment volume. Any physically possible combination of roll-offs and tankers can therefore be accommodated with adequate secondary containment volume.

2. The secondary containment system must have sufficient capacity to contain 10 percent of the total volume of liquid storage containers or the volume of the largest liquid container, whichever is greater.

3. The precipitation volume considered in this calculation is based on the 25-year, 24-hour storm event which contributes 4-inches or 0.333 feet of runoff.

4. The liquid storage container volume is 2,500 gallons (gal) per container.

5. Roll-offs are assumed to rest on approximately 6-inch-diameter rollers and thus sit 6 inches off the pavement.

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

CALCULATIONS:

1. Capacity for Solids and Liquid Storage Containers

The capacity of the new Parking Area for solids and liquid storage containers is based on the geometry of the parking area and the typical size of individual storage containers and is calculated as follows:

Solids Storage Container Dimensions

- Width of a typical container = 8 ft
- Aisle space requirement between containers = 2 ft
- Adjusted width of a typical container = 10 ft (8 ft + 2 ft)
- Length of a typical liquid container = 22 ft

Maximum Number of Solids Storage Containers

- Adjusted row length taking into account a required 2 ft distance between the last container in the end row to the edge of the containment area = 375 ft – 2 ft = 373 ft
- Maximum number of rows = 373 ft ÷ 10 ft = 37.3 ≈ 37 rows
- Maximum number of solids storage containers end-to-end in each row = 35 ft ÷ 22 ft (solids storage container length) = 1.6 ≈ 1 container
- Maximum number of solids storage containers = 37 rows x 1 container per row = 37 containers

Liquid Storage Container Dimensions

- Width of a typical container = 8 ft
- Aisle space requirement between containers = 2 ft
- Adjusted width of a typical container = 10 ft (8 ft + 2 ft)
- Length of a typical liquid container = variable (less than 35 ft), thus only one liquid container per row is assumed

Maximum Number of Liquid Storage Containers

- Adjusted row length taking into account a required 2 ft distance between the last container in the end row to the edge of the containment area = 375 ft – 2 ft = 373 ft
- Maximum number of rows = 373 ft ÷ 10 ft = 37.3 ≈ 37 rows
- Maximum number of liquid storage containers end-to-end in each row = 1 container
- Maximum number of liquid storage containers = 37 rows x 1 container per row = 37 containers

2. Secondary Containment Analysis

Total Available Secondary Containment Volume

The new Parking Area consists of a sloped, reinforced concrete pad that measures 35 feet (ft) wide by 375 ft long. Access to the new Parking Area is from the full length of the southern edge (375 ft) where the concrete pad is approximately flush with surrounding grade. The reinforced concrete pad is sloped toward the center and back of the two drain areas within the new Parking Area. Reinforced concrete curbing and the slope of the reinforced concrete pad provide the secondary containment for the new Parking Area. Due to its complex dimensions, the total available secondary containment volume of the new Parking Area was determined based on 3-dimensional surface computations performed using computer aided design software (Terramodel).

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

As discussed in Assumption 1, the new Parking Area is assumed to be filled to capacity with roll-offs for the purposes of determining available secondary containment volume. Because the roll-offs sit approximately 6 inches off the pavement, liquid can spread across the pavement for the first 6 inches within the entire footprint of the new Parking Area, except near the entrance edge where the liquid cannot have an elevation greater than the entrance elevation. This volume was modeled with Terramodel and determined to be 43,020 gal. As confirmation, one can multiply 6 inches by the plan dimensions of the new Parking Area (35 ft by 375 ft) to yield 49,091 gal. This slightly larger volume is attributable to the loss at the entrance where liquid cannot be 6 inches above the entrance elevation.

The volume available between rows of containers and above the aforementioned 6-inch-thick layer of storage is calculated manually based on an average depth of 1.00 ft at the back wall, an aisle width of 2 ft, a length of 26.3 ft, and 38 aisles. Using the area formula for a triangle multiplied by the aisle width and the number of aisles, this volume is estimated to be 7,476 gal. Similarly, the volume available along the back wall and above the 6-inch-thick layer of storage is calculated manually based on an average depth of 1.00 ft at the back wall, an aisle width of 2 ft, and a length of 375 ft. Using the area formula for a rectangle multiplied by the aisle width, this volume is estimated to be 5,610 gal.

Summing the above components, a worst-case available secondary containment volume of 56,106 gal is calculated.

Required Secondary Containment Volume

As discussed in Assumption 1, the new Parking Area is assumed to be filled to capacity with tankers for the purposes of determining required secondary containment volume. The required secondary containment volume for liquid storage containers is based on one of two possible conditions. The first condition (Condition 1) provides storage for 10 percent of the total liquid volume of containers stored within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event. The second condition (Condition 2) provides storage for the entire volume of the single largest liquid container stored within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event. Calculations for both conditions are presented below.

<u>Condition 1</u>

Total Container Volume (assuming all containers store liquid)

- Total Container Volume: Maximum number of containers x volume per container (Assumption 4) x 0.10 (10 percent) = 37 containers x 2,500 gal/container x 0.10 = 9,250 gal

Precipitation Runoff Volume

- Runoff Volume: 35 ft x 375 ft x 0.333 ft = 4,375 cf or 32,727 gal

Required Secondary Containment Volume

- Total Container Volume + Precipitation Runoff Volume = 9,250 gal + 32,727 gal = 41,977 gal

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

Condition 2

Single Largest Liquid Storage Container Volume

- The volume of the largest liquid storage container stored within the secondary containment area = 2,500 gal

Required Secondary Containment Volume

- Largest Liquid Storage Container Volume + Precipitation Runoff Volume (from Condition 1 above) = 2,500 gal + 32,727 gal = 35,227 gal

Based on a comparison of the required secondary containment volumes calculated for Conditions 1 and 2 above, the greatest required secondary containment volume is 41,977 gal (Condition 1).

Excess Secondary Containment Volume

The excess secondary containment volume condition is based on the worst-case total secondary volume available within the new Parking Area compared with the required secondary containment volume. The resultant volume condition is as follows:

Total Secondary Containment Volume: 56,106 gal
Required Secondary Containment Volume: 41,977 gal
Excess Volume: 56,106 gal – 41,977 gal = 14,129 gal

It is noted that this is a worst-case scenario because it is based on extremes of all roll-offs for available volume and all tankers for required volume. Any physically possible combination of roll-offs and tankers will yield additional reserve capacity beyond this calculated minimum.

SUMMARY:

The new Parking Area has a worst-case secondary containment volume of 56,106 gal. Based on the required secondary containment volume of 41,977 gal, which accounts for 10 percent of the maximum volume in all liquid storage containers within the new Parking Area plus the runoff volume resulting from a 25-year, 24-hour storm event, the new Parking Area provides adequate secondary containment. A maximum of 37 solids storage containers or 37 liquid storage containers or any combination of the two container types may be stored in the new Parking Area assuming the required aisle spaces considered herein are maintained.

NOTE: This Page to be added.

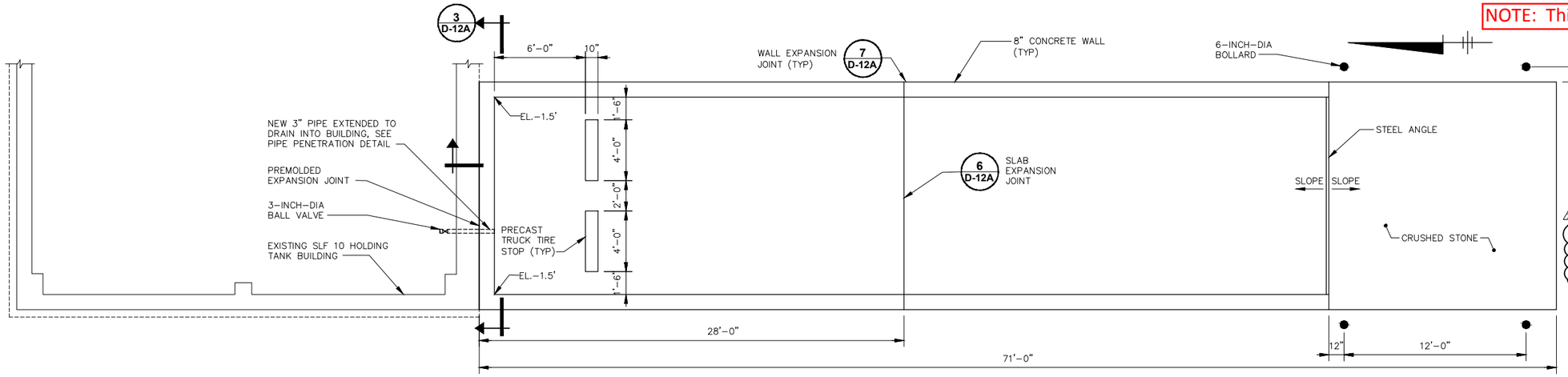
FIGURE D-12A

NEW TANK T-109 (SLF 10)

LEACHATE LOADING/UNLOADING PAD

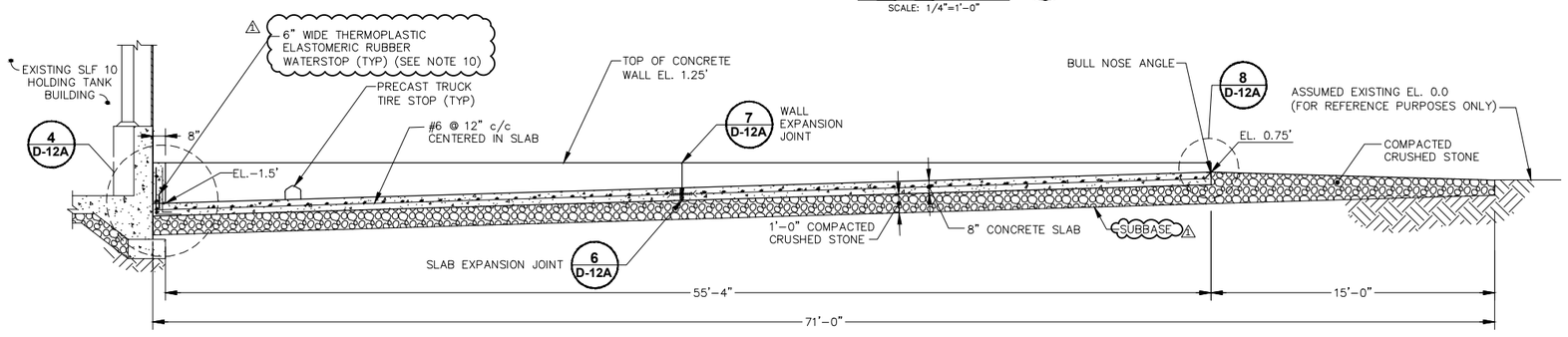
NYSDEC OHMS Document No. 201469232-00018

NOTE: This Figure to be added.



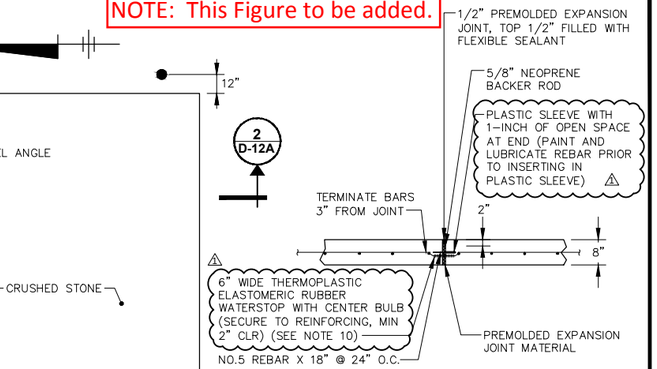
RAMP PLAN 1

SCALE: 1/4"=1'-0"



SECTION 2

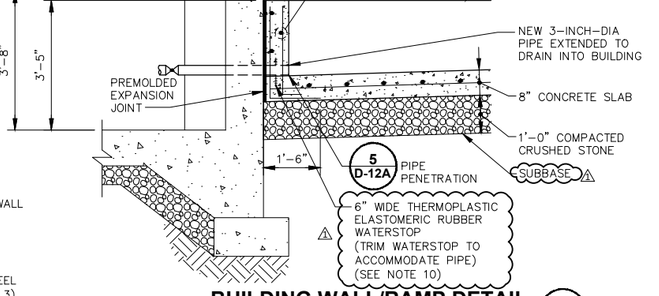
SCALE: 1/4"=1'-0"



SECTION

SLAB EXPANSION JOINT DETAIL 6

SCALE: 1/2"=1'-0"

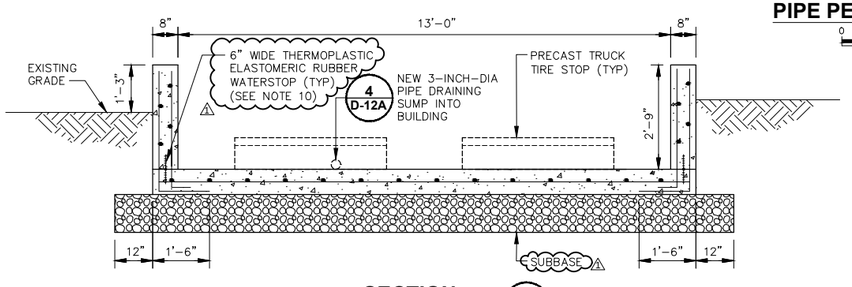


BUILDING WALL/RAMP DETAIL 4

SCALE: 1/2"=1'-0"

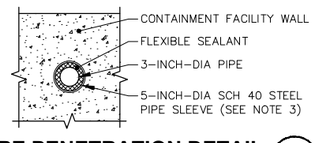
GENERAL NOTES:

1. CONCRETE MIX SHALL BE 4000 PSI AT 28 DAYS WITH AIR ENTRAINING ADMIXTURE 6±1%. STEEL REINFORCEMENT SHALL BE ADDED TO MIX AS MANUFACTURED BY MITCHELL FIBERCON, INC., MEETING ASTM A820 TYPE II SPECIFICATIONS.
2. ALL EXPOSED CONCRETE CONTAINMENT SURFACES TO RECEIVE CHEMTEC ONE CONCRETE PROTECTION SEALANT, OR APPROVED EQUAL.
3. 5" SCHEDULE 40 STEEL SLEEVE SHALL BE INSTALLED AS SHOWN THROUGH CONTAINMENT RAMP WALL. CORRESPONDING 5" CORE DRILLED OPENING SHALL BE PROVIDED IN FOUNDATION WALL OF EXISTING SLF 10 HOLDING TANK BUILDING
4. 3" PIPE TO EXTEND INTO EXISTING SLF 10 HOLDING TANK BUILDING AND BE EQUIPPED WITH VALVE ACCESSIBLE FROM INTERIOR.
5. REINFORCED CONCRETE BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. LAP REINFORCING BARS MINIMUM 36 BAR DIAMETERS.
6. DESIGN ELEVATIONS ARE RELATIVE. EXISTING GROUND SURFACE IS ASSUMED TO BE AT ELEVATION 0.0 FOR REFERENCE PURPOSES.
7. STEEL ANGLE SHALL BE FABRICATED IN LENGTHS CORRESPONDING TO JOINT LOCATIONS. STEEL ANGLE SHALL NOT SPAN ANY SLAB JOINT. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A123. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1.
8. SUBBASE SHALL BE PROOF-ROLLED AND INSPECTED BY ENGINEER PRIOR TO PLACING CRUSHED STONE. IF SOFT SOILS OR AREAS OF PUMPING ARE OBSERVED, SOIL WITHIN THESE AREAS SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE OR STRUCTURAL FILL AND PROOF ROLLED.
9. CRUSHED STONE SHALL BE COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY BASED ON MODIFIED PROCTOR. ⚠
10. WATERSTOP SHALL BE WESTEC'S ENVIROSTOP™ TPE-R (THERMOPLASTIC ELASTOMERIC RUBBER) 600 SERIES OR APPROVED EQUAL.



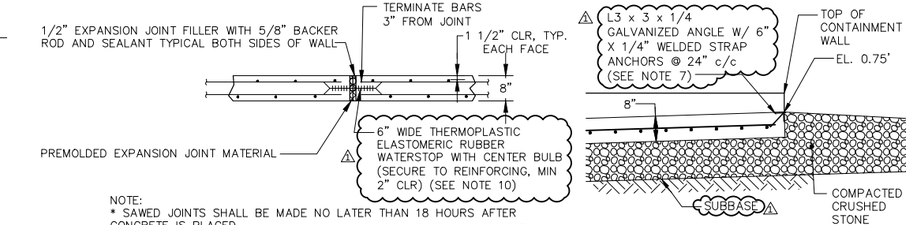
SECTION 3

SCALE: 1/2"=1'-0"



PIPE PENETRATION DETAIL 5

SCALE: 1"=1'-0"



NOTE:
* SAWED JOINTS SHALL BE MADE NO LATER THAN 18 HOURS AFTER CONCRETE IS PLACED.

WALL EXPANSION JOINT DETAIL 7

SCALE: 1/2"=1'-0"

SECTION 8

SCALE: 1/2"=1'-0"

SCALE AS NOTED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
⚠1	7/2013	GENERAL REVISIONS	NWF	BMS

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Professional Engineer's Name: JOSEPH MOLINA
Professional Engineer's No.: 072644
State: NY | Date Signed | Project Mgr.: WAR
Designed by: LAB | Drawn by: SJK | Checked by: BMS

ARCADIS OF NEW YORK, INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
FULL TRAILER PARKING AREA AND LEACHATE TRANSFER RAMP PERMIT DRAWINGS

SLF 10 HOLDING TANK BUILDING LEACHATE TRANSFER RAMP

GENERAL

ARCADIS Project No. B00023725.2009.00006
Date FEBRUARY 2013

ARCADIS of New York, Inc.
6723 Towpath Road
P.O. Box 66
Syracuse, New York
TEL. 315.446.9120

D-12A

CITY: SYRACUSE DIVGROUP: ENVCAD DB: K. DAVIS L. FORAKER K. DAVIS LD. PIC: W. POPHAM PM: W. RANKIN TM: B. STONE LYR: ON='OFF='REF'
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23725X00

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-2 Design Calculations **Project No.:** B0023725.2011

Subject: New SLF 10 Leachate Loading/Unloading Ramp – Secondary Containment Calculations

Prepared By: NWF **Date:** August 2013

Reviewed By: BMS **Date:** August 2013

Checked By: BMS **Date:** August 2013

OBJECTIVE:

Calculate the total secondary containment volume for the new SLF 10 Leachate Loading/Unloading Ramp and demonstrate that adequate capacity exists for the anticipated storage quantities.

REFERENCES:

1. Permit Drawing No. D-12A entitled "SLF 10 Holding Tank Building Leachate Transfer Ramp," contained in Attachment D-1 of the Overall Site/RMU-1 Part 373 Permit, ARCADIS, August 2013.

2. SLF 10 Leachate Building Secondary Containment Calculations, Sitewide 6 NYCRR Part 373 Permit, February 2001.

3. New York State Department of Environmental Conservation Regulations, Subpart 373.2.9 (f).

ASSUMPTIONS:

1. The secondary storage volume consumed by the semi tanker trailer tires and landing gear is assumed to be negligible and is not considered in this analysis.

2. The secondary containment must have sufficient capacity to contain the entire volume of the largest liquid container that will be stored on the ramp (Reference 3).

3. The precipitation volume considered in this calculation is based on the 25-year, 24-hour design storm, which contributes 4 inches of 0.333 feet (ft) of runoff.

4. One tanker truck can be located on the ramp at any one time. The largest liquid storage container volume that will be stored on the ramp is 5,500 gallons (gal).

CALCULATIONS:

The new ramp has interior dimensions of 13-feet-wide by 55.33-feet-long. Access to the ramp is from one end where the concrete is approximately flush with surrounding grade. The ramp slopes downward into the ground, such that the ramp is 2.25 feet lower at the deep end.

The available secondary containment volume within the ramp can be calculated manually using the area of a triangle multiplied by the ramp width as follows:

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

[½ (13 ft x 55.33 ft x 2.25 ft)] = 809 cubic feet = 6,053 gal

The new ramp is connected to the SLF 10 Holding Tank Building by a 3 inch pipe. A valve on this pipe is opened whenever liquid containers are on the ramp. As such, an additional 15,709 gallons of secondary containment volume within the SLF 10 Holding Tank Building (Reference 2) is also available. A total secondary containment volume of 21,762 gal is thus provided by the ramp itself and the building.

The required secondary containment volume for the new ramp is equal to the sum of the largest liquid storage container volume (5,500 gal) and the runoff from the design storm. The stormwater runoff volume is calculated as follows:

13 ft x 55.33 ft x 0.333 ft = 240 cubic feet = 1,794 gal

Thus, the required secondary containment volume is 7,294 gal

SUMMARY:

The available secondary containment volume for the new SLF 10 Leachate Loading/Unloading Ramp (including the volume provided both by the ramp itself and the SLF 10 Holding Tank Building) exceeds the required secondary containment volume and is therefore acceptable.

NOTE: This Page to be added.

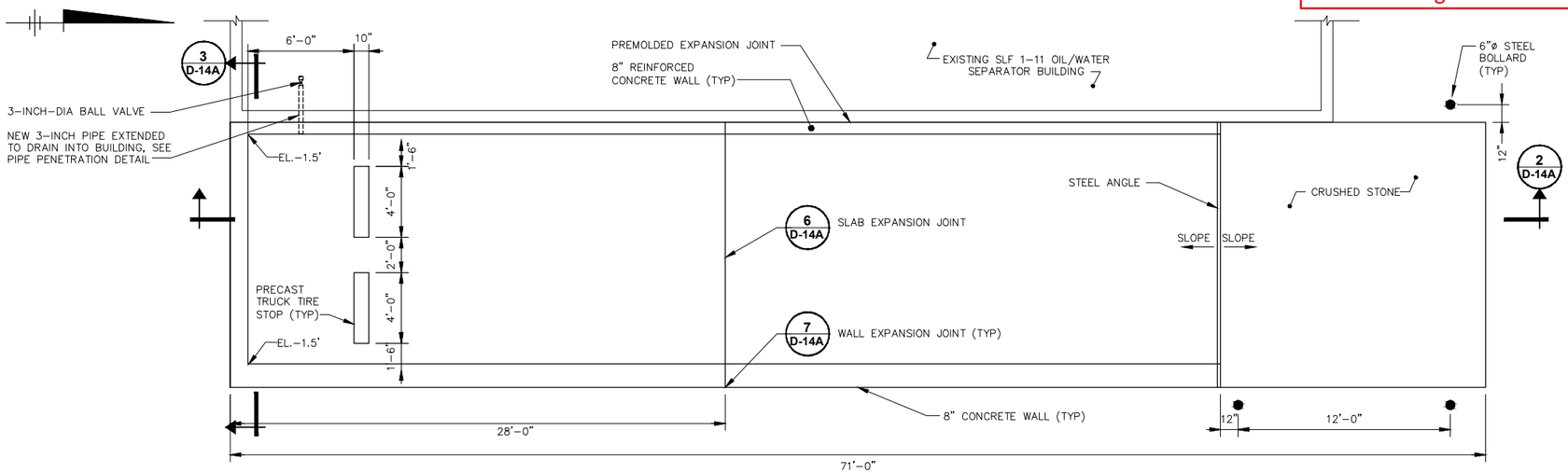
FIGURE D-14A

NEW TANK T-158 (SLF 1-11 OWS)

BUILDING LOADING/UNLOADING PAD

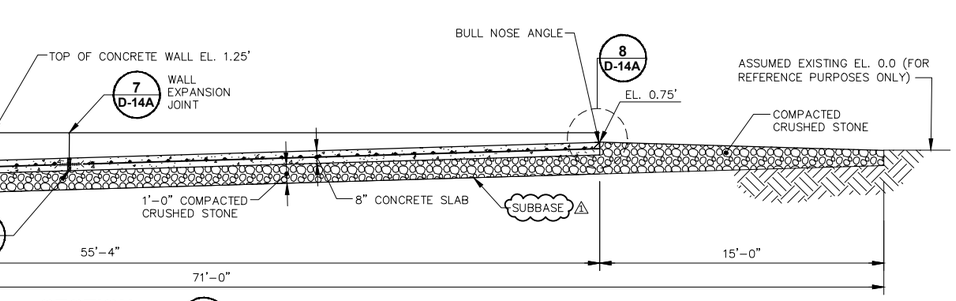
NYSDEC OHMS Document No. 201469232-00018

NOTE: This Figure to be added.



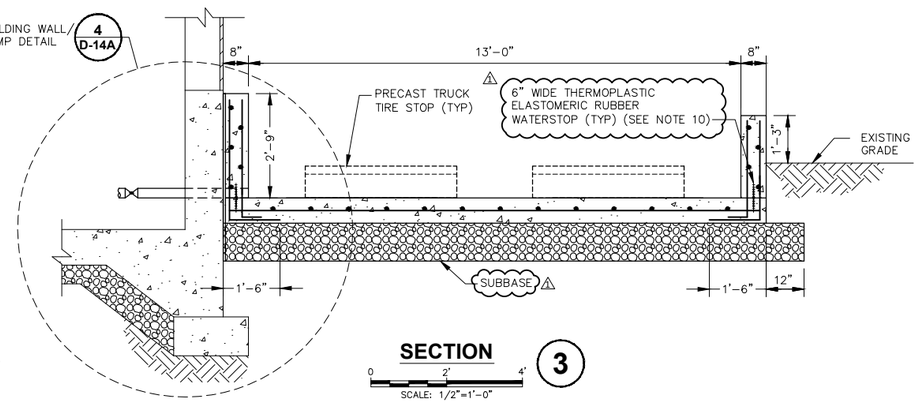
RAMP PLAN 1

SCALE: 1/4"=1'-0"



SECTION 2

SCALE: 1/4"=1'-0"

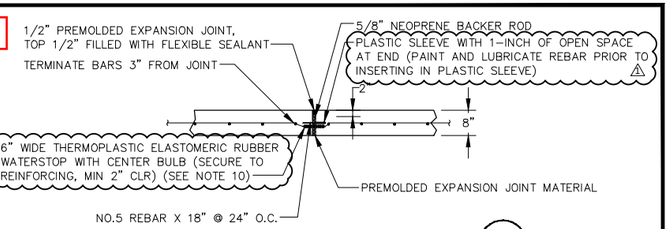


SECTION 3

SCALE: 1/2"=1'-0"

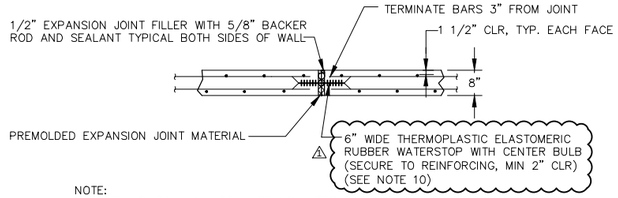
GENERAL NOTES:

1. CONCRETE MIX SHALL BE 4000 PSI AT 28 DAYS WITH AIR ENTRAINING ADMIXTURE 6±1%. STEEL REINFORCEMENT SHALL BE ADDED TO MIX AS MANUFACTURED BY MITCHELL FIBERCON, INC., MEETING ASTM A820 TYPE II SPECIFICATIONS.
2. ALL EXPOSED CONCRETE CONTAINMENT SURFACES TO RECEIVE CHEMTEC ONE CONCRETE PROTECTION SEALANT, OR APPROVED EQUAL.
3. 5" SCHEDULE 40 STEEL SLEEVE SHALL BE INSTALLED AS SHOWN THROUGH CONTAINMENT RAMP WALL. CORRESPONDING 5" CORE DRILLED OPENING SHALL BE PROVIDED IN FOUNDATION WALL OF EXISTING SLF 1-11 OIL/WATER SEPARATOR BUILDING.
4. 3" PIPE TO EXTEND INTO EXISTING SLF 1-11 OIL/WATER SEPARATOR BUILDING AND BE EQUIPPED WITH VALVE ACCESSIBLE FROM INTERIOR.
5. REINFORCED CONCRETE BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. LAP REINFORCING BARS MINIMUM 36 BAR DIAMETERS.
6. DESIGN ELEVATIONS ARE RELATIVE. EXISTING GROUND SURFACE IS ASSUMED TO BE ELEVATION 0.0 FOR REFERENCE PURPOSES.
7. STEEL ANGLE SHALL BE FABRICATED IN LENGTHS CORRESPONDING TO JOINT LOCATIONS. STEEL ANGLE SHALL NOT SPAN ANY SLAB JOINT. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A123. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1.
8. SUBBASE SHALL BE PROOF-ROLLED AND INSPECTED BY ENGINEER PRIOR TO PLACING CRUSHED STONE. IF SOFT SOILS OR AREAS OF PUMPING ARE OBSERVED, SOIL WITHIN THESE AREAS SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE OR STRUCTURAL FILL AND PROOF ROLLED. ⚠
9. CRUSHED STONE SHALL BE COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY BASED ON MODIFIED PROCTOR.
10. WATERSTOP SHALL BE WESTEC'S ENVIROSTOP™ TPE-R (THERMOPLASTIC ELASTOMERIC RUBBER) 600 SERIES OR APPROVED EQUAL.



SLAB EXPANSION JOINT DETAIL 6

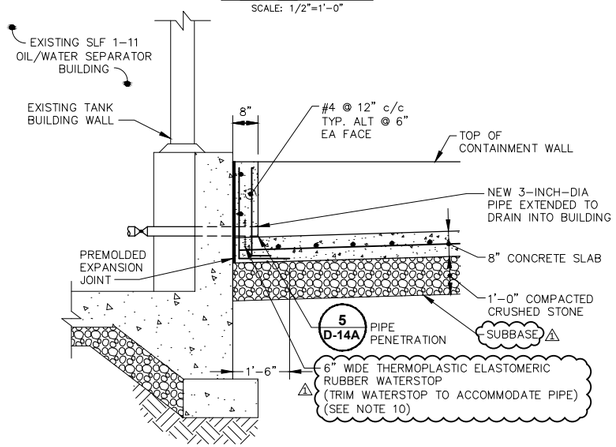
SCALE: 1/2"=1'-0"



NOTE:
* SAWED JOINTS SHALL BE MADE NO LATER THAN 18 HOURS AFTER CONCRETE IS PLACED.

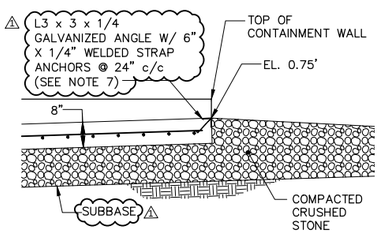
WALL EXPANSION JOINT DETAIL 7

SCALE: 1/2"=1'-0"



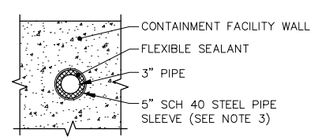
BUILDING WALL/RAMP DETAIL 4

SCALE: 1/2"=1'-0"



SECTION 8

SCALE: 1/2"=1'-0"



PIPE PENETRATION DETAIL 5

SCALE: 1"=1'-0"

SCALE AS NOTED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	7/2013	GENERAL REVISIONS	NWF	BMS

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Professional Engineer's Name	JOSEPH MOLINA		
Professional Engineer's No.	072644		
State: NY	Date Signed:	Project Mgr.: WAR	
Designed by: LAB	Drawn by: SJK	Checked by: BMS	

ARCADIS OF NEW YORK, INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK

FULL TRAILER PARKING AREA AND LEACHATE TRANSFER RAMP PERMIT DRAWINGS

SLF 1-11 OIL/WATER SEPARATOR BUILDING LEACHATE TRANSFER RAMP

GENERAL

ARCADIS Project No. B0023725.2009.00006

Date FEBRUARY 2013

ARCADIS of New York, Inc.
6723 Towpath Road
P.O. Box 66
Syracuse, New York
TEL. 315.446.9120

D-14A

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: K. DAVIS G. STOWELL L. FORAKER LD: PIC: W. POPHAM PM: W. RANKIN TM: B. STONE LYR: ON=*;OFF=*REF*
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XREFS: PROJECTNAME: ----
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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-2 Design Calculations **Project No.:** B0023725.2011

Subject: New SLF 1-11 OWS Loading/Unloading Ramp – Secondary Containment Calculations

Prepared By: NWF **Date:** August 2013

Reviewed By: BMS **Date:** August 2013

Checked By: BMS **Date:** August 2013

OBJECTIVE:

Calculate the total secondary containment volume for the new SLF 1-11 Oil/Water Separator (OWS) Loading/Unloading Ramp (ramp) and demonstrate that adequate capacity exists for the anticipated storage quantities.

REFERENCES:

1. Permit Drawing No. D-14A entitled "SLF 1-11 Oil/Water Separator Building Leachate Transfer Ramp," contained in Attachment D-1 of the Overall Site/RMU-1 Part 373 Permit, ARCADIS, August 2013.

2. SLF 1-11 OWS Building Secondary Containment Calculations, Sitewide 6 NYCRR Part 373 Permit, February 2001.

3. New York State Department of Environmental Conservation Regulations, Subpart 373.2.9 (f).

ASSUMPTIONS:

1. The secondary storage volume consumed by the semi tanker trailer tires and landing gear is assumed to be negligible and is not considered in this analysis.

2. The secondary containment must have sufficient capacity to contain the entire volume of the largest liquid container that will be stored on the ramp (Reference 3).

3. The precipitation volume considered in this calculation is based on the 25-year, 24-hour design storm, which contributes 4 inches of 0.333 feet (ft) of runoff.

4. One tanker truck can be located on the ramp at any one time. The largest liquid storage container volume that will be stored on the ramp is 5,500 gallons (gal).

CALCULATIONS:

The new ramp has interior dimensions of 13-feet-wide by 55.33-feet-long. Access to the ramp is from one end where the concrete is approximately flush with surrounding grade. The ramp slopes downward into the ground, such that the ramp is 2.25 feet lower at the deep end.

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NOTE: This Page to be added.

Imagine the result

Calculation Sheet

The available secondary containment volume within the ramp can be calculated manually using the area of a triangle multiplied by the ramp width as follows:

[½ (13 ft x 55.33 ft x 2.25 ft)] = 809 cubic feet = 6,053 gal

The new ramp is connected to the SLF 1-11 OWS Building by a 3 inch pipe. A valve on this pipe is opened whenever liquid containers are on the ramp. As such, an additional 24,876 gallons of secondary containment volume within the SLF 1-11 OWS Building (Reference 2) is also available. A total secondary containment volume of 30,929 gal is thus provided by the ramp itself and the building.

The required secondary containment volume for the new ramp is equal to the sum of the largest liquid storage container volume (5,500 gal) and the runoff from the design storm. The stormwater runoff volume is calculated as follows:

13 ft x 55.33 ft x 0.333 ft = 240 cubic feet = 1,794 gal

Thus, the required secondary containment volume is 7,294 gal

SUMMARY:

The available secondary containment volume for the new SLF 1-11 OWS Loading/Unloading Ramp (including the volume provided both by the ramp itself and the SLF 1-11 OWS Building) exceeds the required secondary containment volume and is therefore acceptable.

APPENDIX D-2

SURFACE IMPOUNDMENTS

APPENDIX D-2
SURFACE IMPOUNDMENTS

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SURFACE IMPOUNDMENTS

I. Introduction

The active surface impoundments, i.e., facultative ponds (FAC Ponds), are comprised of FAC Ponds 1, 2, 3 and 8. These surface impoundments are utilized for biological treatment using aeration and storage of treated wastewater prior to discharge into the Niagara River in accordance with the Model City Facility SPDES Permit.

The FAC ponds receive treated effluent from the Aqueous Wastewater Treatment System only. There are no other inputs to these impoundments with the exception of direct precipitation into the impoundments. Precipitation that accumulates in FAC Pond 8 may be transferred to FAC Pond 1 / 2.

Fac Ponds 3 and 8 will be closed in accordance with the Sitewide Closure Plan as part of site preparation for the construction of the Residuals Management Unit No. 2 (RMU-2) landfill. Fac Ponds 3 and 8 lie within the footprint of RMU-2 and upon closure will be filled with structural (as required) and general soil fill to the RMU-2 excavation grades. It should be noted that Fac Pond 8 will be closed in accordance with the Compliance Schedule in Schedule 1 of Module I of the Permit. Fac Pond 3 will be closed after the construction of Fac Pond 5 because of the need to continuously provide storage of treated wastewater prior to discharge.

New Fac Pond 5 will be constructed to compensate for the storage capacity lost due to closure of Fac Ponds 3 and 8. Fac Pond 5 will be constructed to the north of proposed RMU-2 between SLF 12 and SLF 7. Fac Pond 5 will include a double liner system with leak detection.

II. Background

The RCRA Hazardous and Solid Waste Amendments of 1984 (HSWA) specify that surface impoundments which treat or store hazardous waste must have two or more liners, a leachate collection system between these liners, and appropriate groundwater monitoring.

Owners and operators of facilities with interim status surface impoundments were given four years to retrofit impoundments to meet these minimum technology requirements (November 8, 1988). Chemical Waste Management, Inc. applied to the USEPA Region II for a variance to the HSWA double liner requirements for Facultative Ponds No. 1, 2, 3, 8, 9, Fire Pond and the Aggressive Biological Treatment Unit (ABTU) No. 58. On February 17, 1989 CWM was notified by the USEPA of the approval of its request for a variance. In the approval, the USEPA stated that CWM still qualifies for the exemption should the

composition of waste streams handled by CWM change or in the event that a new SPDES Permit was issued.

Moreover, during August of 1993, CWM requested verification from the NYSDEC that its exemption was still valid even though the AWTS had been upgraded and CWM's SPDES Permit had been renewed. In its 1993 request for verification, CWM demonstrated that the conditions upon which the exemption was based had not changed. In December of 1993, the NYSDEC informed CWM that its exemption from minimum technology requirements for the facultative pond system was still valid.[1]

Consequently, the active surface impoundments described herein (FAC Ponds 1, 2, 3 and 8) do not meet the minimum technology requirements and are not double lined impoundments.

The Fire Pond was removed from service, clean closed and certified on March 1, 1990. Fac Pond 9 was removed from service, clean closed and certified on August 7, 1992. These two Fac Ponds no longer exist. ABTU 58 was converted to a RCRA tank in 1993.

III. Description of ~~Active~~ Facultative Ponds 1, 2, 3, 5 and 8

Active Fac Ponds 1, 2, 3 and 8 are clay lined surface impoundments of the following approximate sizes:

Fac Pond	Capacity (gallons)	Area in Acres
1 and 2	22,880,700	7.1
3	51,355,300	13.2
8	43,413,500	6.6

New Fac Pond 5 will be constructed as a double-lined surface impoundment with the following approximate size:

Fac Pond	Capacity (gallons)	Area in Acres
5	24,700,000	7.5

[1]Paul R. Counterman, P.E. to Ms. Jill Knickerbocker, "Aggressive Biological Treatment Exemption", New York State Department of Environmental Conservation letter dated December 21, 1993.

Fac Ponds 1 and 2 were originally two separate adjacent ponds separated by a berm. In recent years, however, the internal berm was encroached. Now Fac Pond 1 and 2 are considered a single surface impoundment with common exterior berms.

The historical purpose of the Fac Ponds was to provide the final step for treated wastewater prior to discharge. This was accomplished by mechanical aeration allowing the continued reduction in TOC, BOD and COD, plus an increase in dissolved oxygen content. Since the inception of Land Disposal Regulations (LDRs), however, the levels of organic and other contaminants in the treated wastewater entering the Fac Ponds are greatly reduced. Aeration is currently used mainly for odor control.

IV. Facultative Pond 5 Construction

Material that is excavated from the floor area of Fac Pond 5 will be used to initiate construction of the eastern perimeter berm. This will allow a channel to be built between Fac Pond 5 and SLF 7 to divert runoff from SLF 7 around the Fac Pond 5 footprint. Additional fill material will be obtained from on-site stockpiles or be imported from pre-screened off-site sources.

A new liner system will be installed in Fac Pond 5, as described in Section 3.5.2 of the Engineering Report for RMU-2/Fac Ponds. A sideslope riser pipe will allow for monitoring of liquid levels in the sump of the leak detection system and for removal of accumulated liquids. A pre-fabricated weather proof riser house will be installed near the top of the perimeter berm at the sideslope riser pipe location. The sideslope riser pipe will penetrate the wall of the riser house so that transfer piping from the ponds leak detection system submersible pump may discharge into a tank. The riser house will contain a double-walled tank for storage of liquids pumped from the leak detection system. Access to the riser house will be provided by a ramp from an access road on the adjacent SLF 7.

A new at grade transfer line will be installed between Fac Ponds 1 and 2 and Fac Pond 5. The transfer line will include two parallel 6-inch-diameter in 10-inch diameter double-wall HDPE pipes at grade with soil protection cover. Each forcemain (two, in total) will be constructed of double-contained HDPE pipe. The inner carrier pipe will be 6-inches and the outer containment pipe will be 10-inches. The outer, secondary containment pipe will terminate at the penetration into HDPE manholes to allow for leak detection. The treated wastewater forcemains will be sloped so that any liquid in the secondary containment pipe will gravity drain back to a junction or transfer manhole.

As indicated on Drawing Nos. 5, 6 and 7 in this appendix, the pipeline will be sloped towards leak detection manholes. At Fac Pond 5, the pipeline will terminate above ground at the riser house. Connective piping will be installed to allow either of the two parallel lines to be used to fill or drain the pond. At Fac Ponds 1 and 2, the pipeline will terminate

in a valve house as indicated on Drawing Nos. 3, 5, and 13 in this appendix. Piping from the valve house will lead to Fac Ponds 1 and 2, Fac Pond 5, and the existing discharge manhole to the north of the Fac Pond perimeter berm that discharges to the Niagara River. Piping will be installed in the new valve house to allow either of the two parallel lines to be used to transfer liquid from Fac Ponds 1 and 2 to Fac Pond 5 or vice versa, fill Fac Pond 5 with effluent from the site's treatment plant and to discharge liquid from Fac Pond 5 to the existing discharge piping leading to the Niagara River. The existing discharge filter system will be relocated from its current location at Fac Pond 3 to an area north of Fac Ponds 1 and 2.

The Action Leakage Rate (ALR) for Fac Pond 5 was calculated and a Response Action Plan (RAP) is included in this appendix.

~~I~~V. Land Disposal Regulations

LDRs have established treatment standards for wastewater discharged to surface impoundments. In November 1998, NYSDEC updated the 6NYCRR Part 376 regulations to adopt recently promulgated USEPA LDRs. The CWM Waste Analysis Plan describes the test procedures and frequency employed to assure that the treated effluent meets established LDRs under the multi-source leachate Waste Code F039.

VI. Operation

After treatment in the carbon adsorption system of the AWTS, the wastewater effluent is discharged into an effluent holding tank. Following qualification, the effluent is transferred to FAC Pond 1 and 2.

Periodically, this volume of treated effluent is pumped from Fac Pond 1 and 2 into Fac Pond 3 to accumulate sufficient quantities for discharge. The final step of the qualification process occurs in Fac Pond 3 where samples are collected and analyzed for comparison to the SPDES Permit limits. Once the effluent qualifies under the SPDES Permit, the wastewater is discharged via the facility's pipeline to the Niagara River. Generally, one batch is qualified and discharged per year. A typical volume is 15-25 million gallons per year.

Fac Ponds 1, 2 and 3 are equipped with mechanical aerators whose main purpose is to minimize odorous emissions from the pond by maintaining a high dissolved oxygen content. Aerators are operated on an as needed basis. The liquid level in each Fac Pond is visually inspected to maintain a freeboard of at least two feet.

Fac Pond 8 was taken out of service in 2004 and emptied in anticipation of closure. Prior to that time, Fac Pond 8 was used as the final qualification pond. Closure of Fac Pond 8 is currently in progress.

Development of the first phase of RMU-2 (Cell 20) will be at the location of current Fac Pond 8. During the development of the first phase of RMU-2 Fac Ponds 1 / 2 and 3 will operate as described above and Fac Pond 5 will be constructed. Fac Pond 3 will be closed in accordance with the Sitewide Closure Plan prior to the development of the second phase of RMU-2 after the final discharge from the pond.

The existing influent and effluent piping will be modified, as necessary, to accommodate the Fac pond construction and reconstruction. Piping will be installed in a new valve house to allow either of the two parallel lines to be used to transfer liquid from Fac Ponds 1 and 2 to Fac Pond 5 or vice versa, fill Fac Pond 5 with effluent from the site's treatment plant and to discharge liquid from Fac Pond 5 to the existing discharge piping leading to the Niagara River.

Periodically, a volume of treated effluent will be pumped from Fac Pond 1 and 2 into Fac Pond 5 to accumulate sufficient quantities for discharge. The final step of the qualification process will occur in Fac Pond 5 where samples will be collected and analyzed for comparison to the SPDES Permit limits. Once the effluent qualifies under the SPDES Permit, the wastewater will be discharged via the facility's pipeline to the Niagara River. Generally, one batch is qualified and discharged per year, however additional batches may be discharged within a calendar year.

Fac Ponds 1, 2 and 5 will be equipped with mechanical aerators whose main purpose is to minimize odorous emissions from the ponds by maintaining a high dissolved oxygen content. Aerators will be operated on an as needed basis. The liquid level in each Fac Pond will be visually inspected to maintain a freeboard of at least two feet.

Liquids will be pumped from the leak detection system of Fac Pond 5 to the riser house constructed on the berm. The amount of liquids removed from the leak detection system sump will be recorded at least once each week during the active life and will compared to the Response Rate in the RAP and the ALR.

VII. Maintenance

Erosion protection is predominately provided for the exterior surfaces of all above grade impoundments in the form of a vegetative growth. Inspections of all active surface impoundment embankments are performed at least once each operating day.

A. Control of Overtopping and Maintenance of Dikes

1. Inspections

Specific inspection criteria are described in the facility's Inspection Plan for the following criteria:

1) measurement devices;
2) liquid level in the impoundment (indication whether two feet of freeboard is present);
3) no sudden drop in level of contents not associated with pumping;
4) no signs of severe erosion, deterioration, or instability of dikes;
5) aerators are operable when in use.

The inspections are designed to detect any evidence of deterioration, malfunction or improper operation which would compromise the efficiency of the overtopping control. Level control is accomplished by visual inspections of the measuring device affixed near each impoundment. This will assure that sudden changes in liquid level will be quickly detected.

Liquid losses, due to berm failure, from the FAC Ponds would be contained in the facility surface water drainage collection system until contingency measures were implemented.

Moreover, most of the Fac Ponds are below ground level, with the exception of new Fac Pond 5, making losses very minimal in the event of berm failure.

2. Erosion Protection

The exterior of the containment berms for the surface impoundments are vegetated to reduce the potential for erosion due to precipitation and runoff.

Inspections which indicate a problem with erosion will be handled by initiating the Environmental Work Order System. Restorative construction will consist of removal or reshaping the eroded soils, reseeding and adding additional material with compaction. The area will be monitored during subsequent inspections to ensure its viability.

VIII. Air Emission Standards

Air emission standards for surface impoundments are specified in 6NYCRR 373-2.29 and 40 CFR 264/265.1080-1091 (Subpart CC), which became effective on December 6, 1996. RCRA Subpart CC is applicable to owners and operators of a TSDF which treats, stores or disposes of hazardous waste containing greater than 500 ppmw volatile organics in tanks, surface impoundments and containers. If Subpart CC wastes are managed in a surface impoundment, a floating membrane continuous barrier or a cover vented through a closed vent system to a control device must be installed, unless specified exemptions apply. All surface impoundments at the CWM Model City Facility are exempt from these requirements as described below.

Fac Ponds 1, 2, 3, 5 and 8 are exempt since the treated wastewater placed in these impoundments meets the applicable numerical organic limits for F039, as specified by the LDR regulations. In addition, all wastewaters are exempt after being treated at the AWTS, and so the effluent from AWTS is exempt.