ADDENDUM NO. 2

For

20-0012-UT WTP3 - EAST DOME AND AERATOR AND MISC. IMPROVEMENTS
Clearwater, Florida

DATE: **April 5, 2022**

SUBJECT: **Addendum No. 2**

TO: **Prospective Bidders and Others Concerned**

Bidders on the above project are hereby notified that the following Addenda are made to the Contract Documents:

1. **Question:** We did a site visit with the contractor Razorback. They are requesting to review the most recent inspection report.
2. **Answer:** Here is a link to the conditions survey report from the engineer that has everything they would want to know.

WTP3 - Condition Survey Report_Final 04-01-21.pdf

Condition Survey Report

Water Treatment Plant 3 (WTP3) East Dome and Aerator and Miscellaneous Improvements

2775 SR 580
Clearwater, Florida 33761

City Project No. 20-0012-UT

Issue Date:
April 1, 2021

Biller Reinhart Project No. 20-222

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VIA EMAIL

April 1, 2021

Fredrick Hemerick
Water Production
City of Clearwater
100 S Myrtle Ave.
Clearwater, FL 33756

Email: fred.hemerick@MyClearwater.com

Subject: **Condition Assessment Report**
WTP3 East Dome and Aerator and Miscellaneous Improvements
2775 SR 580
Clearwater, FL 33761

City Project #: **20-0012-UT**

Introduction

Biller Reinhart Engineering Group, Inc. (BillerReinhart) completed a condition assessment of the two ground water storage tanks located at Water Treatment Plant 3 at 2775 SR 580, Clearwater, Florida. The condition assessment included visual survey of the exterior of the tanks with strategic physical sounding for concrete integrity at specific areas. The assessment also included review of videos and reports prepared by InDepth Services Inc. (InDepth), along with a follow-up investigation of the tank interiors by InDepth under the direction of BillerReinhart. Site visits were performed by BillerReinhart on December 2, 2020 and December 23, 2020.

The purpose of the condition assessment is to visually observe the current state of the readily discernible structural elements of the water tank structures, identify existing conditions that require repair and/or preventative maintenance, and generate a report to document our observations and recommendations.

The visual survey by BillerReinhart was of the structure's current state and did not involve any destructive activity to view inaccessible areas. Select photographs taken during the survey are included in *Appendices A, B, D* and *E* of this report. *Appendix C* contains location diagrams for our exterior survey.

Provided Documentation

The following documentation was provided for our use and review:

- As-built record drawings *Water Storage and Pumping Facilities on SR 580* prepared by Briley, Wild and Associates dated August 1976
- Video recordings of underwater dives performed by InDepth Inc. inside both the east and west tanks. The dives were performed and April 14 and 15, 2020, respectively.
- WTP #3 East GST inspection report prepared by InDepth Inc. dated April 15, 2020
- WTP #3 West GST inspection report prepared by InDepth Inc. dated April 19, 2020

Structure Description

The two concrete water tanks are similar in construction; both have a capacity of 5 million gallons. The tanks are built on the ground in a cylindrical shape with a diameter of approximately 175 feet, and a domed concrete roof. There is an aerator at the center of the roof of the east tank and a dome vent at the center of the west tank. An aluminum crossover bridge connects the tanks at the roof level. Refer to *Figure 1* below.

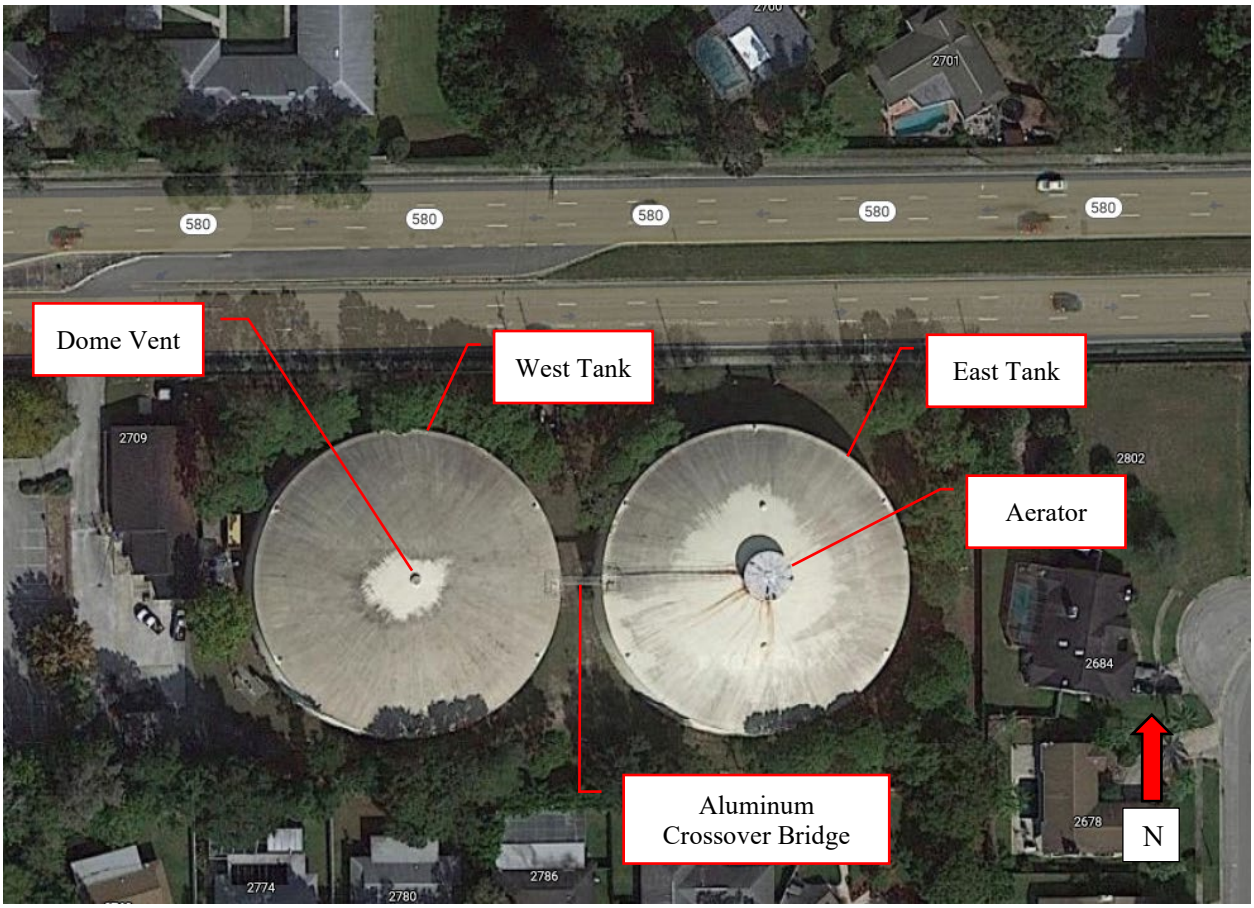

Figure 1 – View of Site

As-built record drawings provided by the City of Clearwater are dated August 1976, making the tanks approximately 44 years old. The tanks are constructed on grade with a circular concrete mat foundation and reinforced and prestressed concrete walls. The thickness of the wall varies from 9” at the base to 4 inches at the top. There is a continuous metal shell (26-gauge thickness) constructed within the concrete walls of the tank. There is also a PVC waterstop at the foundation slab to wall construction joint. The concrete dome roof of the tanks is reinforced with steel welded-wire reinforcing. The thickness of the roof slab varies and is thickest along the perimeter (more than 4-1/2”) and tapers to 3” thick toward its center. The concrete exterior walls of the tanks are finished with a painted cementitious coating. The roof surface appears to be finished with paint. Refer to *Figure 2* for a wall section taken from the existing record drawings for the tanks.

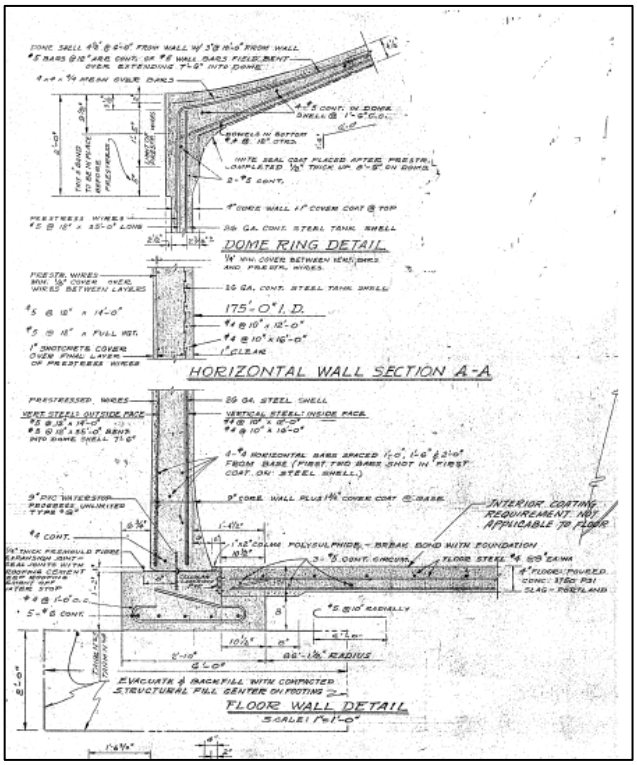

Figure 2 - Tank Wall Section

BillerReinhart understands the tanks were last painted circa 2009, as reported by City of Clearwater personnel.

Survey of the Structure Exterior

Readily discernible structural elements of the structure exterior were visually observed. Based on visual observations specific areas of the tank structure were selected for concrete sounding. Areas evidenced to have delaminated and/or spalling concrete are documented in the observations below. Photographs were taken during the survey and are included in *Appendix A* and *B* of this report. *Appendix C* contains location diagrams for our exterior survey. For purposes of this report and to document our observations, the tanks were divided into 8 sectors. Note that some of the conditions listed below were observed throughout the structure and the selected photographs are representative of the respective conditions.

Table A – Structure Exterior Observations	
Conditions Observed	**Reference Photos** (Figures in Appendix A and Appendix B)
East Tank Walls	
Typical conditions	
Tank plaque	A-1
Typical horizontal cracks within the middle third height of the tank walls; all crack widths are equal to or less than 1/64 inch	A-2 and A-3
Scattered locations of minor concrete pock marks and divots in the wall surface	A-4
Peeling wall coating at the interface with the ground/vegetation	A-5
Organic/water staining along the vertical surface of the dome ring; there is a typical color differential on the face of the dome ring adjacent to the overflows	A-6
Typical organic staining within the lower third height of the walls and around the dome ring	A-7
View of cementitious finish and paint coating applied to the wall surface	A-8
West sector overview	A-9 thru A-11
Section of concrete previously spalled off (painted over)	A-12
Water level gauge fastened into wall at 4 locations	A-13
2-inch built out section of concrete wall facilitates the fastening of the access ladder and conduits	A-14
Area of delaminated concrete adjacent to the dome ring at the top of the wall (approximately 1’x2’)	A-15
Northwest sector overview; heavy organic staining on walls in this sector	A-16 thru A-18
Worst case condition of horizontal crack on the wall surface, closer to the north; width appeared not to exceed 1/64”; water staining appears to be emanating from the cracking; organic growth was observed in the cracking	A-19
North sector overview; heavy organic staining on walls in this sector	A-20 thru A-22
Manway at lower wall level; peeling of coating and paint finish around the perimeter; the seal around the perimeter of the manway appeared weathered; no observed leaking	A-23 and A-24
Peeling paint at the dome ring directly above the manway	A-25

Northeast sector overview	A-26 thru A-28
Typical conditions observed	
East sector overview	A-29 thru A-31
Location of staining emanating from imperfection in the wall surface (closer to the northeast sector)	A-32
Southeast sector overview	A-33 thru A-35
Typical conditions observed	
South sector overview	A-36 thru A-38
Staining on the wall surface emanating from the roof	A-39
Abrasions in the wall surface; closer view of staining emanating from roof	A-40
Manway at lower level of the wall surface; the seal around the perimeter of the manway appeared weathered	A-41 and A-42
Delaminated area of concrete (approximately 5'x1') at the dome ring closer to the west quadrant	A-43
Apparent concrete repair at the wall surface adjacent to the delaminated concrete at A-43	A-44
Southwest sector overview	A-45 thru A-47
Abandoned fastening holes adjacent to the conduits and control valves	A-48 and A-49
Area of delaminated and spalled concrete at the upper section of the wall surface (approximately 0.5 sq.ft.)	A-50 and A-51
Crack at the dome ring closer to the west quadrant	A-52
East Tank Roof	
Roof surface overview; observed staining on the roof surface emanating from the aerator at the center of the dome roof	A-53 and A-55
Surface corrosion at the fasteners of the screen wall framing and fiberglass roofing of the aerator	A-56
Multiple vertical cracks at the concrete stub wall of the aerator	A-57
Sections of peeling paint coating around the stub wall of the aerator	A-58
View of the access hatch at the west quadrant of the tank; delaminated and spalled concrete in the concrete curb throughout	A-59 thru A-62
Particulate buildup adjacent to the aluminum bridge support at the west quadrant of the tank	A-63
Peeling paint and delaminated concrete around the north and south roof vents	A-64 and A-65

Failed metal straps at the roof vents	A-66
Peeling paint/coating throughout the roof surface, worst case at the north and northwest sectors	A-67 and A-68
Cracks in the roof surface within the north and southwest sectors	A-69 and A-70
West Tank Walls	
Typical conditions	
Tank plaque	B-1
Typical horizontal cracks within the middle third height of the tank walls; all crack widths are equal to or less than 1/64 inch	B-2 thru B-5
Typical staining within the lower half of the walls and around the dome ring, as seen on overviews below	
Cementitious coating applied to the wall surface	B-6
Delaminating/peeling paint at the interface with the ground/vegetation	B-7
East sector overview	B-8 thru B-10
Hardened coating overflow adjacent to the grade level	B-11
Repaired abrasions in the wall surface	B-12
Southeast sector overview	B-13 thru B-15
Peeling paint with pock marks and divots along the dome ring	B-16
South sector overview	B-17 thru B-19
Manway at the lower level of the wall, located closer to the east quadrant of tank; missing two fasteners; the seal around the perimeter of the manway appeared weathered	B-20 thru B-22
Delaminated paint along the dome ring, closer to the east quadrant	B-23
Southwest sector overview; typical conditions observed	B-24 thru B-26
West sector overview; typical conditions observed	B-27 thru B-29
Northwest sector overview; typical conditions observed	B-30 thru B-32
Horizontal crack along the dome ring	B-33
North sector overview	B-34 thru B-36

Location of manway currently underground	B-37
Abrasions in the wall surface at approximately mid-height; the abrasions have caused damage to the coating	B-38
Northeast sector overview; typical conditions observed	B-39 thru B-41
West Tank Roof	
Roof surface overview	B-42
Access hatch at the east quadrant of the tank; delaminated and spalled concrete in the concrete curb throughout	B-43 thru B-45
Roof vent at the center of the dome roof; corroded and failed metal straps around perimeter	B-46 and B-47
Exposed reinforcing steel bar with limited concrete cover at the south side of the roof vent	B-48
Peeling paint along the perimeter of concrete dome roof	B-49

Survey of Structure Interior

Based on our review of the videos and reports prepared by InDepth (see *Provided Documentation* section of report) and the information gathered therein, BillerReinhart recommended additional interior surveys via underwater diving be performed. The location of underwater observations in the additional survey was directed by BillerReinhart. The requested additional underwater dive survey was performed by InDepth on December 23, 2020. The video recordings of the additional interior surveys were reviewed. Observations made with respect to the video recordings are outlined in Table B below , along with associated still images taken from the videos located in *Appendices D* and *E*. Note that some of the conditions listed below were observed throughout the structure and the selected photographs are representative of the respective conditions.

Table B – Structure Interior Observations	
Conditions Observed from Video Review	**Reference Photos** (Figures in Appendix D and Appendix E)
Conditions at the East Tank	
Failed previous repairs with exposed reinforcing at the dome roof interior surface	D-1 and D-2
Spalling concrete at the interior of the northeast overflow structure	D-3

Spalling concrete at the interior of the south overflow structure	D-4
Spalling concrete at the interior of the southeast overflow structure	D-5
Spalling concrete at the north end of the baffle wall	D-6 and D-7
Typical conditions of multiple small, regularly spaced areas of concrete spalling with exposed corroding reinforcing steel	D-8
Cracking with mineral growth at the baffle wall	D-9
Coating failure at the lower section of the tank wall perimeter within the northwest quadrant	D-10
Blistering of the coating throughout the surface of the baffle wall	D-11
Typical condition of rust stains bleeding through coating covering plumbing elements	D-12 and D-13
Deteriorated seal between the floor slab and perimeter wall	D-14
Corroded fasteners at plumbing elements	D-15
Conditions at the West Tank	
Typical conditions of multiple small, regularly spaced areas of concrete spalling and additional larger sections of concrete spalling with exposed corroding reinforcing steel	E-1 and E-2
Worst case conditions of concrete spalling in the interior roof surface within the southeast quadrant of the tank.	E-3
Delaminated coating at the inside sections of the northeast overflow structure	E-4
Heavy mineral buildup observed at the north manway, with heavy corrosion, and coating delamination reported	E-5
Roof vent at the center of the tank appears to be in a satisfactory condition	E-6
Coating delamination and hairline cracking at the southwest overflow structure	E-7
Cracking in the coating at the inside of the southeast overflow structure	E-8

Note that a limiting factor is involved in assessing conditions based on video recordings and third-party interior reporting leads to assumptions within the observations. It is therefore recommended that a re-analysis of specific areas be completed during the restoration project to accurately record repair quantities.

Conclusions and Recommendations

Exterior

Based on our observations and physical sounding from our exterior survey, BillerReinhart believes that the general condition of the exterior of the tanks can be described as fair, with expected age-related, normal deterioration and wear. The exterior surfaces of the tanks are in need of a cleaning, concrete restoration and waterproofing project. BillerReinhart observed several small areas of concrete spalling along the exterior vertical surfaces of the tanks. Cracking was also observed, and the width of the cracking did not exceed 1/64". The integral concrete curbs constructed for the roof access hatches are in poor condition, with delaminated and spalled concrete throughout.

BillerReinhart did not discern significant active leaking of water through the tank walls, and therefore does not believe that significant leaking is occurring. Areas of slight staining consistent with water on the exterior wall surfaces of the tanks were observed, but at this time, are not attributed to through-wall leaking. BillerReinhart believes that significant through-wall leaking would likely result in more significant, observable concrete damages along the exterior vertical surfaces. The staining may be a result of the structures' normal environmental exposure (rain and subsequent organic/dirt staining).

BillerReinhart also observed that the site along the north side of the West Tank appears to be graded higher than the other areas of the site along the tanks. The grade buildup along this side of the tank has covered an existing manway/access door. BillerReinhart believes that the grading of the site may have been for the construction of a berm or right-of-way construction along FL SR 580. There may be other explanations, including site modifications for drainage. The covered manway needs to be uncovered and protected from surrounding grade or a new manway constructed above grade.

Interior

Based on our review of the most recent video recordings from inside the tanks, BillerReinhart believes that the general condition of the interior of the tanks can be described as fair to poor. There are many small, regularly spaced areas of concrete spalling with exposed corroding reinforcing steel in the interior dome roof surface. Cracked and blistered coating was observed throughout the baffle wall and lower sections of the perimeter wall of the east tank. Failed and deteriorated joint sealant was observed along the slab to wall construction joint in the east tank. The interior surfaces of the tanks are in need of a concrete restoration and recoating/resealing project.

BillerReinhart believes the blistering and cracking in the coating at the baffle wall of the east tank, lower sections of the perimeter wall, around the north manway of the west tank, and around overflow structures indicates that the coating has exceeded it useful service life. Conditions of cracking and blistering are believed to be at the coating level; however, a repair protocol should include a review of the baffle wall itself after the coating has been removed.

Similarly, BillerReinhart believes that the joint sealants along the slab to wall construction joint in both tanks have exceeded or are nearing their useful service lifes. The construction joints should be re-sealed.

BillerReinhart observed typical conditions of corrosion of hardware at the plumbing elements in the east tank, as evidenced by rust stains bleeding through the coating. The condition of corrosion indicates that the hardware is in need of replacement and/or cleaning and re-coating. Mineral deposit buildup and corrosion was observed at tank inlet piping, interior surface of manway doors/covers and other plumbing elements in both tanks. All interior elements should be cleaned of mineral deposits and corrosion via abrasive power blasting and be coated for protection.

BillerReinhart observed multiple locations of small 1 to 3 inches square areas of spalled concrete, with exposed steel reinforcing throughout the underside of both tank dome roofs. For the east tank, the visually spalled areas account for at least 3% of the total roof area, with approximately 37 points of exposed reinforcing for every 100 square feet of roof area. For the west tank, the visually spalled areas account for at least 6.5% of the total roof area with approximately 50 points of exposed reinforcing for every 100 square feet of roof area.

In addition to the areas of spalling described above, BillerReinhart observed multiple locations of larger concrete spalls exposing multiple grids of the welded-wire reinforcing. The west tank, which did not exhibit any previous repairs, was observed to have spalling of this kind to a higher degree. Repairs were attempted at the east tank; however, multiple locations of failing repairs were observed. Concrete spalling was also observed at the north end of the baffle wall and near overflow structures in the east tank.

BillerReinhart believes that the spalling and unsound (delaminating) concrete conditions observed in both the exterior and interior surfaces of the tanks are a result of reinforcing steel corrosion. Corrosion of the steel reinforcement impairs the structural integrity of the system. The corrosion process that takes place in concrete is electrochemical in nature. Steel in concrete normally does not corrode because of the formation of a passive oxide film on the surface of the steel due to the initial corrosion reaction. The process of hydration of cement in freshly placed concrete develops a high alkalinity, which in the presence of oxygen stabilizes the film on the surface of the embedded

steel, ensuring continued protection while alkalinity is retained. The term pH is a measure of the alkalinity or acidity, ranging from highly alkaline at 14 to highly acidic at zero, with neutrality at 7. In good quality concrete, steel is passivated when pH is about 12 to 13. When steel is depassivated and the environment is acidic or mildly alkaline, corrosion begins if moisture and oxygen gain access into the concrete. Corrosion begins when pH is less than or equal to approximately 9.5.

Chloride ions are considered to be the major cause of premature corrosion of steel reinforcement. Chloride ions are common in nature and small amounts are often unintentionally contained in the concrete mix. Reinforced concrete with significant gradients in chloride ion content is vulnerable to corrosion, especially if subjected to cycles of wetting and drying. Smaller concentrations of chloride ions are needed to cause corrosion as carbonation lowers the pH of concrete.

Steel materials that are corroding significantly expand resulting in cracking, spalling and delamination of the concrete cover and cementitious finishes. During the condition survey, BillerReinhart noted conditions conducive to and indicative of the deterioration of the concrete columns. Such conditions are as follows:

- Reinforcing steel located near exposed surfaces (inadequate concrete cover) and thin concrete sections of the roof.
- Exposure to chlorides
- Areas of delaminated/spalling concrete surfaces (exposed) and surface coatings. Portions of the spalled areas contain exposed, rusted reinforcing steel bars.
- Cracking in exposed concrete surfaces

<u>Repair Recommendations - Exterior</u>

The following are our repair recommendations as part of an exterior cleaning, concrete restoration and waterproofing project to address the various conditions observed:

1) Anti-fungal spray-down with power wash cleaning of all exterior surfaces to address organic/water/other staining along various exterior surfaces of the concrete tanks.
2) Repair, via routing and sealing, the various areas and types of cracking in the exterior surfaces of the tanks, including typical horizontal cracks within the middle third height of the tank walls, cracking along the dome rings, vertical cracking in the concrete stub wall of the aerator, and cracks in the roof surface within the north and southwest sectors of East Tank.
3) Repair, utilizing International Concrete Repair Institute (ICRI) and American Concrete Institute (ACI) guidelines, the areas of spalled and delaminated concrete along various exterior surfaces of the concrete tanks.
4) Rebuild, utilizing ICRI and ACI guidelines, the spalled and delaminated integral concrete curbs constructed for the roof access hatches.

5) Repair, via resurfacing with concrete repair mortar, the various locations of minor concrete pock marks and divots in the wall surface.
6) Re-coating of all exterior vertical surfaces with a high-build, hydrophobic, cementitious waterproofing coating to address the delaminating/peeling wall finish and various abrasions which have caused damage to wall finish.
7) Application of a cementitious waterproofing coating on the exterior roof surfaces.
8) Patching of abandoned fastening holes adjacent to the conduits and control valves; removal of any abandoned metals.
9) Remove and replace the weathered seals for exterior manways and replace missing anchors/fasteners for manways.
10) Remove and replace corroded fasteners of the screen wall framing and fiberglass roofing of the aerator and failed metal straps at the roof vents.
11) Power-wash clean the aluminum bridge to remove particulate buildup, etc.
12) Site modifications to uncover and protect the covered manway on the north side of the west tank.

Repair Recommendations – Interior

The following are our repair recommendations as part of an interior cleaning, concrete restoration and re-coating/re-sealing project to address the various conditions observed:

1) Remove all existing interior coatings and joint sealants. Upon removal of coatings from interior concrete and metal surfaces, the various concrete and metal surfaces should be reviewed for underlying conditions, such as spalling, cracking, and section loss.
2) Repair, via routing and sealing, any exposed concrete cracking.
3) Repair, utilizing ICRI and ACI guidelines, the known areas of spalled and delaminated concrete along various interior surfaces of the concrete tanks, as well as any areas uncovered after coating removal.
4) Repair, via resurfacing with concrete repair mortar, any known locations of minor concrete pock marks and divots in the interior surfaces, as well as any areas uncovered after coating removal.
5) Clean all interior plumbing and other metal elements of mineral deposits and corrosion via abrasive power blasting.
6) Replace any damaged/deteriorated hardware, such as fittings, bolts, nuts and washers.
7) Install new submersible joint sealant along the slab to wall construction joint.
8) Re-coat all interior concrete and metal elements for protection. All coating and components are to be compliant with NSF 60/61 standards for drinking water.

Closing

BillerReinhart will prepare construction documents (drawings and specifications) for the scope of work described above. The construction documents will be issued in the form of a Project Manual.

The Project Manual would contain instructions to bidders, a scope of work for the project, technical specifications, required construction plans and details (drawings), and estimated repair quantities for bidding purposes. The bidding documents will be based on estimated repair quantities (please be aware that actual repair quantities are unknown until project construction is complete). Contractors will therefore bid on the same scope of work and repair quantities for accurate comparison. Bidding contractors will be required to complete a unit cost schedule to be used when repair quantities are higher or lower than the estimated quantities.

Neither the survey nor this report is intended to cover hidden defects, mechanical, electrical, or architectural features, nor environmental concerns. Unauthorized use of this report, without the permission of BillerReinhart, shall not result in any liability or legal exposure to Biller Reinhart Engineering Group, Inc.

Biller Reinhart Engineering Group, Inc. reserves the right to update the information contained in this report if deemed necessary due to modified site conditions or the availability of new/additional information.

Thank you for offering us the opportunity to provide our services for this project. Please contact our office if you have any questions regarding this report.

Sincerely,

Biller Reinhart Engineering Group, Inc.

This item has been digitally signed and sealed. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

_____
Brian E. Walter
Principal Structural Engineer
FL P.E. No. 66538

Appendix A

East Tank Exterior Observations

Figure A-1

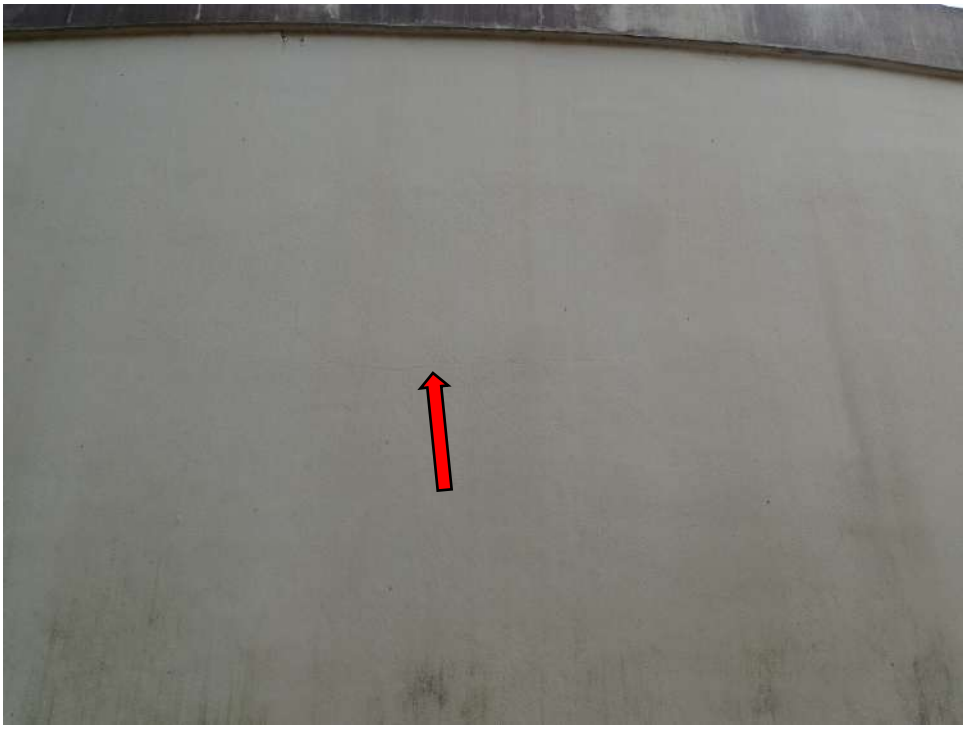

Figure A-2

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Figure A-10

Figure A-11

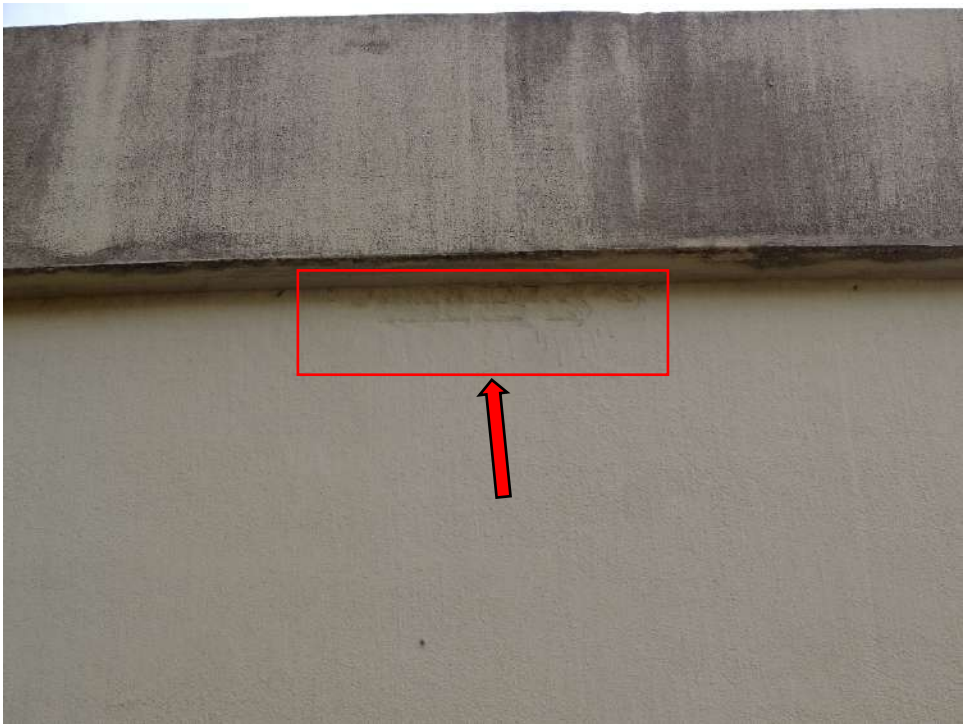

Figure A-12

Figure A-13

Figure A-14

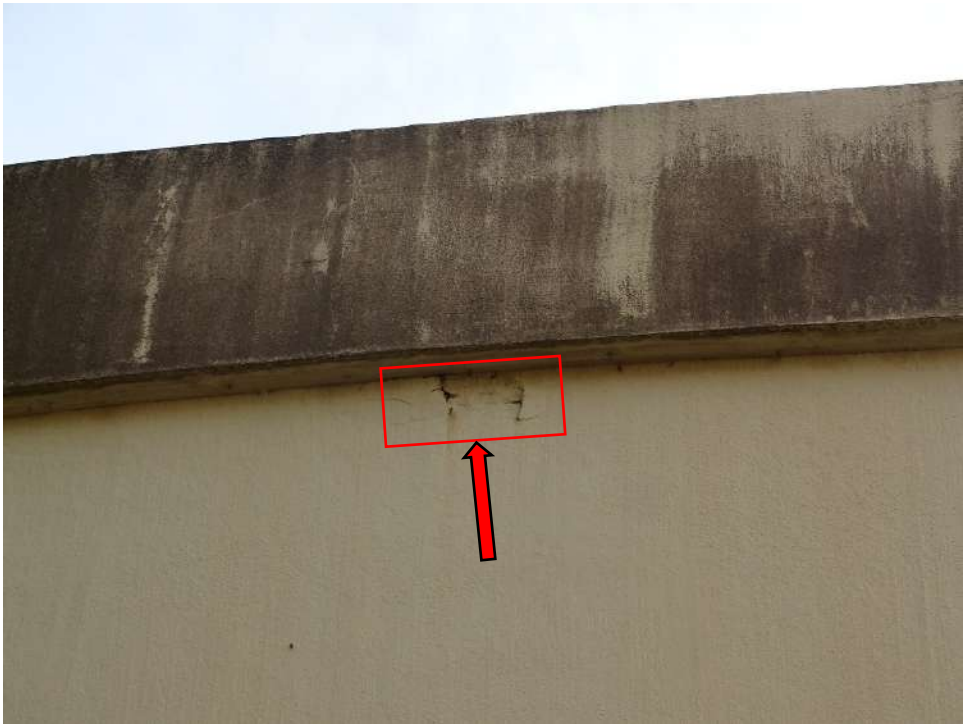

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Figure A-24

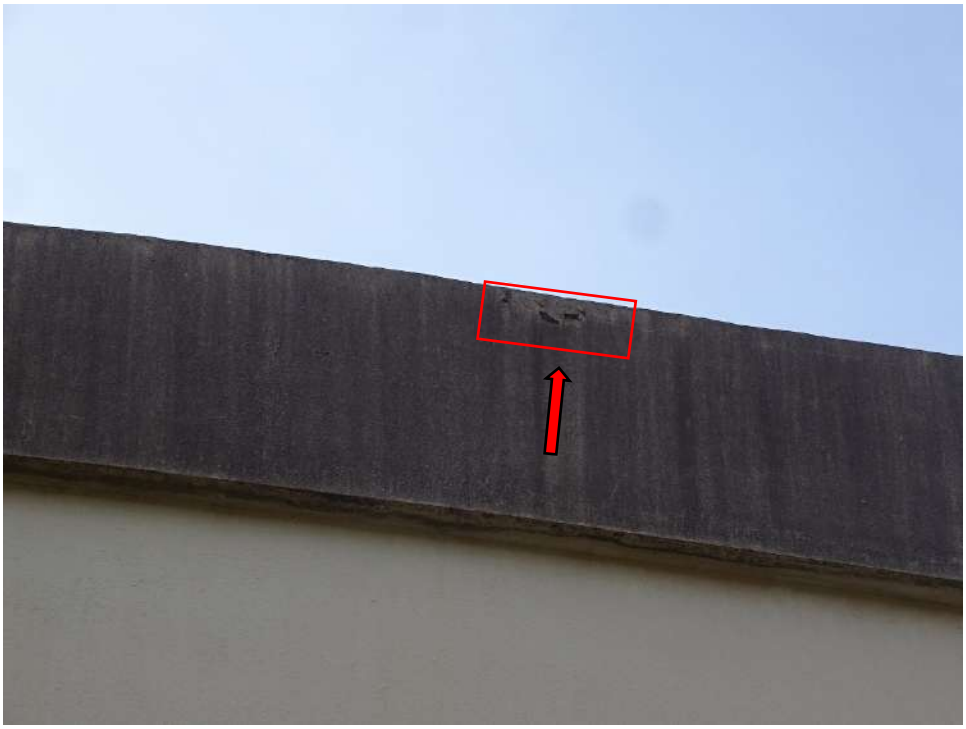

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Figure A-40

Figure A-41

Figure A-42

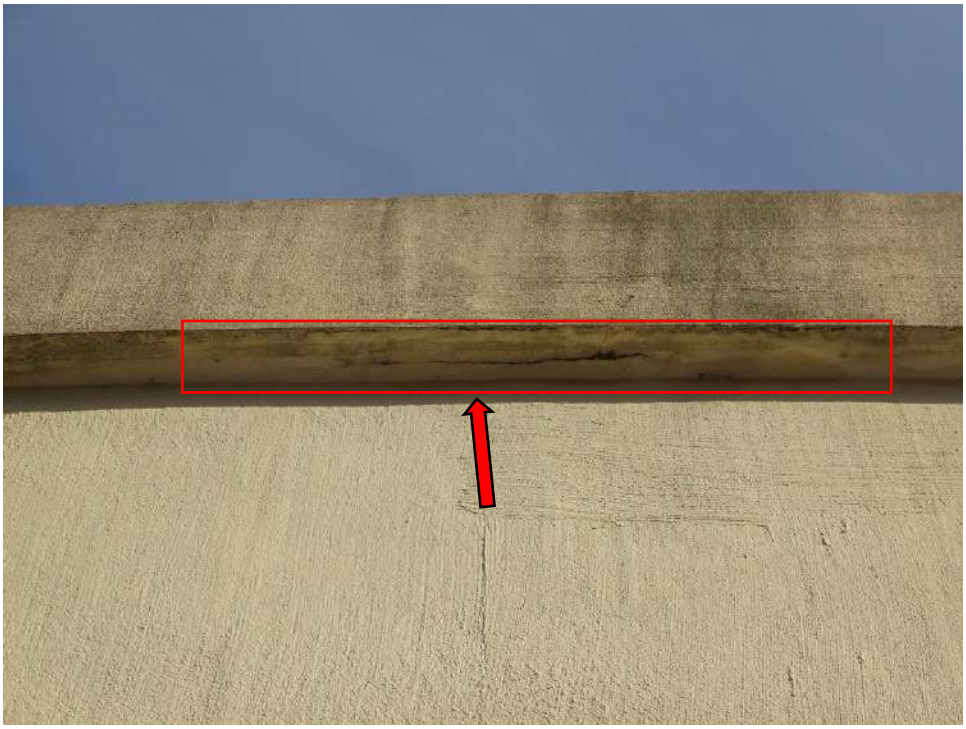

Figure A-43

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Figure A-62

Figure A-63

Figure A-64

Figure A-65

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Figure A-68

Figure A-69

Figure A-70

Appendix B

West Tank Exterior Observations

Figure B-1

Figure B-2

Figure B-3

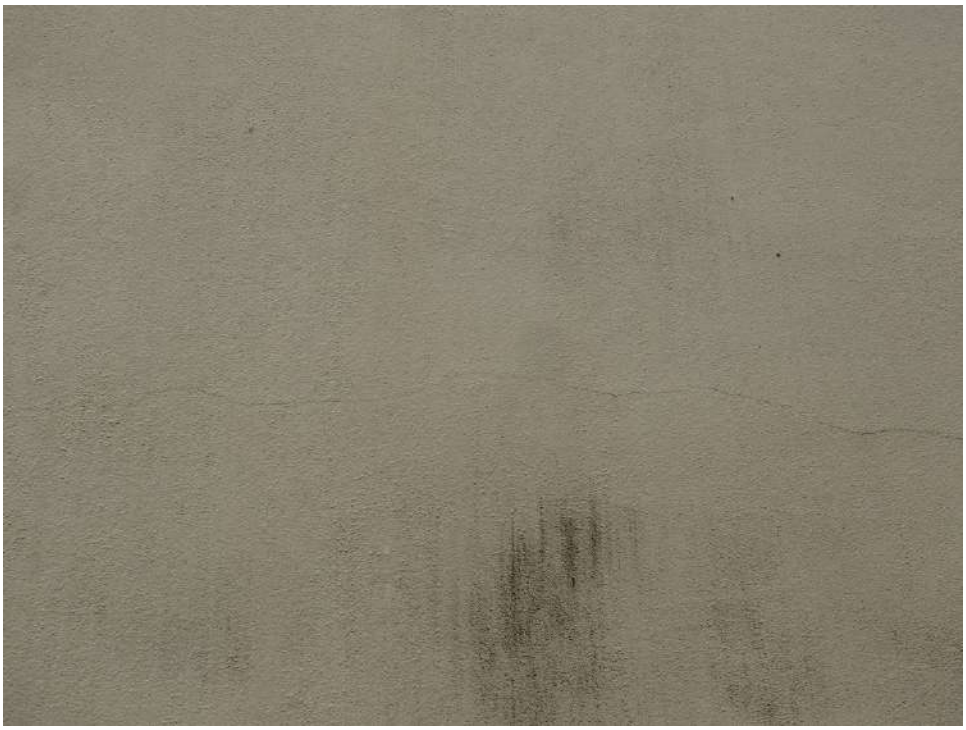

Figure B-4

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Figure B-16

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Figure B-41

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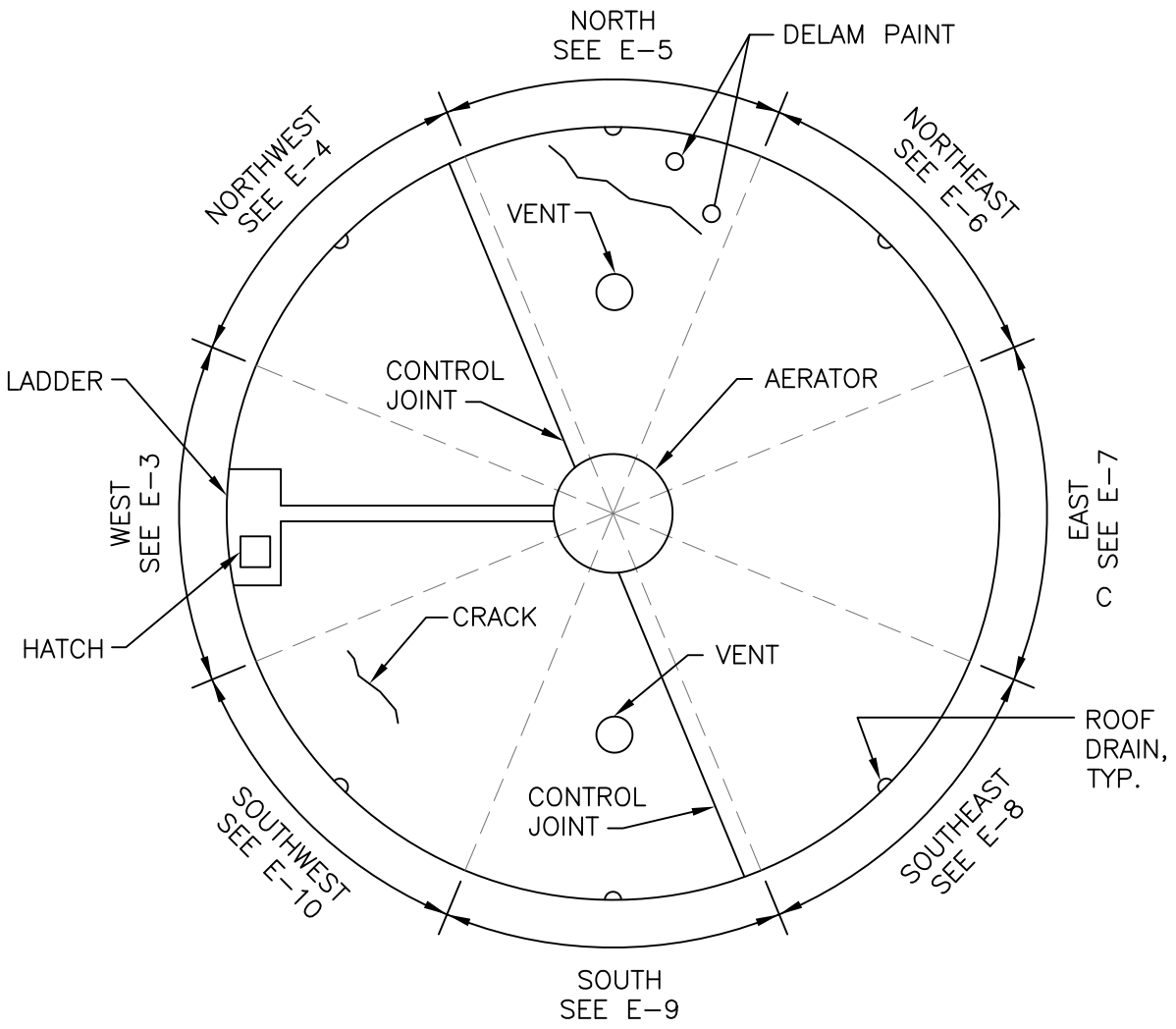
Appendix C

Location Diagrams of Exterior Observations



1 / E-1 EAST TANK ROOF PLAN

NOT TO SCALE

N

billerreinhart
ENGINEERING GROUP INC.
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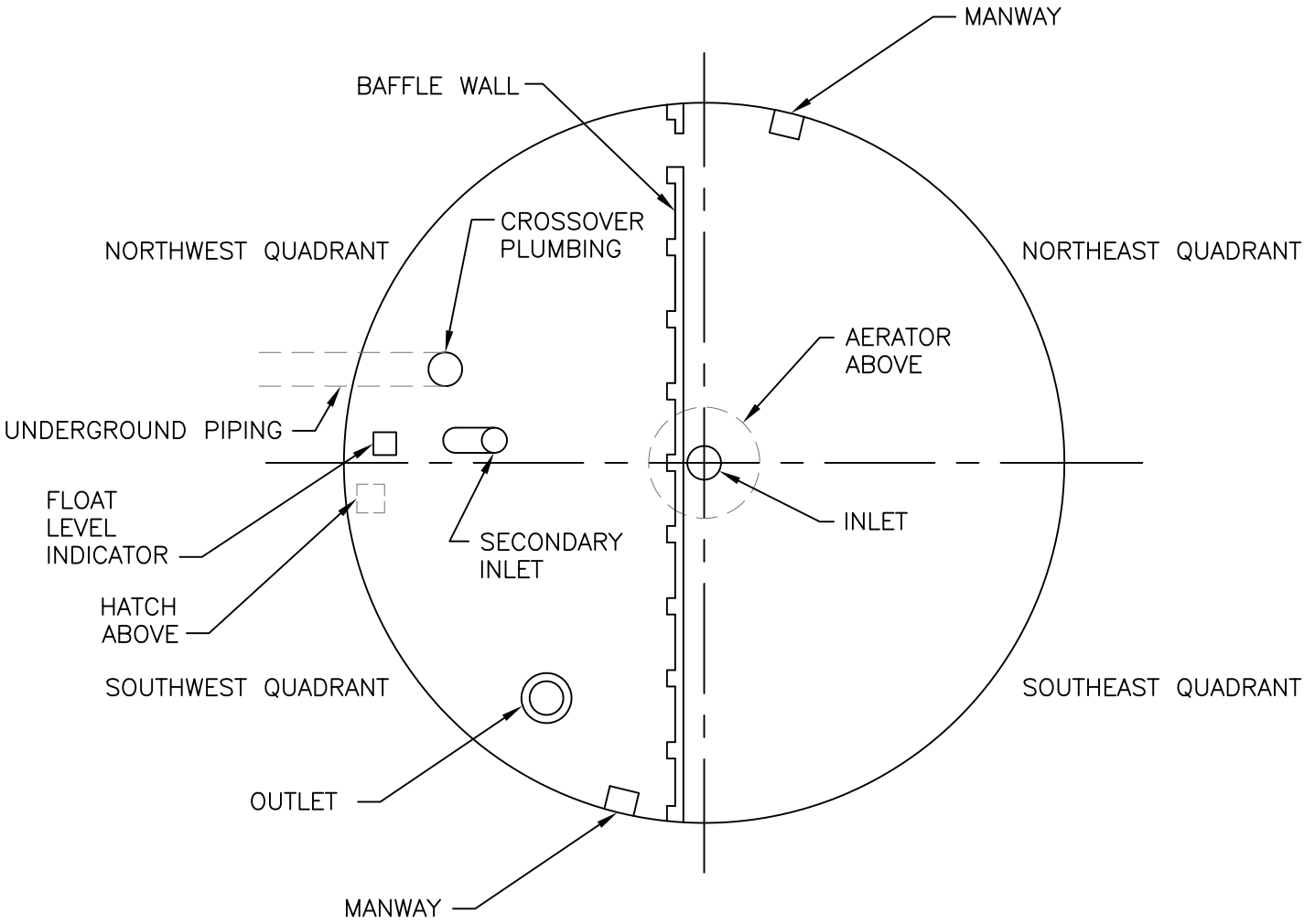
telephone : 813.908.7203 fax : 813.931.5200
email : info@billerreinhart.com
State of Florida Certificate of Authorization No. 9149

PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-1
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



1 / E–2 EAST TANK INTERIOR PLAN

NOT TO SCALE

N

billerreinhart ENGINEERING GROUP INC.
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telephone : 813.908.7203 fax : 813.931.5200
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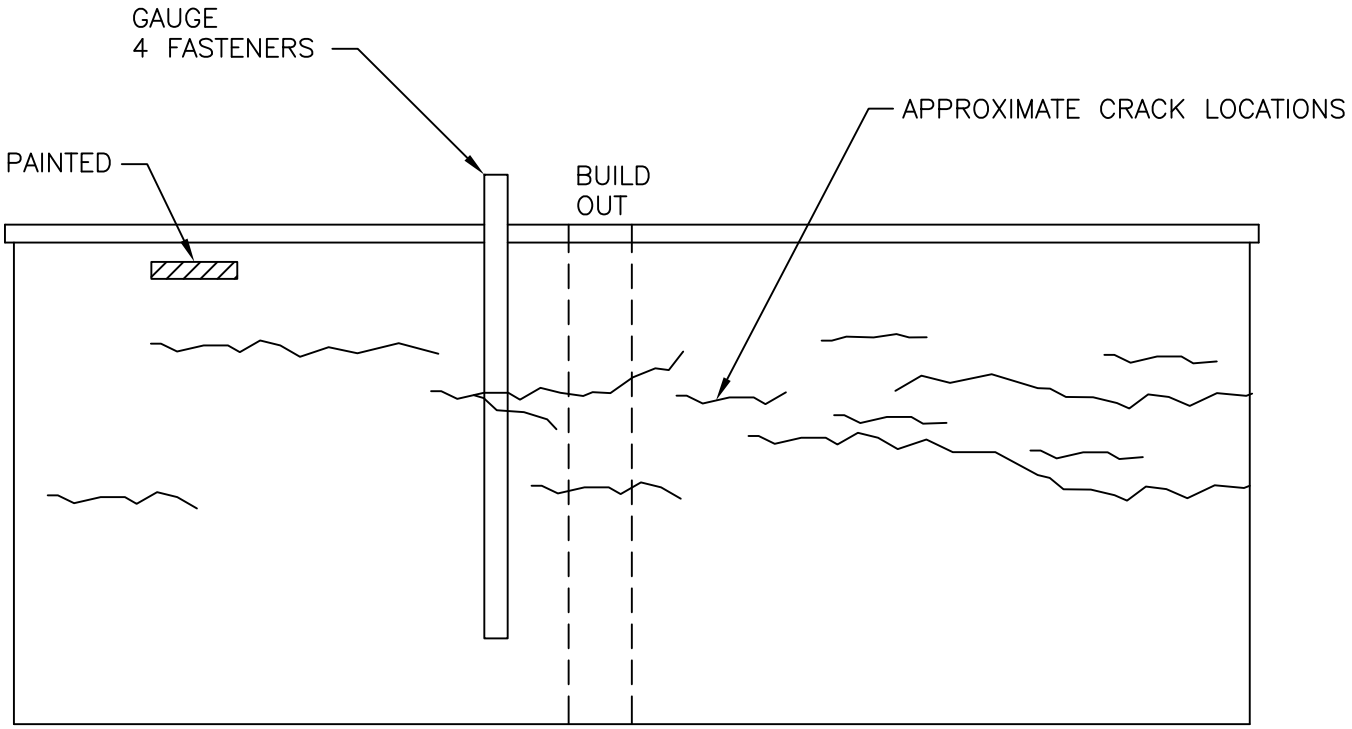
PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY	SHT. NO.
B.W.	E-2
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



WEST SECTOR ELEVATION

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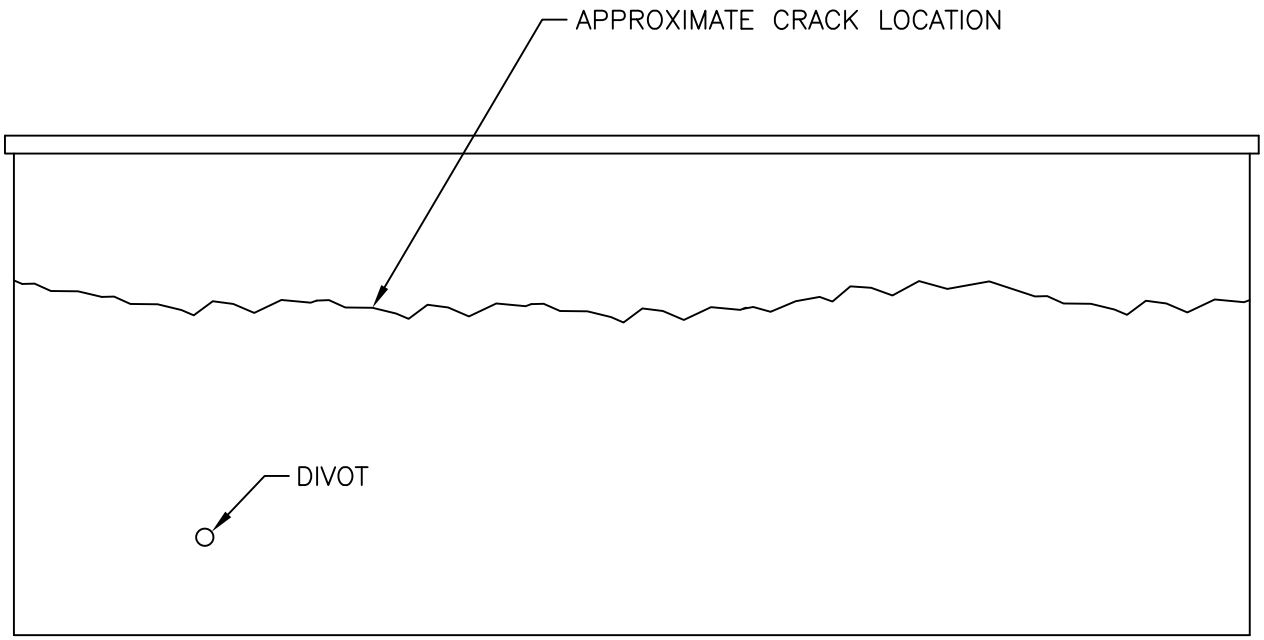
PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-3
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



NORTHWEST SECTOR ELEVATION

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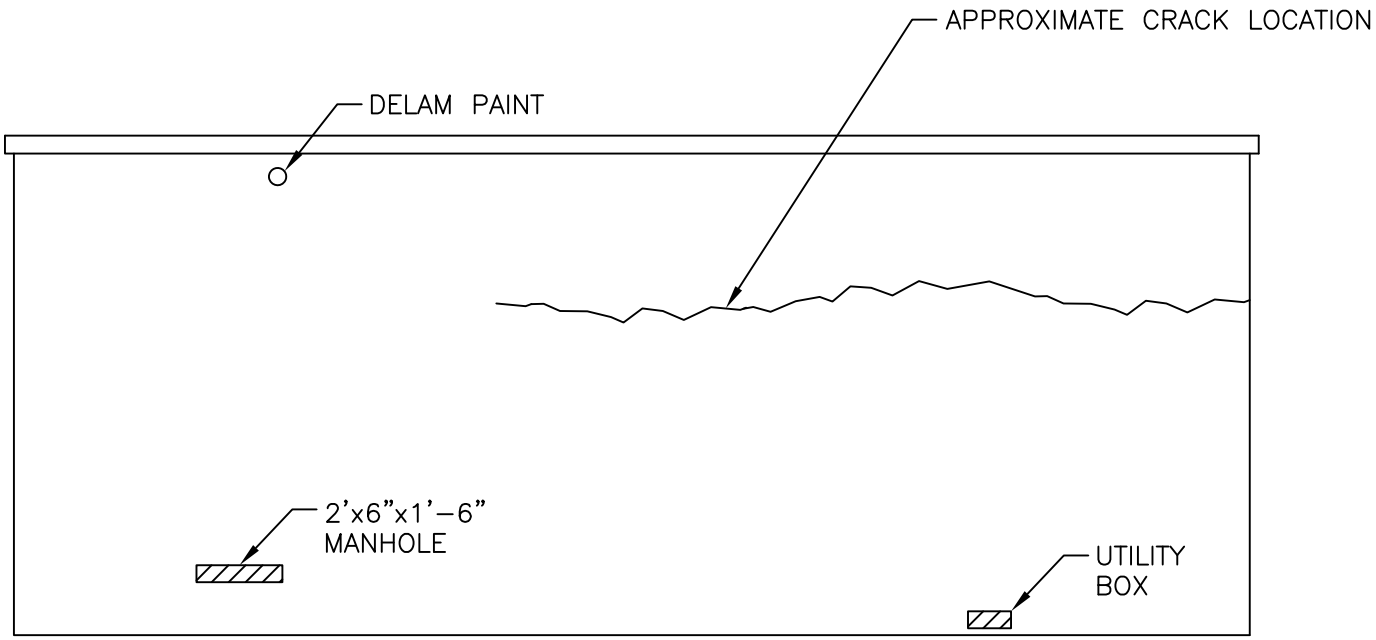
PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-4
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



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PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-5
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21

NORTHEAST SECTOR ELEVATION

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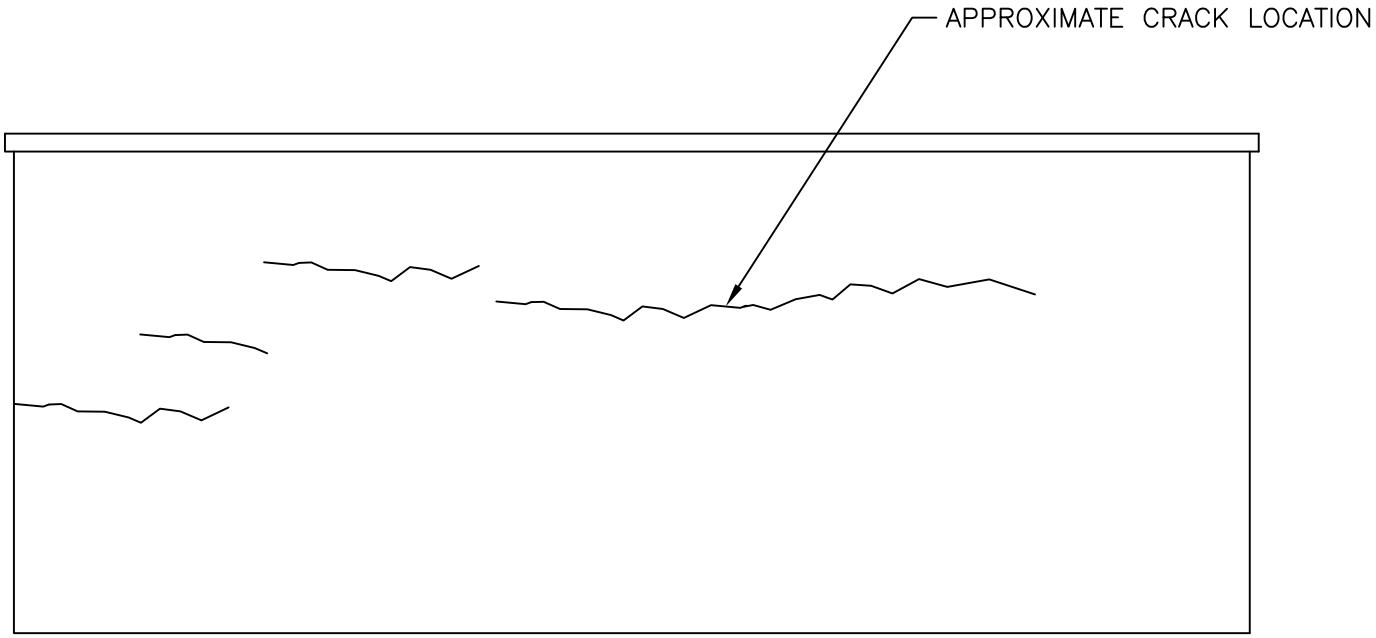
PROJECT

WTP 3 EAST DOME
City Project Number: 20-0012-UT
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-6
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



EAST SECTOR ELEVATION

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PROJECT

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Clearwater, Florida

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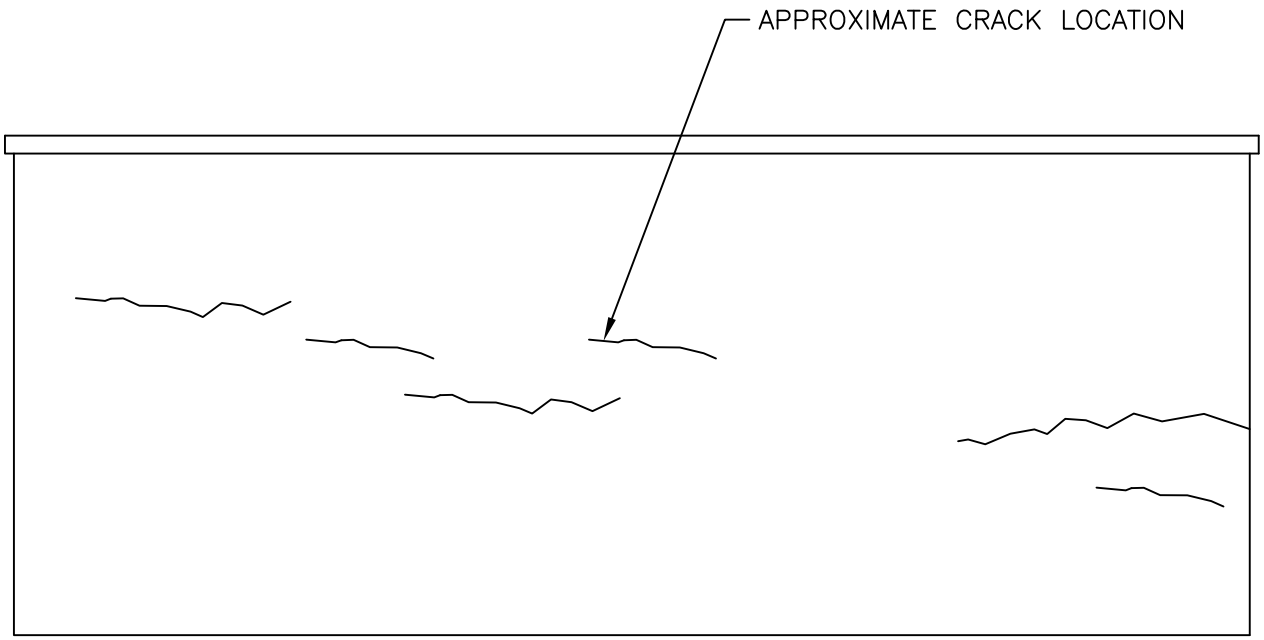
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



SOUTHEAST SECTOR ELEVATION

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PROJECT

WTP 3 EAST DOME
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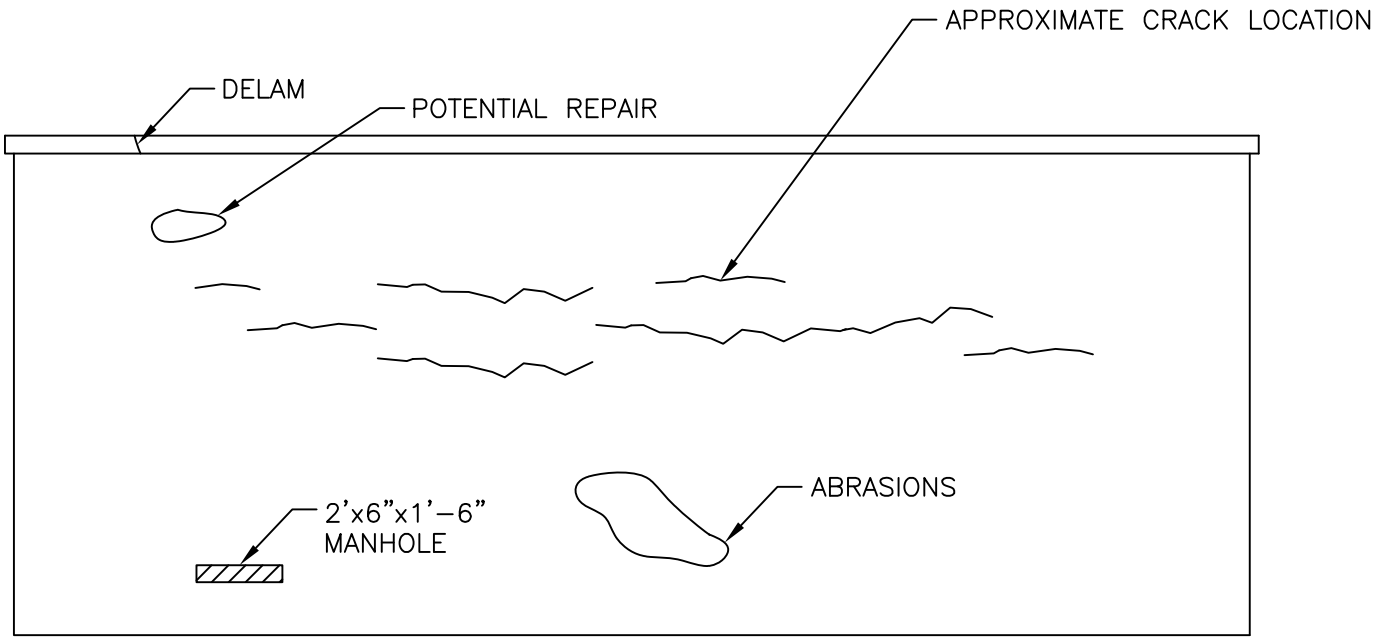
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-8
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



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PROJECT

WTP 3 EAST DOME
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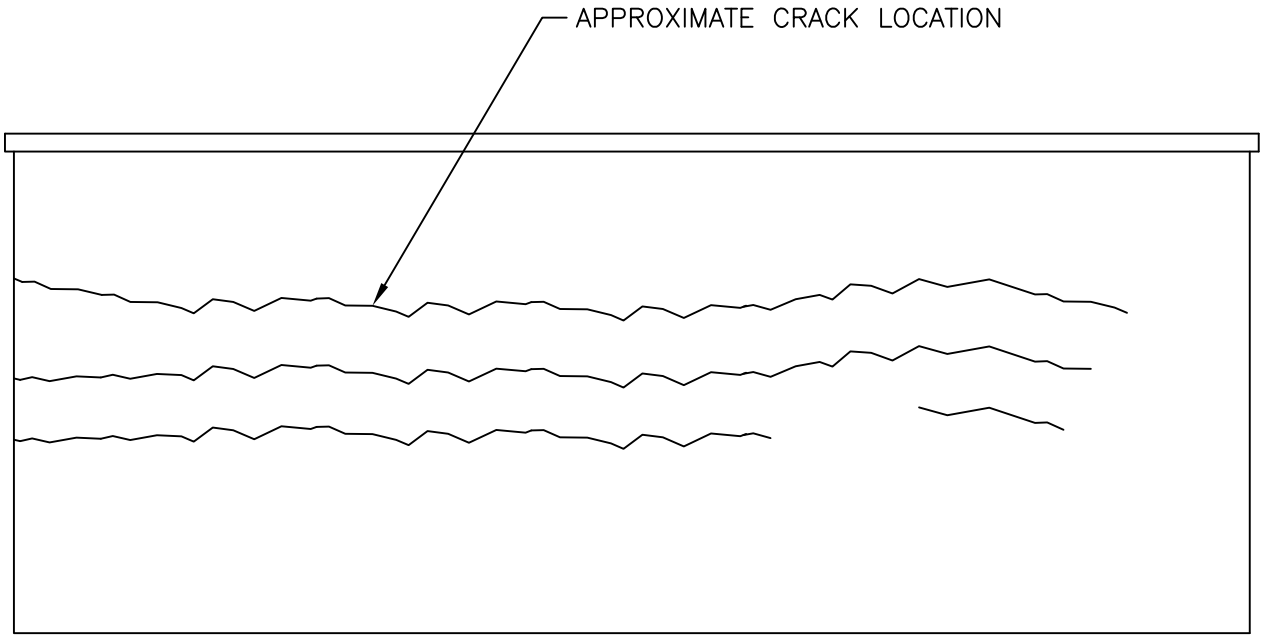
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-9
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



SOUTHWEST SECTOR ELEVATION

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PROJECT

WTP 3 EAST DOME
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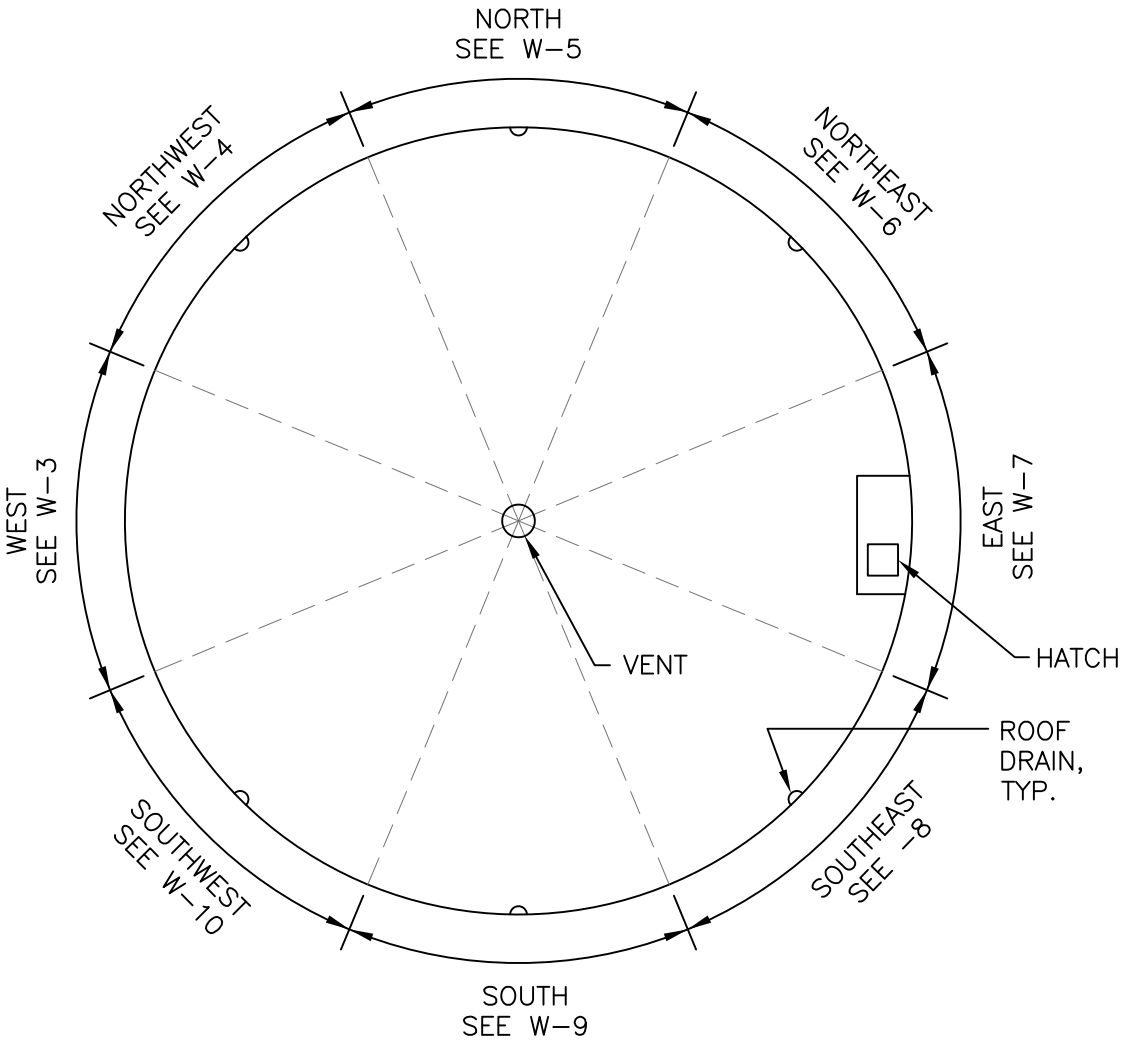
Clearwater, Florida

DES. BY B.W.	SHT. NO. E-10
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



1 / W-1 WEST TANK ROOF PLAN

NOT TO SCALE

N

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Clearwater, Florida

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DWN. BY R.C.	
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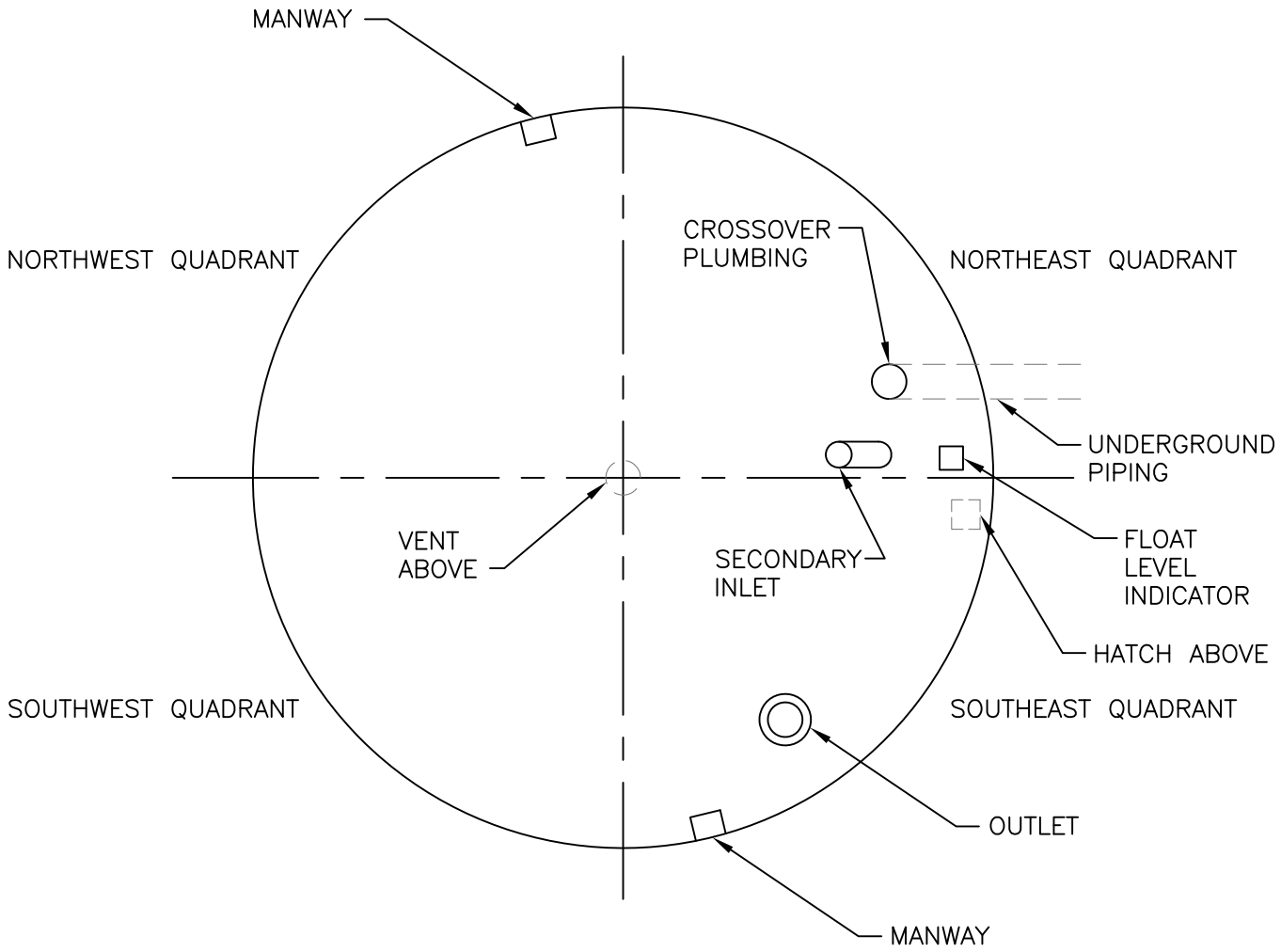

1 / W-2 WEST TANK INTERIOR PLAN

NOT TO SCALE

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DWN. BY R.C.	
JOB NO.	20-222
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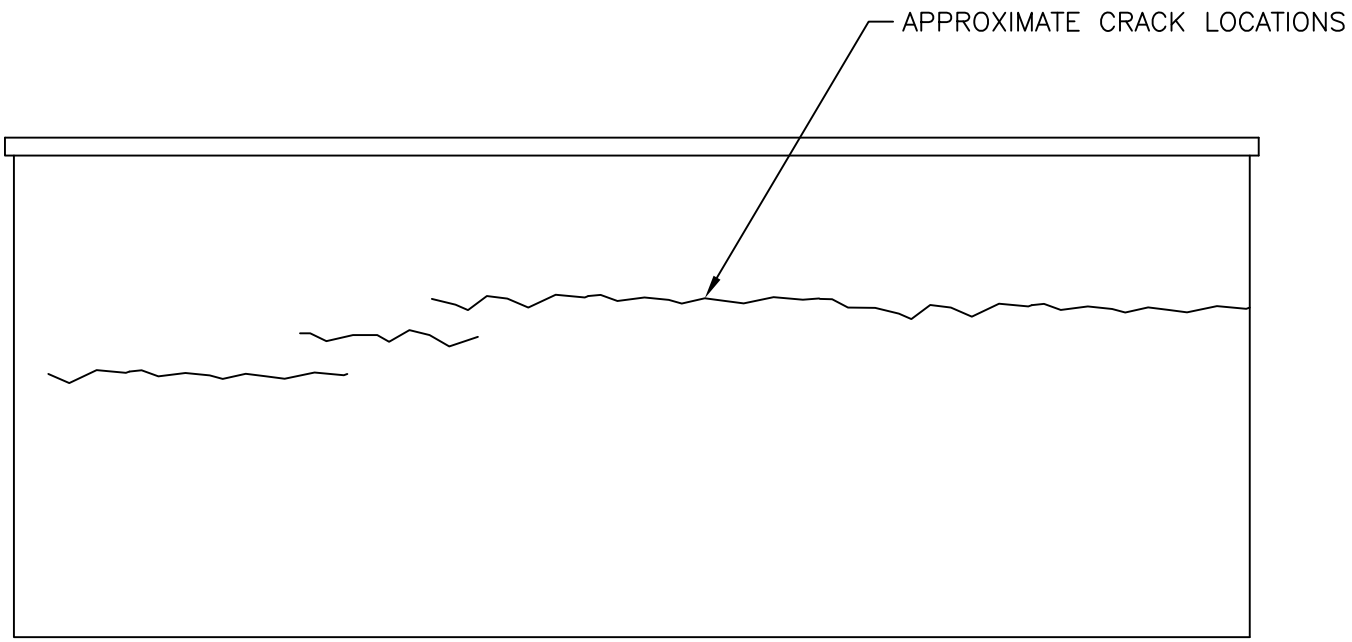

WEST SECTOR ELEVATION

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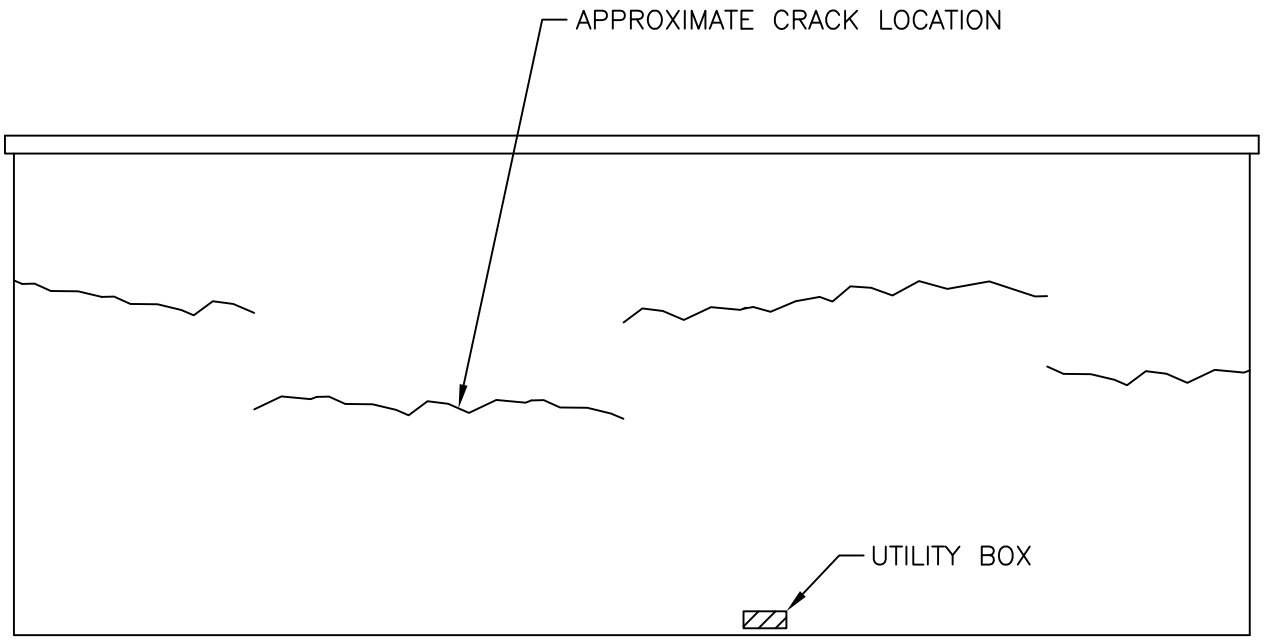

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DWN. BY R.C.	
JOB NO.	20-222
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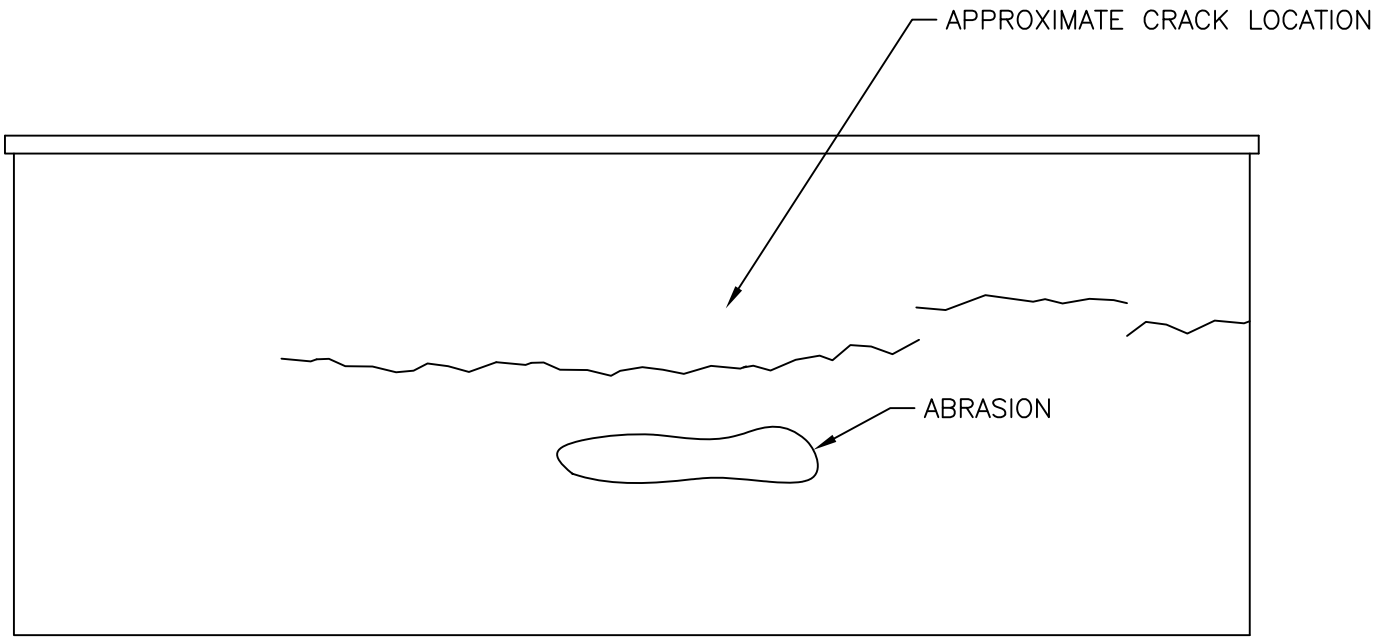

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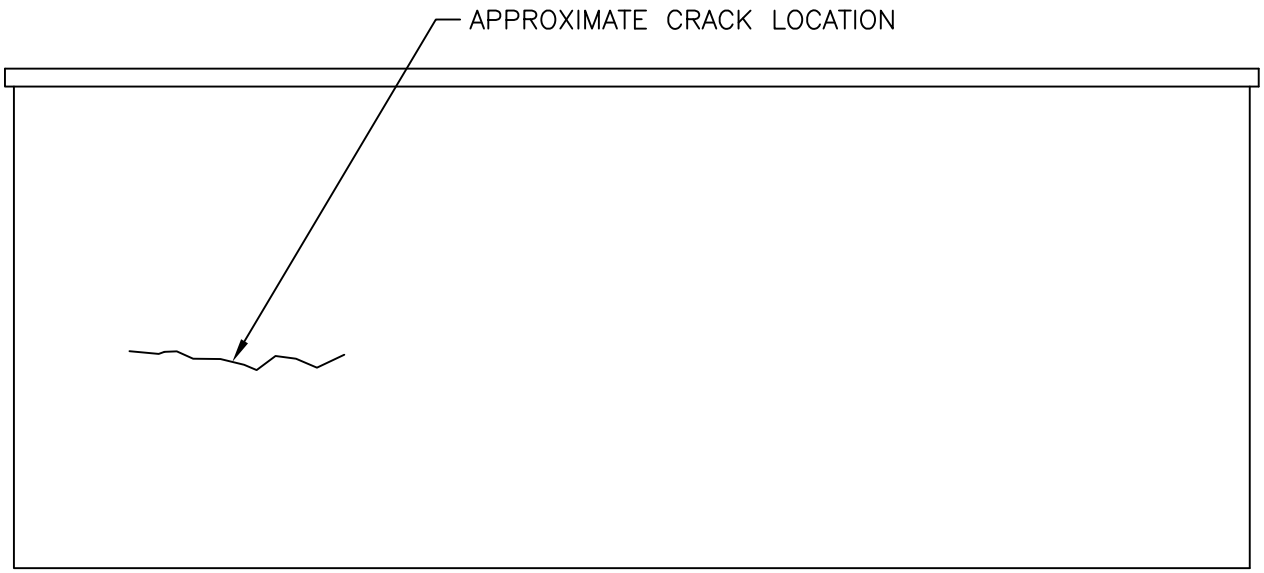
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



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DWN. BY R.C.	
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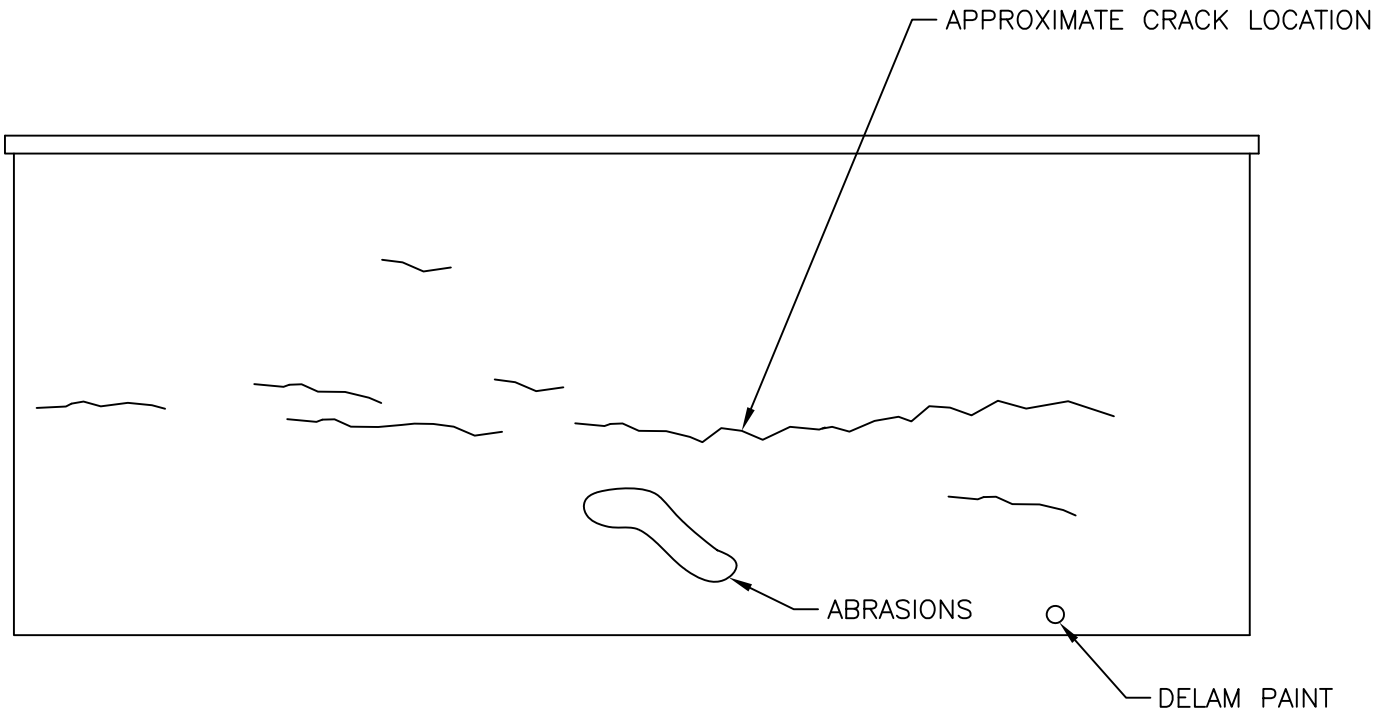
DATE	03-22-21



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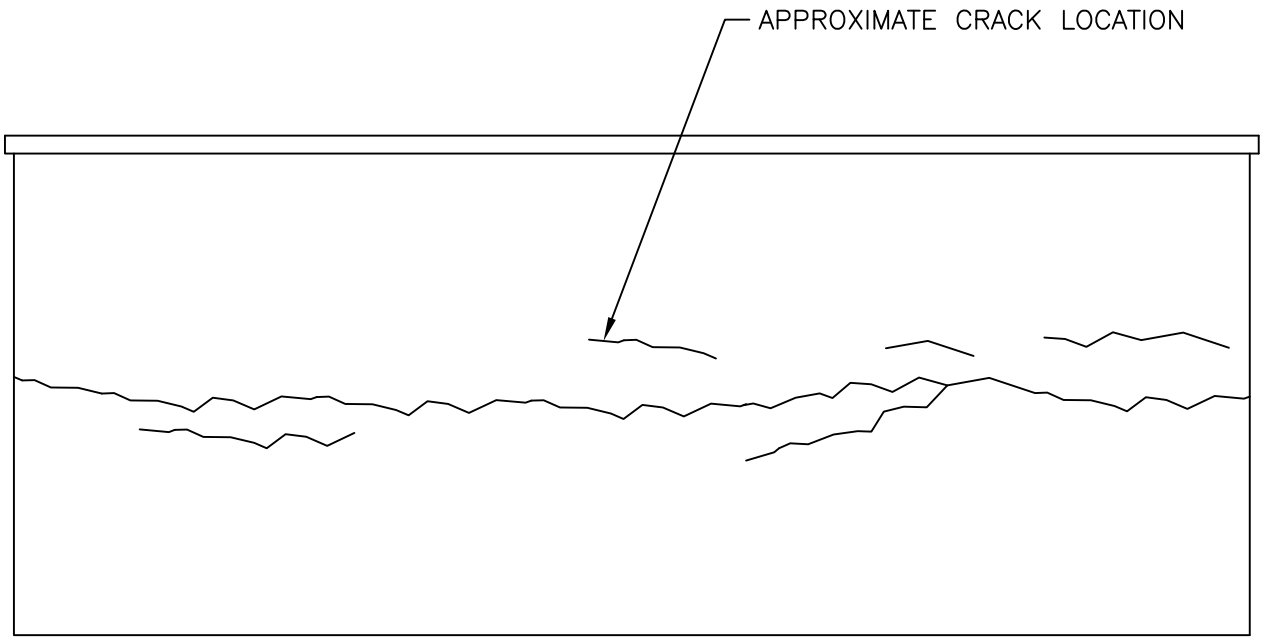
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



SOUTHEAST SECTOR ELEVATION

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PROJECT

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DWN. BY R.C.	
JOB NO.	20-222
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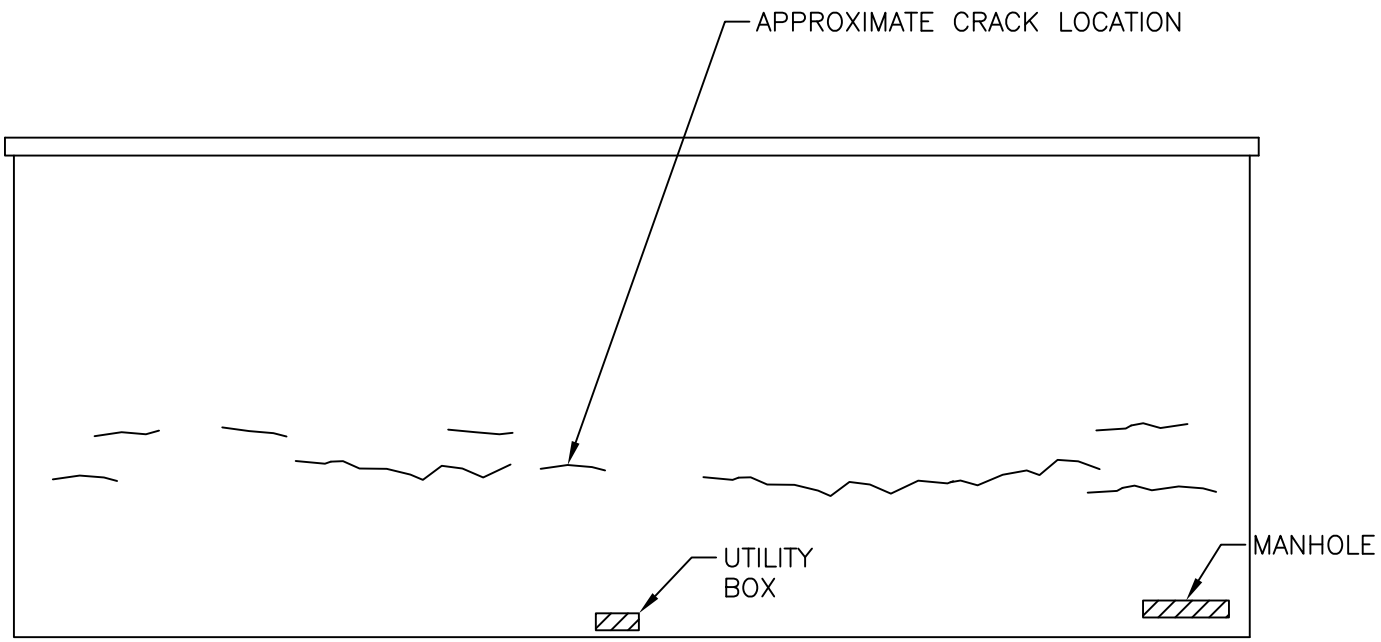

SOUTH SECTOR ELEVATION

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PROJECT

WTP 3 WEST DOME
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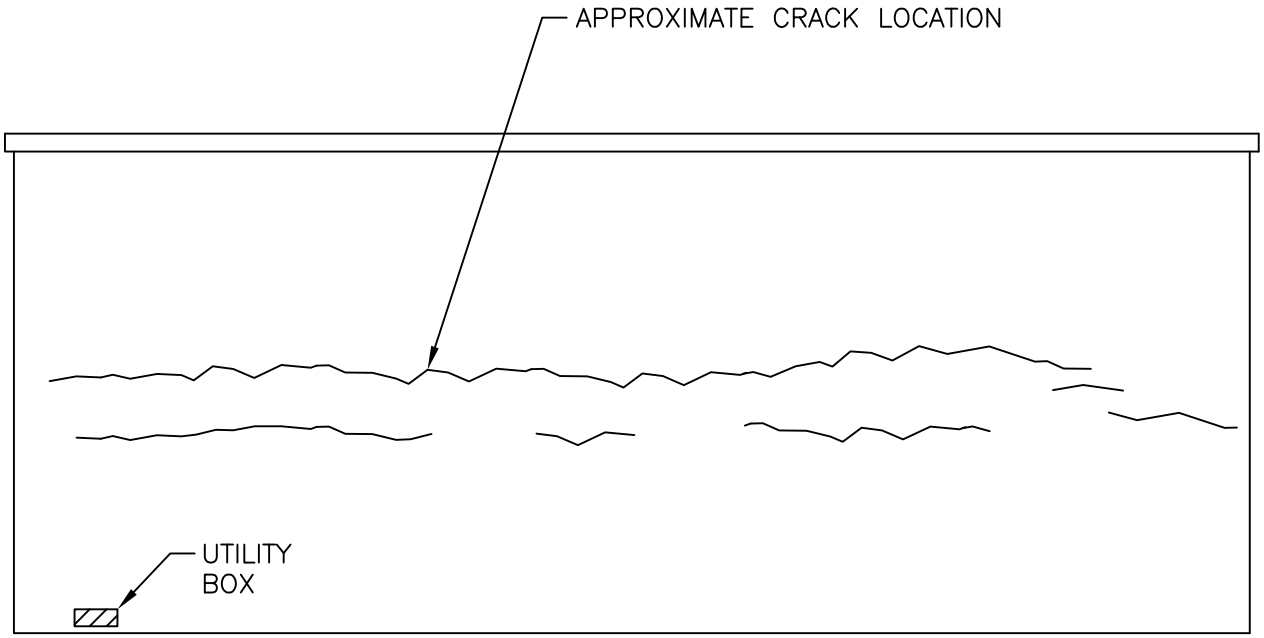
Clearwater, Florida

DES. BY B.W.	SHT. NO. W-9
DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21



SOUTHWEST SECTOR ELEVATION

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PROJECT

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Clearwater, Florida

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DWN. BY R.C.	
JOB NO.	20-222
DATE	03-22-21

Appendix D

East Tank Interior Observations (based on video recordings)

Figure D-1

Figure D-2

Figure D-3

Figure D-4

Figure D-5

Figure D-6

Figure D-7

Figure D-8

Figure D-9

Figure D-10

Figure D-11

Figure D-12

Figure D-13

Figure D-14

Figure D-15

Appendix E

West Tank Interior Observations (based on video recordings)

Figure E-1

Figure E-2

Figure E-3

Figure E-4

Figure E-5

Figure E-6

Figure E-7

Figure E-8

Appendix F

In-Depth Inspection Reports
(for their April 15, 2020 Inspection)

In Depth Inc.
555 W. Granada Blvd Suite E12
Ormond Beach, FL 32174
(386) 202-2771

In-Depth Inspection Report for

City of Clearwater

Clearwater, FL

WTP #3 **East GST**

5,000,000 Gallons **Concrete On-Grade**

Constructed Date: 1977

Inspection Date: 4/15/20

Person Completing Report: Z.R.

Supervisor: Z.R.

Team: Alpha

Engineer: R.N.

Scope of Work:

Our Dive team has performed and completed a full in water clean/sediment removal to the previously referenced tank. Sediment depths, ranging from **1/16" - 3.5"**, were removed from the tanks floor and/ or walls. Upon the completion of the cleaning services, our surveying crew and inspection team has taken this structure under full evaluation (internally & externally) to prepared an "In Depth" visual inspection (NDT) of this referenced tank and its fixtures. The evaluation taken on the construction of this tank, complies with all related ANSI/AWWA codes (Standard C652.02). All NDT (non-destructive testing) have been performed up to code, in order to identify the structural integrity as well as the coating condition of this structure. All operable plumbing components have been inspected and evaluated within this report. All evaluations done, where performed in according to American Water Works Association (AWWA), NACE, SSPC, ASNT, ACI and AWS standards under the guidance of OSHA, DEP, and EPA regulations. Utilizing the necessary and proper procedures, the tank has been left internal in sanitary condition. Elements found prior to clean as well as details of the inspection and its findings have been included within the report below.

Summary of the Inspection:

Exterior Inspection

1. Easy access to tank w/ locked and secured perimeter
2. Locked access hatch & vandal guard w/ safety handrail system on roof
3. Heavy mildew staining w/ minor chalking & minor cracking noted throughout roof & walls
4. Nearby tree branches / shrubs within close contact of tank walls & roof
5. Tank equipped w/ screen enclosed aeration system penetration through center roof

Interior Inspection

1. Inlet pipe penetrates through roof of tank into aeration system through down-comer pipes
2. Secondary inlet & cross-over plumbing components penetrates through floor (see map)
3. Unlocalized unevenness & concrete over-pour present throughout tank floor
4. Moderate to heavy spalling noted on roof w/ moderate exposed reinforcements
5. Tank equipped w/ concrete baffle wall across diameter of tank
6. Heavy blistering present throughout baffle wall (micro - large)
7. Minor small pop-outs / hairline & shrinkage cracking present on tank outer walls
8. Pre-existing signs of coating noted throughout outer concrete walls

Recommendations:

1. Routine Clean & Inspect every 3-5 years per AWWA recommendations & FAC Rule 62-555.350
2. Repair spalling & exposed reinforcements throughout interior roof
3. Pressure was exterior surfaces to remove mildew staining
4. Trim tree branches & remove shrubs & bushes within close contact of tank walls & roof

Engineer Seal:

Robert J. Norton PE
FL Reg. No. 54750

Digitally signed by Robert Norton
Date: 2020.05.24 12:42:28 -04'00'

Key:

Excellent – Like new, no repairs needed
Good – Cosmetic problems, repair if client wants
Fair – Minor problems, repairs needed
Poor – Major problems, fix now

Tank Evaluation

Tank Security

Is the tank in a secured, gated area? Y ⊙ N ○
Are the access gates locked? Y ⊙ N ○
Is the tank equipped with a vandal guard on the access ladder(s)? Y ⊙ N ○ N/A ○
Is the vandal guard locked? Y ⊙ N ○ N/A ○
Are all of the access hatches locked? Y ⊙ N ○
Are all of the vents/discharge openings properly covered? Y ⊙ N ○
Does the tank exterior show any signs of trespass? Y ○ N ⊙
Is the area surrounding the tank well lit? Y ⊙ N ○
Are there any additional security features? Y ⊙ N ○

Description: Video surveillance

Additional Notes: - Screen enclosure throughout aeration system secured & intact (overall good condition)
- Roof access equipped w/ elevated walkway to adjacent tank.

Tank Condition

Does the tank appear to be structurally sound? Y ⊙ N ○
Are there any unprotected openings in the tank (breaches, leaks, daylight, etc.) Y ○ N ⊙
Is there any protective coating found throughout the exterior of the tank? Y ⊙ N ○ Intact? Y ⊙ N ○ N/A ○
Is there any protective coating found throughout the interior of the tank? Y ⊙ N ○ Intact? Y ⊙ N ○ N/A ○

Description: Exterior - Coating present with heavy signs of mildew staining
Interior - Coating only present on tank walls & roof with minor signs of failure

Tank Cleaning

Sediment depth before cleaning: 1/16" - 3.5" Sediment type: Iron / Manganese / Lime / Sand
List any objects found inside the tank during cleaning that may have introduced contamination:

- D-alloyed metal fragments (removed during clean)

Additional Pictures

Construction plaque

Tree coming in contact w/ tank

Wall Panel Condition

Concrete / Coating Condition:
Signs of Leaking? Y○ N⊙
Coating Present? Y⊙ N○
☐ De-lamination: N/A
☐ Abrasion: N/A
☑ Pop-outs/Spalling: Minor — Type: Small
☐ Scaling: N/A
☐ Unevenness: N/A
☑ Cracking: Minor — Type: Shrinkage / Hairline
☐ Growth: N/A — Type: None
☑ Staining: Moderate — Type: Mildew
☐ Exposed Aggregate: N/A
☐ Exposed Reinforcement: N/A
☐ Erosion: N/A
Seams/Joints Condition: Excellent to Good

Corrosion:
☑ None: N/A
☐ Uniform Surface Corrosion: N/A
☐ Concentrated Cell Corrosion: N/A
☐ Rust Noduling/Pitting: N/A
☐ Galvanic: N/A
☐ De-alloying: N/A
☐ Intergranular: N/A
☐ Stress Corrosion Cracking: N/A
☐ Erosion Corrosion: N/A
Overall Condition: Good
Additional Notes:
- Bushes / trees coming in contact w/ walls
- Consistent ratings throughout
- Moderate mildew staining present
- Minor to moderate cracking noted throughout
- Minor small pop-outs present

Access Ladder Condition

Ladder Type: Aluminum welded
OSHA Adherence? Y⊙ N○
Vandal Guard Present? Y⊙ N○
Locked? Y⊙ N○ N/A○
Safety Climb Type: Cage / Handrail
Coating Present? Y○ N⊙ N/A○

Ladder Condition:
☑ Oxidation: Extensive: < 1%
☐ De-lamination: N/A
☑ Staining: Minor
☐ Blistering: N/A — Type: None
☐ Chalking: N/A
☐ Checking: N/A
☐ Cracking: N/A — Type: None
☐ Pinholes: N/A
☐ Saggs/Runs: N/A
Seams/Welds Condition: Excellent to Good

Corrosion:
☐ None: N/A
☐ Uniform Surface Corrosion: N/A
☑ Concentrated Cell Corrosion: Minute: < 0.03%
☐ Rust Noduling/Pitting: N/A — Depth: N/A
☐ Galvanic: N/A
☐ De-alloying: N/A
☐ Intergranular: N/A
☐ Stress Corrosion Cracking: N/A
☐ Erosion Corrosion: N/A

Standoff Supports Condition: Excellent to Good
Overall Condition: Excellent to Good
Additional Notes:
- No protective coating present
- Minimal discrepancies to be noted
- Minor corrosion isolated on hardware
- Equipped w/ elevated walkway to adjacent tank
- Roof access equipped w/ safety handrail

Foundation Condition

Foundation Exposed? Y ○ N ●
Coating Present? Y ○ N ○ N/A ●

Concrete Condition:

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☐ Pop-outs/Spalling: N/A — Type: None
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Staining: N/A — Type: None
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: N/A

Anchor Bolts Present? Y ○ N ●
Anchor Bolts Loose? Y ○ N ○ N/A ●

Corrosion on Anchor Bolts:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: * Buried foundation, unable to evaluate *

Float Level Indicator Condition

Pulley Condition: Good
Attached Properly? Y ● N ○

Cable Condition: Good
Attached Properly? Y ● N ○

Overall Hardware Condition: Good

Hardware Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: None, or < 0.01%
- ☑ Concentrated Cell Corrosion: None, or < 0.01%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Marker Condition: Excellent to Good
Attached & Accurate? Y ● N ○

Marker Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Excellent to Good

Additional Notes:
- Attached & accurate reading
- Minor mildew staining present throughout
- Minor organic growth noted
- Constructed of fiberglass

☑

Roof Condition

Roof Type: Domed
Dents/Low Spots? Y ○ N ●
Signs of Leaking? Y ○ N ●
Coating Present? Y ● N ○

Concrete / Coating Condition:

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☑ Pop-outs/Spalling: Minor — Type: Bug-holing
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☑ Cracking: Minor — Type: Hairline
- ☐ Growth: N/A — Type: None
- ☑ Staining: Moderate — Type: Mildew / Corrosive
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: Excellent to Good

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Cathodic Protection Plates Present? Y ○ N ●

Overall Condition: Good

Additional Notes:
- Roof equipped w/ six(6) "frog-eye" style overflows
- Equipped w/ aeration system & safety handrails
- Moderate to heavy mildew & sediment staining noted
- Moderate to heavy chalking present throughout
- Equipped w/ aeration system penetrating through roof

Vent Condition

Vent Type:
Downturn: Y ● N ○ N/A ○
Vent cap condition: Excellent to Good
Is the vent covered with screening? Y ● N ○
Type: Fine Mesh
Vent screen condition: Good to Fair
Are all openings sealed? Y ● N ○ N/A ○

Coating Condition:

- ☑ Oxidation: Extensive: < 1%
- ☐ De-lamination: N/A
- ☑ Staining: Minor — Type: Mildew / Corrosive
- ☐ Blistering: N/A
- ☑ Chalking: Heavy
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Few Isolated: < 0.3%
- ☑ Concentrated Cell Corrosion: Minute: < 0.03%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Tank equipped w/ two(2) main vents
- Aerator system also functions as a vent
- Anchor bolts loose on north vent (loosely secured)
- Minor mildew & corrosive staining noted
- Heavy chalking present throughout
- Corrosion isolated on hardware / screens
- Vent cap constructed of fiberglass

☑

Access Hatch Condition

Hatch Type: Square
Hatch Size: Approx. 36" x 36"
Riser Height: Approx. 6"
Hatch Locked? Y ⊙ N ○
Hinge Condition: Good
Gasket Present & Intact? Y ⊙ N ○
Does hatch have shoe box lid? Y ⊙ N ○
Dents/Low Spots/ Holes? Y ○ N ⊙
Signs of Leaking? Y ○ N ⊙

Coating Condition:

- ☑ Oxidation: Extensive: < 1%
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Mildew / Corrosive
- ☐ Blistering: N/A
- ☑ Chalking: Heavy
- ☑ Cracking: Heavy — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Few Isolated: < 0.1%
- ☑ Concentrated Cell Corrosion: Minute: < 0.03%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Seams/Welds Condition: Good
Insects, Dirt or Debris Present Under Hatch? Y ○ N ⊙
Any irregularities or structural deficiencies? Y ⊙ N ○
Description: Spalling & exposed reinforcements on concrete riser

Overall Condition: Fair

Additional Notes:
- Access hatch constructed or fiberglass
- Minor corrosion localized on hardware
- Heavy mildew staining & chalking noted throughout
- Equipped w/ safety handrail system
- Heavy cracking on riser w/ severe concrete spalling

Manway Condition

Coating Condition:

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☑ Staining: Minor — Type: Mildew
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seam/Welds Condition: Excellent

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Excellent

Additional Notes:
- Tank equipped w/ two(2) manways
- Both manways share equivalent ratings
- Minimal discrepancies to be noted
- Minor to moderate mildew staining throughout

☑

Overflow Structure Condition

Coating / Concrete Condition:

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☑ Pop-outs/Spalling: Minor — Type: Small
- ☐ Scaling: N/A
- ☑ Cracking: Minor — Type: Hairline
- ☑ Growth: Minor — Type: Organic
- ☑ Staining: Minor — Type: Mildew / Corrosive
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Corrosion:

- ☐ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☑ Concentrated Cell Corrosion: Minute: < 0.03%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Number of Overflows: Six (6)
Seams/Welds Condition: Good to Fair
Stand-off Supports Condition: N/A
Coating Present? Y ⊙ N ○ Intact? Y ⊙ N ○ N/A ○

Discharge Opening(s):

End Cap Sealed Properly? Y ○ N ○ N/A ⊙
Duckbill Valve Sealed Properly? Y ○ N ○ N/A ⊙
Flapper Valve Sealed Properly? Y ○ N ○ N/A ⊙
Screen 24 Mesh? Y ⊙ N ○ If no, size: N/A
Directly Connected to Sewer or Storm Drain? Y ○ N ⊙
Any Obstructions of Water Flow? Y ○ N ⊙
Height Above Ground for Discharge: Approx. 26'
Is Discharge Spot Adequate? Y ⊙ N ○

Overall Condition: Good to Fair
Additional Notes:

- Tank equipped w/ six(6) "frog-eye" style overflows
- All overflows share consistent ratings
- Minor saggs & runs present throughout
- Minor to moderate mildew staining noted
- Minor to moderate hairline cracking present
- Corrosion isolated on hardware

In Depth Inc.
Interior Inspection Report

Roof Condition

Concrete Condition: Coating Present? Y ○ N ⊙

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☑ Pop-outs/Spalling: Moderate — Type: Small & Large
- ☐ Scaling: N/A
- ☑ Unevenness: Moderate
- ☐ Cracking: N/A — Type: None
- ☑ Growth: Minor — Type: Mineral
- ☑ Staining: Minor — Type: Moisture / Corrosive
- ☐ Exposed Aggregate: N/A
- ☑ Exposed Reinforcement: Moderate
- ☐ Erosion: N/A

Seams/Joints Condition: Excellent to Good

Any irregularities or structural deficiencies? Y ⊙ N ○

Description: Large sized spalling

Corrosion:

- ☐ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☑ Concentrated Cell Corrosion: Extensive: < 1%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good to Fair

Additional Notes:
- Repairs noted throughout roof (some failed)
- Moderate to heavy concrete spalling present
- Moderate exposed reinforcements noted
- Heavy bug-holing present throughout
- Corrosion isolated on exposed reinforcements

Ladder Condition

Ladder Location: 12:00

Ladder Condition: Coating Present? Y ⊙ N ○

- ☑ Oxidation: None, or < 0.01%
- ☐ De-lamination: N/A
- ☑ Staining: Moderate
- ☐ Blistering: N/A — Type: None
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Excellent to Good

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: None, or < 0.01%
- ☑ Concentrated Cell Corrosion: None, or < 0.01%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Excellent to Good

Additional Notes:
- Fiberglass ladder w/ gel coating
- No safety climb present
- Minimal discrepancies to be noted
- Moderate sediment staining present

Floor Condition

Concrete Condition: Coating Present? Y ⊙ N ○

- ☑ De-lamination: To Extent of 3%
- ☑ Abrasion: Extensive: < 1%
- ☑ Pop-outs/Spalling: Minor — Type: Small
- ☑ Scaling: Minor
- ☑ Unevenness: Minor
- ☑ Cracking: Minor — Type: Hairline
- ☐ Growth: N/A — Type: None
- ☑ Staining: Moderate — Type: Sediment
- ☑ Exposed Aggregate: Minor
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Any identified signs of leaking? Y ○ N ⊙

Seams/Joints Condition: Good

Sediment depth: 1/4" - 3.5"

Any irregularities or structural deficiencies? Y ○ N ⊙

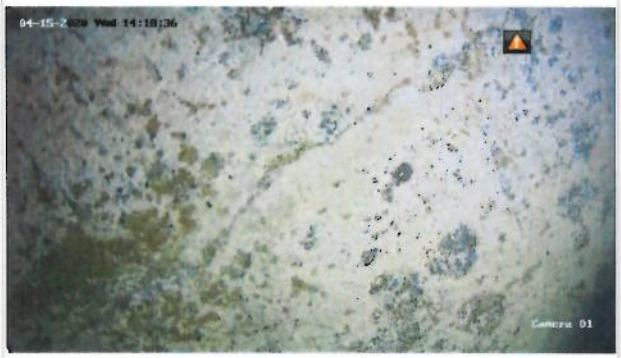
Description: N/A

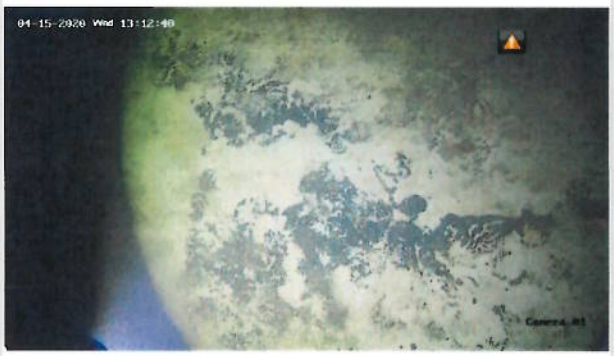
Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Consistent ratings throughout
- Unlocalized unevenness & concrete over-pour noted
- Sloped perimeter / floor to wall seams
- Coating present in unlocalized areas throughout
- Moderate sediment staining present
- Minor exposed aggregate & hairline cracking
- Minor scaling / small pop-outs noted





Drain Condition

Drain Location: N/A

Coating: Y ○ N ⊙

Drain Condition:

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☐ Staining: N/A — Type: None
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: * None noted *
- Outlet / cross-over multi-functions as drain

N/A

☑

Wall Condition

Concrete Condition: Coating Present? Y ◉ N ○

- ☑ De-lamination: Approx. 17%
- ☑ Abrasion: Extensive: < 1%
- ☑ Pop-outs/Spalling: Minor — Type: Small
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☑ Cracking: Minor — Type: Shrinkage / Hairline
- ☑ Growth: Minor — Type: Mineral
- ☑ Staining: Moderate — Type: Sediment
- ☑ Exposed Aggregate: Moderate
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A
- ☑ Saggs/Runs: Minor

Seams/Joints Condition: Good to Fair

Is biofilm present? Y ○ N ◉

Any irregularities or structural deficiencies? Y ○ N ◉

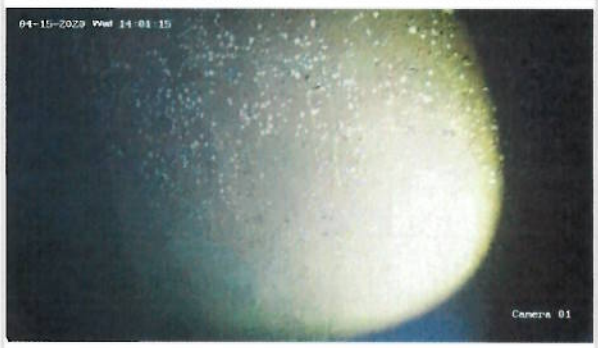
Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Concrete block baffle wall (9:15 closed - 3:15 open)
- Heavy blistering noted on baffle wall (micro-large)
- Coating failure present on exterior walls
- Minor to moderate small pop-outs noted
- Checking & cracking noted throughout coating
- Moderate sediment staining present
- Moderate exposed aggregate noted



Float Condition

Float Location: 12:15

Float Condition: Good

Float Sealed? Y ◉ N ○

Guidelines Condition: Good

Attached Properly? Y ◉ N ○

Cable Condition: Good

Attached Properly? Y ◉ N ○

Hardware Condition: Good

Coating Condition: Good

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: None, or < 0.01%
- ☑ Concentrated Cell Corrosion: Extensive: < 1%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Constructed of fiberglass w/ gel coating
- Attached & accurate
- Guide wires properly anchored to dead-weights
- Corrosion localized on hardware
- Minor sediment / corrosive staining

☑

Inlet Condition

Common Inlet/Outlet? Y○ N◉
Inlet Location: Center

Inlet Condition: Coating Present? Y◉ N○

- ☑ Oxidation: To Extent of 3%
- ☐ De-lamination: N/A
- ☑ Staining: Moderate — Type: Sediment / Corrosive
- ☐ Blistering: N/A
- ☑ Chalking: Minor
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☑ Saggs/Runs: Minor

Seams/Welds Condition: Good
Vortex Plate/Trash Rack Present? Y○ N◉

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Extensive: < 1%
- ☑ Concentrated Cell Corrosion: Extensive: < 1%
- ☑ Rust Noduling/Pitting: Few Isolated: < 0.3% — Depth: 1/16"
- ☐ Galvanic: N/A
- ☑ De-alloying: Minute: < 0.03%
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☑ Erosion Corrosion: Minute: < 0.03%

Overall Condition: Good

Additional Notes:
- Primary inlet penetrates through floor & roof
- Secondary inlet penetrates through floor (12:05)
- Primary inlet equipped w/ two(2) down-comer pipes
- Minor to moderate saggs & runs(heavier on flanges)
- Minor corrosion(< 1%) / staining on secondary inlet

Outlet Condition

Outlet Location: 9:20

Outlet Condition: Coating Present? Y○ N◉

- ☑ Oxidation: Approx. 100%
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Corrosive / Sediment
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☑ Checking: Moderate
- ☑ Cracking: Moderate — Type: Coating failure
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Good to Fair
Trash Rack Present? Y◉ N○ N/A○

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Approx. 50%
- ☑ Concentrated Cell Corrosion: To Extent of 10%
- ☑ Rust Noduling/Pitting: Approx. 17% — Depth: 1/16"
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☑ Erosion Corrosion: To Extent of 3%

Overall Condition: Fair

Additional Notes:
- Outlet penetrates into floor (ratings above)
- Heavy corrosion localized throughout component
- Equipped w/ vortex plate cover
- Tank equipped w/ secondary crossover outlet
- Minor sediment staining & corrosion on crossover

Support Column Condition

Number of Columns: None

Column Condition: Coating Present? Y ○ N ○

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☐ Pop-outs/Spalling: N/A — Type: None
- ☐ Scaling: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Staining: N/A — Type: None
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: N/A

Any irregularities or structural deficiencies? Y ○ N ⊙

Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: *None noted*

N/A

Overflow Condition

Overflow Location: * See Map *

Overflow Condition: Coating Present? Y ⊙ N ○

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☐ Staining: N/A — Type: N/A
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☑ Cracking: Minor — Type: Hairline
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Good

Is anything blocking the flow? Y ○ N ⊙

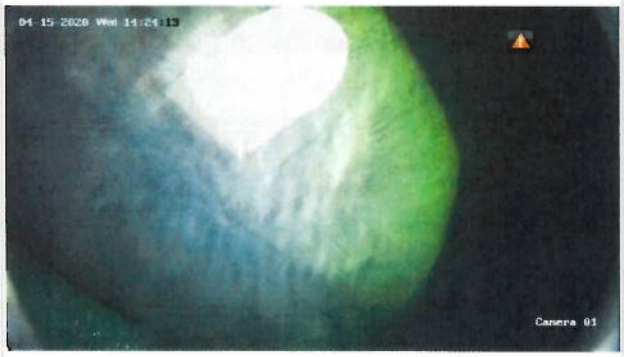
Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Tank equipped w/ six(6) "frog-eye" style overflows
- All overflows share equivalent ratings
- Minimal discrepancies to be noted
- Minor hairline cracking present throughout housing



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Manway Condition

Manway Location: 3:45 & 9:45

Manway Condition: Coating Present? Y ⊙ N ○

- ☑ Oxidation: To Extent of 10%
- ☐ De-lamination: N/A
- ☑ Staining: Moderate — Type: Sediment / Corrosive
- ☑ Blistering: Heavy
- ☑ Chalking: Minor
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☑ Saggs/Runs: Heavy

Seam/Welds Condition: Good

Gasket Condition: Excellent to Good

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: To Extent of 10%
- ☑ Concentrated Cell Corrosion: Extensive: < 1%
- ☑ Rust Noduling/Pitting: To Extent of 3% — Depth: 1/16"
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Both manways(2) share equivalent ratings
- Coating present only on manway insert
- Rust noduling isolated on seams
- Heavy saggs & runs / blistering present throughout

Additional Pictures

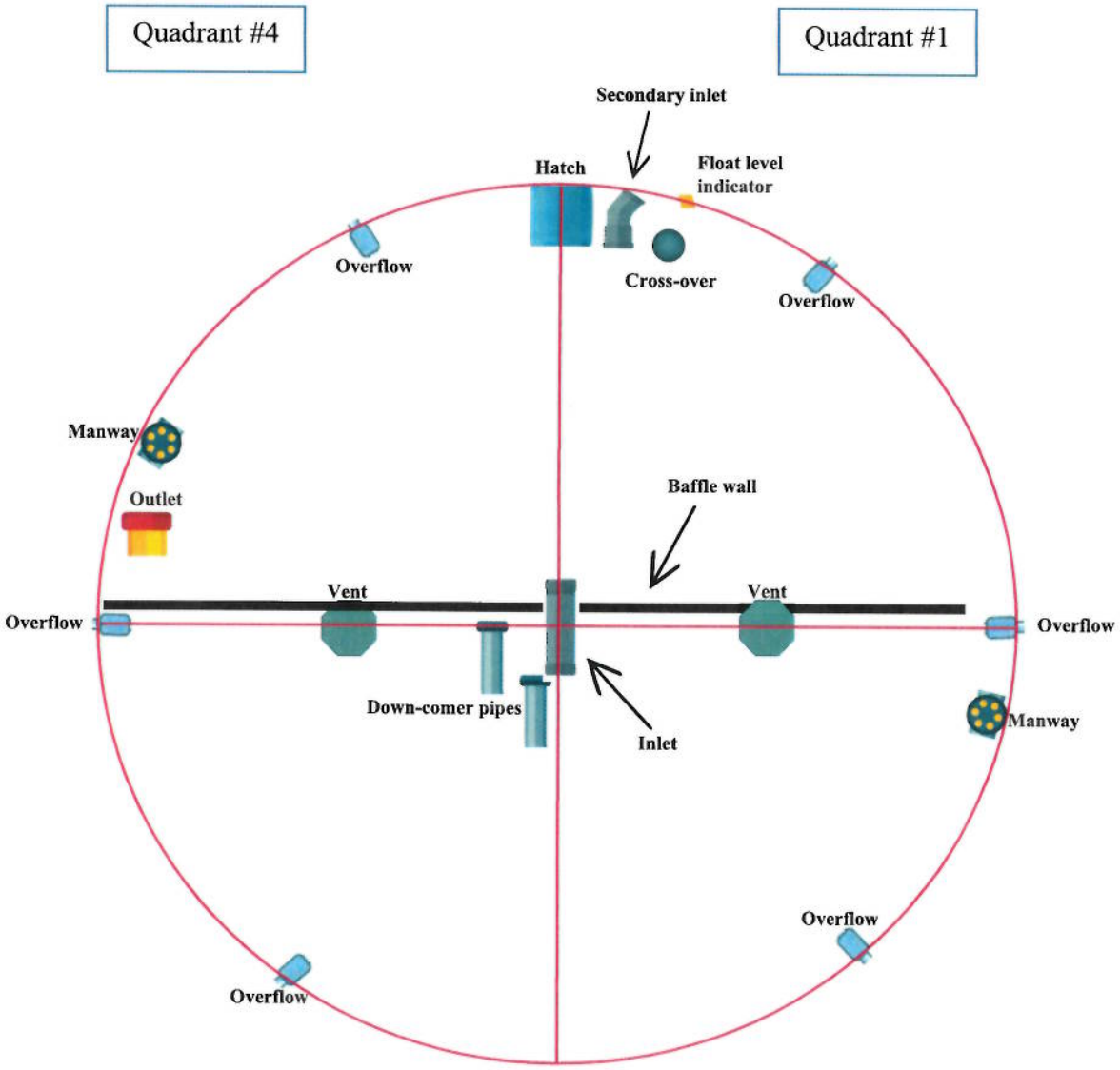
External aeration system

Cross-over plumbing component

Opening of down-comer pipe

Secondary inlet

Tank Layout


Quadrant #4
Quadrant #1
Secondary inlet
Hatch
Float level indicator
Overflow
Cross-over
Overflow
Manway
Outlet
Baffle wall
Vent
Vent
Overflow
Overflow
Down-comer pipes
Inlet
Manway
Overflow
Overflow
Quadrant #3
Quadrant #2

In Depth Inc.
555 W. Granada Blvd Suite E12
Ormond Beach, FL 32174
(386) 202-2771

In-Depth Inspection Report for

City of Clearwater

Clearwater, FL

WTP #3 **West GST**

5,000,000 Gallons **Concrete On-Grade**

Constructed Date: 1977

Inspection Date: 4/19/20

Person Completing Report: Z.R.

Supervisor: Z.R.

Team: Alpha

Engineer: R.N.

Scope of Work:

Our Dive team has performed and completed a full in water clean/sediment removal to the previously referenced tank. Sediment depths, ranging from **1/4"**, were removed from the tanks floor and/ or walls. Upon the completion of the cleaning services, our surveying crew and inspection team has taken this structure under full evaluation (internally & externally) to prepared an "In Depth" visual inspection (NDT) of this referenced tank and its fixtures. The evaluation taken on the construction of this tank, complies with all related ANSI/AWWA codes (Standard C652.02). All NDT (non-destructive testing) have been performed up to code, in order to identify the structural integrity as well as the coating condition of this structure. All operable plumbing components have been inspected and evaluated within this report. All evaluations done, where performed in according to American Water Works Association (AWWA), NACE, SSPC, ASNT, ACI and AWS standards under the guidance of OSHA, DEP, and EPA regulations. Utilizing the necessary and proper procedures, the tank has been left internal in sanitary condition. Elements found prior to clean as well as details of the inspection and its findings have been included within the report below.

Summary of the Inspection:

Exterior Inspection

1. Easy access to tank w/ locked and secured perimeter
2. Locked access hatch & vandal guard w/ safety handrail system on roof
3. Heavy mildew staining w/ minor chalking noted throughout roof & walls
4. Nearby tree branches within close contact of tank walls & roof

Interior Inspection

1. Protective coating present throughout concrete surfaces of tank walls and roof only
2. Both manways (2) suffer from severe corrosion, coating failure, & mineral growth
3. Heavy pop-outs & spalling present throughout roof exposing reinforcements in concrete
4. Moderate sediment staining / minor unevenness & small pop-outs noted throughout floor
5. Heavy sediment staining present on walls w/ moderate blistering & coating failure
6. Minor hairline & shrinkage cracking present throughout tank walls
7. Heavy corrosion / rust noduling with coating failure noted throughout plumbing components

Recommendations:

1. Routine Clean & Inspect every 3-5 years per AWWA recommendations & FAC Rule 62-555.350
2. Repair spalling & exposed reinforcements throughout interior roof
3. Replace both manway covers & rehabilitated plumbing components
4. Pressure was exterior surfaces to remove mildew staining
5. Trim tree branches within close contact of tank walls / roof

Engineer Seal:

Robert J. Norton PE
FL Reg. No. 54750

Digitally signed by Robert Norton
Date: 2020.05.24 12:36:28 -04'00'

Key:

Excellent – Like new, no repairs needed
Good – Cosmetic problems, repair if client wants
Fair – Minor problems, repairs needed
Poor – Major problems, fix now

Tank Evaluation

Tank Security

Is the tank in a secured, gated area? Y ⊙ N ○
Are the access gates locked? Y ⊙ N ○
Is the tank equipped with a vandal guard on the access ladder(s)? Y ⊙ N ○ N/A ○
Is the vandal guard locked? Y ⊙ N ○ N/A ○
Are all of the access hatches locked? Y ⊙ N ○
Are all of the vents/discharge openings properly covered? Y ⊙ N ○
Does the tank exterior show any signs of trespass? Y ○ N ⊙
Is the area surrounding the tank well lit? Y ⊙ N ○
Are there any additional security features? Y ⊙ N ○

Description: Video surveillance

Additional Notes: Roof access equipped w/ elevated walkway to adjacent tank

Tank Condition

Does the tank appear to be structurally sound? Y ⊙ N ○
Are there any unprotected openings in the tank (breaches, leaks, daylight, etc.) Y ○ N ⊙
Is there any protective coating found throughout the exterior of the tank? Y ⊙ N ○ Intact? Y ⊙ N ○ N/A ○
Is there any protective coating found throughout the interior of the tank? Y ⊙ N ○ Intact? Y ⊙ N ○ N/A ○

Description: Exterior - Coating present with heavy signs of mildew staining
Interior - Coating only present on tank walls & roof with minor signs of failure

Tank Cleaning

Sediment depth before cleaning: 1/4" Sediment type: Iron / Manganese / Lime / Sand

List any objects found inside the tank during cleaning that may have introduced contamination:

- **D-alloyed metal fragments (removed during clean)**
- **Small Lizard (removed during clean)**

Additional Pictures

Construction plaque

Nearby trees within close contact of tank

Wall Panel Condition

Concrete / Coating Condition:
Signs of Leaking? Y○ N◉
Coating Present? Y◉ N○
☑ De-lamination: None, or < 0.01%
☐ Abrasion: N/A
☑ Pop-outs/Spalling: Minor Type: Small
☐ Scaling: N/A
☐ Unevenness: N/A
☑ Cracking: Minor Type: Hairline
☐ Growth: N/A Type: None
☑ Staining: Moderate Type: Mildew
☐ Exposed Aggregate: N/A
☐ Exposed Reinforcement: N/A
☐ Erosion: N/A
Seams/Joints Condition: Excellent to Good

Corrosion:
☑ None: N/A
☐ Uniform Surface Corrosion: N/A
☐ Concentrated Cell Corrosion: N/A
☐ Rust Noduling/Pitting: N/A
☐ Galvanic: N/A
☐ De-alloying: N/A
☐ Intergranular: N/A
☐ Stress Corrosion Cracking: N/A
☐ Erosion Corrosion: N/A
Overall Condition: Good
Additional Notes:
- Consistent ratings throughout
- Minimal discrepancies to be noted
- Minor hairline cracking present throughout
- Moderate mildew staining noted

Access Ladder Condition

Ladder Type: Aluminum welded
OSHA Adherence? Y◉ N○
Vandal Guard Present? Y◉ N○
Locked? Y◉ N○ N/A○
Safety Climb Type: Cage / Handrail
Coating Present? Y○ N◉ N/A○

Ladder Condition:
☑ Oxidation: Extensive: < 1%
☐ De-lamination: N/A
☑ Staining: Minor
☐ Blistering: N/A Type: None
☐ Chalking: N/A
☐ Checking: N/A
☐ Cracking: N/A Type: None
☐ Pinholes: N/A
☐ Saggs/Runs: N/A
Seams/Welds Condition: Excellent to Good

Corrosion:
☐ None: N/A
☐ Uniform Surface Corrosion: N/A
☑ Concentrated Cell Corrosion: Minute: < 0.03%
☐ Rust Noduling/Pitting: N/A Depth: N/A
☐ Galvanic: N/A
☐ De-alloying: N/A
☐ Intergranular: N/A
☐ Stress Corrosion Cracking: N/A
☐ Erosion Corrosion: N/A

Standoff Supports Condition: Excellent to Good
Overall Condition: Excellent to Good
Additional Notes:
* Must use ladder on east tank then cross over *
- No protective coating present
- Minimal discrepancies to be noted
- Minor corrosion & staining isolated on hardware
- Roof access equipped with safety handrails

Foundation Condition

Foundation Exposed? Y○ N⊙
Coating Present? Y○ N○ N/A⊙

Concrete Condition:

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☐ Pop-outs/Spalling: N/A — Type: None
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Staining: N/A — Type: None
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: N/A

Anchor Bolts Present? Y○ N⊙
Anchor Bolts Loose? Y○ N○ N/A⊙

Corrosion on Anchor Bolts:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: * Buried foundation, unable to evaluate *

Float Level Indicator Condition

Pulley Condition: N/A
Attached Properly? Y○ N⊙

Cable Condition: N/A
Attached Properly? Y○ N⊙
Overall Hardware Condition: N/A

Hardware Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Marker Condition: N/A
Attached & Accurate? Y○ N⊙

Marker Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: *None noted*

N/A

Roof Condition

Roof Type: Domed
Dents/Low Spots? Y ○ N ⊙
Signs of Leaking? Y ○ N ⊙
Coating Present? Y ⊙ N ○

Concrete / Coating Condition:

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☑ Pop-outs/Spalling: Minor — Type: Small
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☑ Staining: Heavy — Type: Mildew
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: Excellent to Good

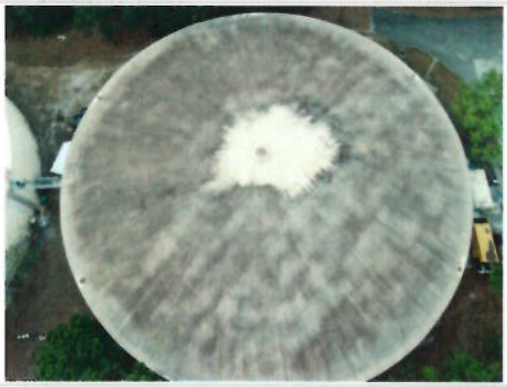
Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Cathodic Protection Plates Present? Y ○ N ⊙

Overall Condition: Excellent to Good

Additional Notes:
- Equipped w/ safety rail around access hatch
- Equipped w/ six (6) "frog-eye" style overflows
- Rating consistent throughout
- Heavy mildew staining present throughout
- Minor to moderate chalking noted



Vent Condition

Vent Type:
Downturn: Y ⊙ N ○ N/A ○
Vent cap condition: Good
Is the vent covered with screening? Y ⊙ N ○
Type: Fine mesh
Vent screen condition: Good to Fair
Are all openings sealed? Y ⊙ N ○ N/A ○

Coating Condition:

- ☑ Oxidation: Extensive: < 1%
- ☐ De-lamination: N/A
- ☑ Staining: Minor — Type: Mildew / Corrosive
- ☐ Blistering: N/A
- ☑ Chalking: Heavy
- ☐ Checking: N/A
- ☑ Cracking: Minor — Type: Hairline
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Few Isolated: < 0.1%
- ☑ Concentrated Cell Corrosion: Minute: < 0.03%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Minor deterioration noted present on screen
- Corrosion isolated on hardware / screen
- Vent cap constructed of fiberglass w/ coating
- Minor hairline cracking noted on riser
- Heavy chalking present on vent cap

Access Hatch Condition

Hatch Type: Square
Hatch Size: Approx. 36" x 36"
Riser Height: Approx. 6"
Hatch Locked? Y ⊙ N ○
Hinge Condition: Good
Gasket Present & Intact? Y ⊙ N ○
Does hatch have shoe box lid? Y ⊙ N ○
Dents/Low Spots/ Holes? Y ○ N ⊙
Signs of Leaking? Y ○ N ⊙

Coating Condition:

- ☑ Oxidation: Extensive: < 1%
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Mildew
- ☐ Blistering: N/A
- ☑ Chalking: Heavy
- ☑ Cracking: Minor — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Corrosion:

- ☐ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☑ Concentrated Cell Corrosion: Minute: < 0.03%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Seams/Welds Condition: Good
Insects, Dirt or Debris Present Under Hatch? Y ○ N ⊙
Any irregularities or structural deficiencies? Y ⊙ N ○
Description: Spalling & exposed reinforcements on concrete riser
Overall Condition: Good
Additional Notes:
- Equipped w/ safety rail around access hatch
- Heavy mildew staining noted throughout
- Heavy chalking present
- Moderate cracking & spalling present on riser

Manway Condition

Coating Condition:

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Mildew
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seam/Welds Condition: Good

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good
Additional Notes:
- Missing some hardware
- Second manway buried below ground
- Heavy mildew staining present
- Minor spalling noted around penetration

Overflow Structure Condition

Coating / Concrete Condition:

- [x] De-lamination: Minute: < 0.03%
- [ ] Abrasion: N/A
- [x] Pop-outs/Spalling: Minor — Type: Small
- [ ] Scaling: N/A
- [x] Cracking: Minor — Type: Hairline
- [x] Growth: Minor — Type: Organic
- [x] Staining: Heavy — Type: Mildew / Corrosive
- [ ] Exposed Aggregate: N/A
- [ ] Exposed Reinforcement: N/A
- [ ] Erosion: N/A

Corrosion:

- [ ] None: N/A
- [ ] Uniform Surface Corrosion: N/A
- [x] Concentrated Cell Corrosion: Minute: < 0.03%
- [ ] Rust Noduling/Pitting: N/A — Depth: N/A
- [ ] Galvanic: N/A
- [ ] De-alloying: N/A
- [ ] Intergranular: N/A
- [ ] Stress Corrosion Cracking: N/A
- [ ] Erosion Corrosion: N/A

Number of Overflows: Six (6)
Seams/Welds Condition: Good
Stand-off Supports Condition: N/A
Coating Present? Y ◉ N ○ Intact? Y ◉ N ○ N/A ○

Discharge Opening(s):

End Cap Sealed Properly? Y ○ N ○ N/A ◉
Duckbill Valve Sealed Properly? Y ○ N ○ N/A ◉
Flapper Valve Sealed Properly? Y ○ N ○ N/A ◉
Screen 24 Mesh? Y ◉ N ○ If no, size: N/A
Directly Connected to Sewer or Storm Drain? Y ○ N ◉
Any Obstructions of Water Flow? Y ○ N ◉
Height Above Ground for Discharge: Approx. 26'
Is Discharge Spot Adequate? Y ◉ N ○

Overall Condition: Good to Fair
Additional Notes:

- Tank equipped w/ six(6) "frog-eye" style overflows
- All overflows(6) share equivalent ratings
- All screens present & intact
- Minor to moderate saggs & runs present
- Minor corrosive staining noted
- Minute corrosion isolated on hardware
- Heavy mildew staining present throughout

In Depth Inc.

Interior Inspection Report

Roof Condition

Concrete Condition: Coating Present? Y ⊙ N ○

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☑ Pop-outs/Spalling: Heavy — Type: Small
- ☑ Scaling: Minor
- ☐ Unevenness: N/A
- ☑ Cracking: Minor — Type: Hairline
- ☑ Growth: Moderate — Type: Mineral
- ☑ Staining: Minor — Type: Corrosive
- ☑ Exposed Aggregate: Minor
- ☑ Exposed Reinforcement: Heavy
- ☐ Erosion: N/A

Seams/Joints Condition: Good

Any irregularities or structural deficiencies? Y ⊙ N ○

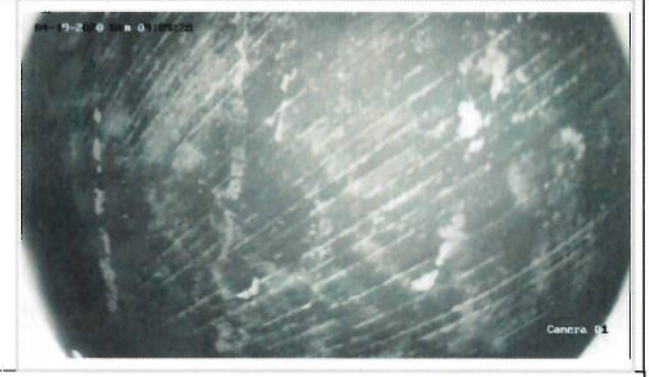
Description: Moderate to heavy spalling & exposed reinforcements

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: To Extent of 3%
- ☑ Concentrated Cell Corrosion: To Extent of 3%
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Fair

Additional Notes:
- Corrosion isolated on exposed reinforcements
- Heavy small - large pop-outs & spalling present
- Coating failure noted throughout
- Heavy exposed reinforcements present
- Minor hairline cracking / corrosive staining



Ladder Condition

Ladder Location: 12:00

Ladder Condition: Coating Present? Y ⊙ N ○

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☑ Staining: Heavy
- ☐ Blistering: N/A — Type: None
- ☑ Chalking: Minor
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Excellent to Good

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Excellent to Good

Additional Notes:
- Constructed of fiberglass w/ gel coating
- No safety climb present
- Minimal discrepancies to be noted
- Heavy sediment staining present throughout

☑

Floor Condition

Concrete Condition: Coating Present? Y ○ N ⊙

- ☐ De-lamination: N/A
- ☑ Abrasion: Extensive: < 1%
- ☑ Pop-outs/Spalling: Minor — Type: Small
- ☑ Scaling: Minor
- ☑ Unevenness: Minor
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☑ Staining: Moderate — Type: Sediment
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Any identified signs of leaking? Y ○ N ⊙

Seams/Joints Condition: Good

Sediment depth: 1/4"

Any irregularities or structural deficiencies? Y ○ N ⊙

Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Sloped floor to wall seams
- Coating only present approx. 2' off of walls
- Moderate to heavy blistering noted in coating
- Minor concrete dusting present (no coating)
- Minor small pop-outs noted throughout
- Moderate sediment staining present
- Minor unevenness noted throughout

Drain Condition

Drain Location:

Coating: Y ○ N ⊙

Drain Condition:

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☐ Staining: N/A — Type: None
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: * None noted *
- Cross-over plumbing multi-functions as drain

N/A

Wall Condition

Concrete Condition: Coating Present? Y ⊙ N ○

- ☑ De-lamination: To Extent of 3%
- ☑ Abrasion: Extensive: < 1%
- ☐ Pop-outs/Spalling: N/A — Type: None
- ☐ Scaling: N/A
- ☐ Unevenness: N/A
- ☑ Cracking: Minor — Type: Hairline / Shrinkage
- ☑ Growth: Minor — Type: Mineral
- ☑ Staining: Heavy — Type: Sediment
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A
- ☑ Saggs/Runs: Minor

Seams/Joints Condition: Good

Is biofilm present? Y ○ N ⊙

Any irregularities or structural deficiencies? Y ○ N ⊙

Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Good

Additional Notes:
- Consistent ratings throughout
- Moderate signs of blistering noted in coating
- D-lam & coating failure present throughout
- Minor to moderate chalking present
- Heavy sediment staining noted throughout
- Minor hairline / shrinkage cracking noted
- Minor to moderate saggs & runs present

Float Condition

Float Location:

Float Condition: N/A

Float Sealed? Y ○ N ⊙

Guidelines Condition: N/A

Attached Properly? Y ○ N ⊙

Cable Condition: N/A

Attached Properly? Y ○ N ⊙

Hardware Condition: N/A

Coating Condition: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: * None noted *

N/A

☑

Inlet Condition

Common Inlet/Outlet? Y○ N⊙
Inlet Location: 11:55 / 1:00

Inlet Condition: Coating Present? Y○ N⊙

- ☑ Oxidation: Approx. 100%
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Corrosive
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Good to Fair
Vortex Plate/Trash Rack Present? Y○ N⊙

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Approx. 50%
- ☑ Concentrated Cell Corrosion: To Extent of 10%
- ☑ Rust Noduling/Pitting: Approx. 33% — Depth: 1/16"
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☑ Intergranular: Approx. 17%
- ☐ Stress Corrosion Cracking: N/A
- ☑ Erosion Corrosion: Extensive: < 1%

Overall Condition: Fair

Additional Notes:
- Tank equipped w/ two(2) inlets
- Both inlets share equivalent ratings
- Constructed of iron (no coating present)
- Heavy corrosion noted throughout
- Heavy corrosive staining present

Outlet Condition

Outlet Location: 2:00

Outlet Condition: Coating Present? Y○ N⊙

- ☑ Oxidation: Approx. 50%
- ☐ De-lamination: N/A
- ☑ Staining: Heavy — Type: Sediment / Corrosive
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Good to Fair
Trash Rack Present? Y⊙ N○ N/A○

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: Approx. 33%
- ☑ Concentrated Cell Corrosion: Approx. 17%
- ☑ Rust Noduling/Pitting: To Extent of 10% — Depth: 1/32"
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☑ Intergranular: To Extent of 10%
- ☐ Stress Corrosion Cracking: N/A
- ☑ Erosion Corrosion: Extensive: < 1%

Overall Condition: Fair

Additional Notes:
- Consistent ratings throughout
- Heavy corrosion noted throughout
- Heavy sediment & corrosive staining present
- Flange penetrates through tank floor
- No protective coating present

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Support Column Condition

Number of Columns: None

Column Condition: Coating Present? Y ○ N ○

- ☐ De-lamination: N/A
- ☐ Abrasion: N/A
- ☐ Pop-outs/Spalling: N/A — Type: None
- ☐ Scaling: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Staining: N/A — Type: None
- ☐ Exposed Aggregate: N/A
- ☐ Exposed Reinforcement: N/A
- ☐ Erosion: N/A

Seams/Joints Condition: N/A

Any irregularities or structural deficiencies? Y ○ N ⊙

Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: N/A

Additional Notes: *None noted*

N/A

Overflow Condition

Overflow Location: * See map *

Overflow Condition: Coating Present? Y ⊙ N ○

- ☐ Oxidation: N/A
- ☐ De-lamination: N/A
- ☐ Staining: N/A — Type: None
- ☐ Blistering: N/A
- ☐ Chalking: N/A
- ☐ Checking: N/A
- ☐ Cracking: N/A — Type: None
- ☐ Growth: N/A — Type: None
- ☐ Pinholes: N/A
- ☐ Saggs/Runs: N/A

Seams/Welds Condition: Good

Is anything blocking the flow? Y ○ N ⊙

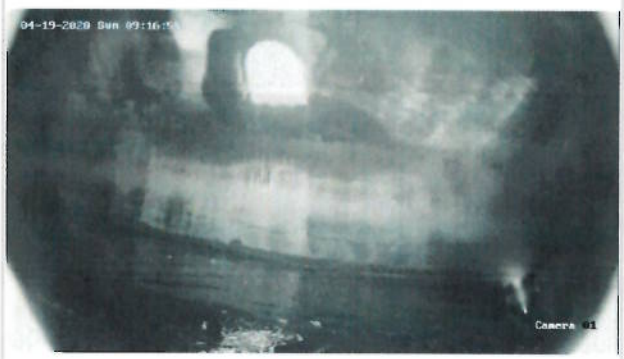
Description: N/A

Corrosion:

- ☑ None: N/A
- ☐ Uniform Surface Corrosion: N/A
- ☐ Concentrated Cell Corrosion: N/A
- ☐ Rust Noduling/Pitting: N/A — Depth: N/A
- ☐ Galvanic: N/A
- ☐ De-alloying: N/A
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☐ Erosion Corrosion: N/A

Overall Condition: Excellent to Good

Additional Notes:
- Tank equipped w/ six(6) "frog-eye" style overflows
- All overflows(6) share equivalent ratings
- All screens present & intact
- Minimal discrepancies noted throughout penetration



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Manway Condition

Manway Location: 1:30 / 7:30

Manway Condition: Coating Present? Y ⊙ N ○

- ☑ Oxidation: Approx. 100%
- ☑ De-lamination: Approx. 33%
- ☑ Staining: Heavy — Type: Corrosive / Sediment
- ☑ Blistering: Heavy
- ☑ Chalking: Heavy
- ☑ Checking: Heavy
- ☑ Cracking: Heavy — Type: Coating failure
- ☑ Growth: Heavy — Type: Mineral
- ☐ Pinholes: N/A
- ☑ Saggs/Runs: Heavy

Seam/Welds Condition: Poor

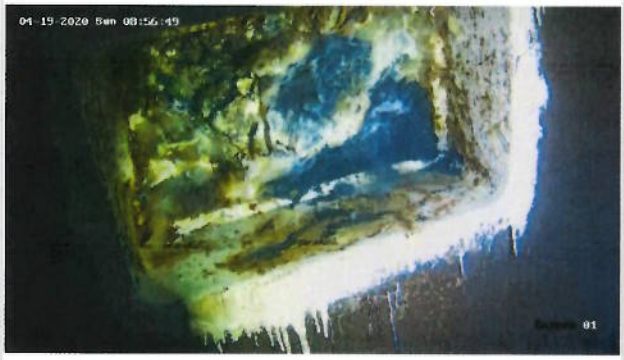
Gasket Condition: Poor

Corrosion:

- ☐ None: N/A
- ☑ Uniform Surface Corrosion: To Extent of 10%
- ☑ Concentrated Cell Corrosion: N/A
- ☑ Rust Noduling/Pitting: To Extent of 3% — Depth: 1/8"
- ☐ Galvanic: N/A
- ☑ De-alloying: To Extent of 10%
- ☐ Intergranular: N/A
- ☐ Stress Corrosion Cracking: N/A
- ☑ Erosion Corrosion: N/A

Overall Condition: Poor

Additional Notes:
- Tank equipped w/ two(2) manways (one buried)
- Both manways share consistent ratings
- Heavy coating failure present
- Heavy corrosion and mineral growth noted



Additional Pictures

Cleaning process

Floor close-up

Cross-over plumbing

Concrete spalling & sediment (before clean)

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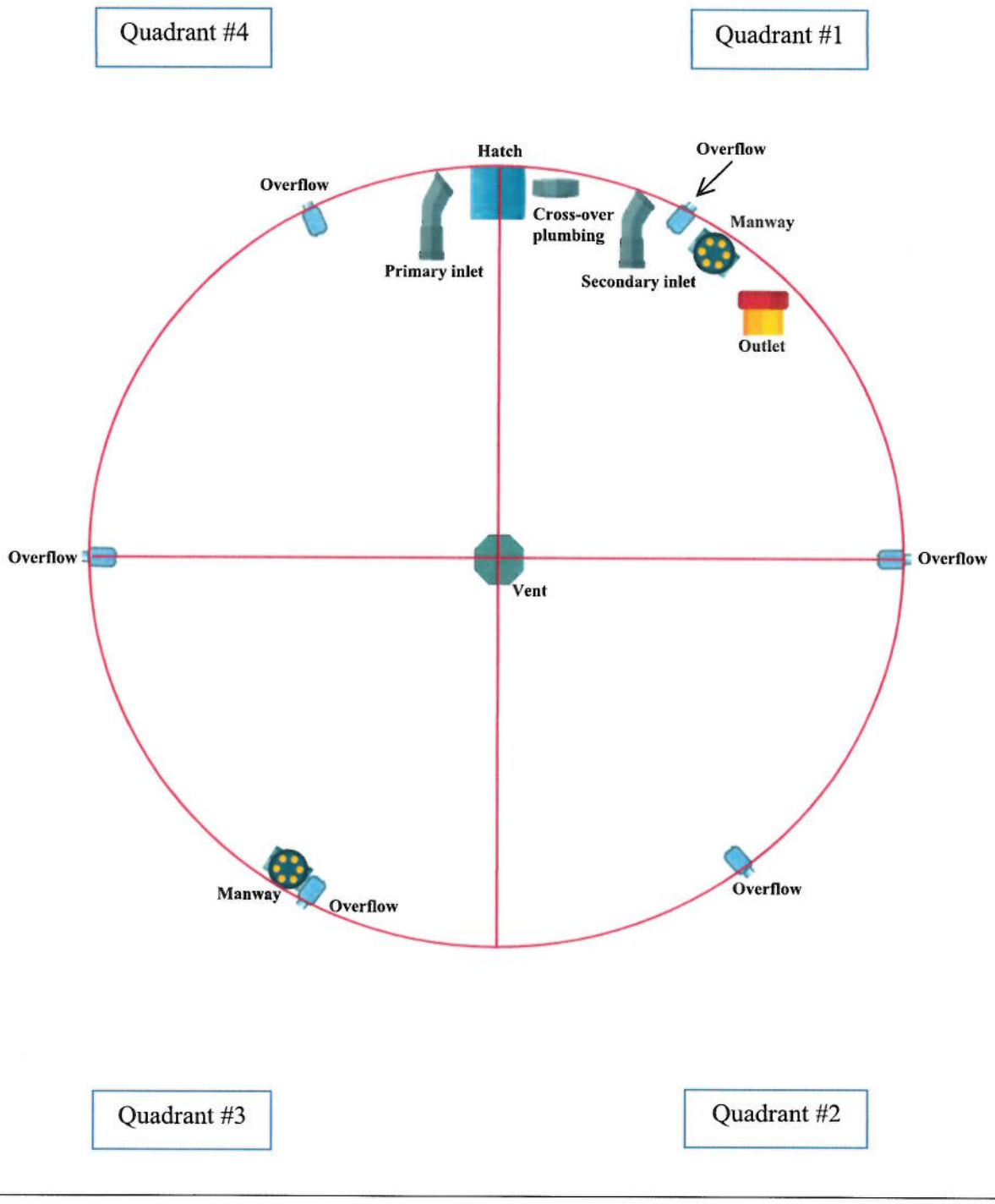
Tank Layout


Quadrant #4
Quadrant #1
Hatch
Overflow
Overflow
Cross-over plumbing
Manway
Primary inlet
Secondary inlet
Outlet
Overflow
Overflow
Vent
Manway
Overflow
Overflow
Quadrant #3
Quadrant #2