ORANGE COUNTY GOVERNMENT FLORIDA

Interoffice Memorandum

October 29, 2018

TO: Mayor Teresa Jacobs
and Board of County Commissioners

FROM: Raymond E. Hanson, P. E., Director
Utilities Department

Andres Salcedo for

SUBJECT: **BCC AGENDA ITEM – Consent Agenda**
November 13, 2018 BCC Meeting
First Amendment to Reedy Creek Improvement District/Orange County Amended and Restated Water, Wastewater, and Reclaimed Water Service Territorial Agreement; Interlocal Agreement between Reedy Creek Improvement District and Orange County for Delivery of Wholesale Water Services to the Flamingo Crossings Development
Contact Person: Andres Salcedo, P.E., Assistant Director
Utilities Department
407-254-9719

Reedy Creek Improvement District (RCID) has requested Orange County (the "County") to amend the Reedy Creek Improvement District/Orange County Amended and Restated Water, Wastewater, and Reclaimed Water Service Territorial Agreement (the "Territorial Agreement"), dated September 30, 2008. This first amendment would revise the potable water, wastewater, and reclaimed water service territorial boundary between RCID and the County to remove parcels FC-1 and FC-2, which are areas inside of FC Ultimate, from the water, wastewater, and reclaimed water territory of RCID and to include those parcels within the territorial jurisdiction of the County.

Contemporaneously with the first amendment to the Territorial Agreement, RCID has requested an interlocal agreement for RCID to provide wholesale water, wastewater, and reclaimed water services ("Water Services") to the County to serve FC Ultimate until the County initiates Water Services from its utility systems. The interlocal agreement also provides that if, after the County initiates water service to FC Ultimate and the County determines that it needs additional water to address a hydraulic constraint, RCID will provide wholesale water to the County for use by FC Ultimate until such time as the County eliminates the hydraulic constraint, which shall be on or before the 10th anniversary of the effective date of the agreement.

The backup documentation for this item has been delivered under separate cover. It may also be accessed online as part of the eAgenda by clicking here.

The County Attorney's Office staff reviewed this agreement and finds it acceptable. Utilities Department staff recommends approval.

Action Requested: **Approval and execution of (1) First Amendment to Reedy Creek Improvement District/Orange County Amended and Restated Water, Wastewater, and Reclaimed Water Service Territorial Agreement and (2) Interlocal Agreement between Reedy Creek Improvement District and Orange County for delivery of wholesale water services to the Flamingo Crossings Development.**

District 1.

FIRST AMENDMENT
TO
REEDY CREEK IMPROVEMENT DISTRICT/ORANGE COUNTY AMENDED AND RESTATED WATER, WASTEWATER, AND RECLAIMED WATER SERVICE TERRITORIAL AGREEMENT

THIS FIRST AMENDMENT TO THE REEDY CREEK IMPROVEMENT DISTRICT/ORANGE COUNTY AMENDED AND RESTATED WATER, WASTEWATER, AND RECLAIMED WATER SERVICE TERRITORIAL AGREEMENT (this "First Amendment"), is made and entered into on the date of later execution below, by and between REEDY CREEK IMPROVEMENT DISTRICT, a public corporation and public body corporate and politic of the State of Florida, whose address is P.O. Box 10170, Lake Buena Vista, Florida 32830 (hereinafter called "RCID"), and ORANGE COUNTY, a charter county and political subdivision of the State of Florida (hereinafter called the "County"), whose address is 201 South Rosalind Avenue, Orlando, Florida 32801.

RECITALS

WHEREAS, RCID and the County entered into that agreement entitled "Reedy Creek Improvement District/Orange County Amended and Restated Water, Wastewater, and Reclaimed Water Service Territorial Agreement" (the "Agreement"), dated September 30, 2008; and

WHEREAS, the Agreement defines the potable water, wastewater and reclaimed water service territorial boundary between RCID and the County and describes the areas referred to therein as "RCID's Territorial Area" and the "Adjacent Territorial Area;" and

WHEREAS, RCID and the County desire to modify and alter RCID's Territorial Area, as that term is defined in the Agreement, in accordance with the provisions set forth herein; and

WHEREAS, Section 5 of the Agreement provides that RCID and the County may alter the RCID Territorial Area by mutual consent by the preparation of a document fully describing such alteration, which document is approved by the governing boards of each party and provides the legal description and map of the proposed new RCID Territorial Area; and

WHEREAS, this First Amendment fulfills the requirements set forth in Section

5 of the Agreement.

NOW, THEREFORE, in consideration of the foregoing premises, and for other good and valuable consideration, the parties agree as follows:

1. The recitals set forth above are true and correct and by this reference are incorporated into this First Amendment.

2. Exhibit "A" to the Agreement is hereby replaced with Exhibit "A1," which is attached hereto and incorporated by this reference into the Agreement.

3. Except as modified by this First Amendment, the terms and provisions of the Agreement shall remain unchanged and in full force and effect.

[SIGNATURES APPEAR ON THE FOLLOWING PAGES]

IN WITNESS WHEREOF, RCID and the County have caused this First Amendment to be executed by their duly designated representatives as of the date and year indicated below.

"RCID"
REEDY CREEK IMPROVEMENT DISTRICT
By: Board of Supervisors

By: ______________________
John H. Classe, Jr.
District Administrator

Date: 10/24/18

WITNESS:

____

Printed Name: Jason Herrick

"COUNTY"
ORANGE COUNTY
By: Board of County Commissioners

By: ______________________
Teresa Jacobs
for County Mayor

Date: 11.14.18

ATTEST: Phil Diamond, CPA, Orange County Comptroller
as Clerk to the Board of County Commissioners

By: ______________________
for Deputy Clerk

DESCRIPTION OF
REEDY CREEK IMPROVEMENT DISTRICT
WATER AND WASTE WATER TERRITORIAL AREA
IN ORANGE COUNTY

Begin at the Southwest corner of the Northwest 1/4 of the Southwest 1/4 of Section 6, Township 24 South, Range 28 East run N 00°00'22" E, 1327.43 feet along the West line of Section 6 to the West 1/4 corner thereof; thence N 89°27'45" E, 1997.50 feet along the North line of the South half of Section 6, to the Southwest corner of the East 1/2 of the Southeast 1/4 of the Northwest 1/4 of Section 6, thence N 00°20'35" W, 1154.75 feet along the West line of the East 1/2 of the Southeast 1/4 of the Northwest 1/4 of Section 6; thence N 89°38'50" E, 663.64 feet along a line that is 165.00 feet South of and parallel to the North line of the Southeast 1/4 of the Northwest 1/4 of Section 6; thence N 89°11'34" E, 148.62 feet +/- along a line parallel to and 165.00 feet South of the North line of the Southwest 1/4 of the Northeast 1/4 of Section 6 to a point on the Westerly shore line of Lake Mable; thence meander the shore line of Lake Mable in a Southerly direction, to a point on the South line of Section 6 and the North line of Section 7, Township 24 South, Range 28 East, said point being S 16°20'10" W, 3981.97 feet more or less from the previously described point, and also lying N 89°31'17" E, 1683.05 feet from the Southwest corner of Section 6; thence continue along the shore line of Lake Mable in a Southeasterly and Northeasterly direction across the North 1/4 of Section 7, to the North line of Section 7 and the South line of Section 6, Township 24 South, Range 28 East, said point being N 89°31'17" E, along the North section line of Section 7, 1381.64 feet from the previously described point and lying S 89°31'17" W, 2304.35 feet from the Northeast corner of Section 7; thence continue to meander the shore line of Lake Mable in a Northeasterly direction across the Southeast 1/4 of Section 6, Township 24 South, Range 28 East to a point on said shoreline which is intersected by the North line of the South half of the Southeast 1/4 of Section 6, said point being N 25°14'10" E, 1475.82 feet from the previously described point; thence N 89°29'30" E, along said North line of the South half of the Southeast 1/4 of Section 6, 1679.89 feet to the East section line thereof; thence S 00°12'20" W, 1330.62 feet along the East line of Section 6 to the Southeast corner of Section 6 and the Northwest corner of Section 8, Township 24 South, Range 28 East; thence N 89°21'03" E along the North line of Section 8, 191.58 feet more or less to a point on the West shore line of South Lake; thence meander the shore line of South Lake in a Southwesterly, Southeasterly and Northeasterly direction to a point where the shore line of South Lake intersects the East line of the West half of the West half of Section 8; said point being S 25°17'13" E, 2679.01 feet more or less from the previously described point; thence S 00°13'59" W, 221.07 feet to the Northeast corner of the Northwest 1/4 of the Southwest 1/4 of Section 8; thence S 00°06'21" E along the East line of the West half of the Southwest 1/4 of Section 8, 1334.85 feet to the Southeast corner of the Northwest 1/4 of the Southwest 1/4 of Section 8; thence S 88°48'04" W, 1111.09 feet to a point of curvature of a curve concave Southeasterly having a radius of 545.08 feet, and a central angle of 81°15'08"; thence run Southwesterly along the arc of said curve, 772.99 feet; to a point of reverse curvature of a curve concave Northerly having a radius of 80.00 feet, and a central angle of 128°43'50"; thence run Westerly along the arc of said curve, 179.74 feet; thence S 43°40'59" E, 16.92 feet; thence S 34°38'41" E, 8.13 feet; thence S 25°16'40" E, 86.79 feet; thence S 28°57'56" E, 106.03 feet; thence S 58°01'53" E, 87.73 feet; thence N 85°59'29" E, 134.58 feet to a point of curvature of a curve concave Southerly having a radius of 425.00 feet, and a central angle of 23°29'59"; thence run Easterly along the arc of said curve, 174.31 feet; to a point of compound curvature of a curve concave Southwesterly having a radius of 15.00 feet, and a central angle of 46°20'48"; thence run Southeasterly along the arc of said curve, 12.13 feet; to a point of compound curvature of a curve concave Westerly having a radius of 425.00 feet, and a central angle of 16°33'54"; thence run Southerly along the arc of said curve, 122.87 feet; to a point of compound curvature of a curve concave Westerly having a radius of 25.00 feet, and a central angle of 51°32'25"; thence run Southerly along the arc of said curve, 22.49 feet; thence S 43°56'36" W, 91.06 feet; thence S 64°40'37" W, 105.25 feet; thence S 40°45'32" W, 117.42 feet; thence S 13°26'04" W, 97.39 feet; thence S 42°14'20" W, 133.97 feet; thence S 68°59'11" W, 89.71 feet; thence S 28°50'44" W, 77.77 feet; thence S 14°52'47" W, 88.32 feet; thence S 01°59'29" E, 106.28 feet; thence S 24°42'46" W, 241.59 feet; thence S 36°55'50" W, 126.64 feet; thence S 24°03'44" W, 71.01 feet to a point of curvature of a curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 40°55'45"; thence run Southwesterly along the arc of said curve, 17.86 feet; thence S 64°59'30" W, 91.68 feet to a point of curvature of a curve concave Northerly having a radius of 25.00 feet, and a central angle of 46°29'32"; thence run Westerly along the arc of said curve, 20.29 feet; thence N 68°30'58" W, 131.37 feet; thence N 34°57'28" W, 145.43 feet; thence N 10°44'04" W, 144.09 feet; thence N 10°34'18" E, 129.55 feet; thence N 44°03'35" E, 129.67 feet; thence N 86°35'32" E, 100.03 feet; thence N 62°48'18" E, 100.08 feet;

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thence N 58°16'14" E, 95.99 feet; thence N 15°01'47" E, 86.03 feet; thence N 14°30'32" W, 104.94 feet; thence N 03°06'23" W, 111.09 feet; thence N 07°32'42" E, 68.01 feet; thence N 15°14'13" W, 80.67 feet; thence N 87°12'48" W, 40.11 feet; thence S 77°42'57" W, 84.88 feet; thence S 74°44'47" W, 66.79 feet; thence S 35°20'27" W, 90.33 feet; thence S 22°58'13" W, 87.94 feet; thence S 20°05'22" W, 168.18 feet; thence S 65°39'23" W, 108.46 feet; thence N 79°02'16" W, 146.86 feet; thence S 44°41'24" W, 85.24 feet; thence S 66°58'59" W, 80.82 feet; thence N 89°03'00" W, 96.88 feet; thence S 84°18'13" W, 51.79 feet; thence S 77°56'53" W, 116.91 feet; thence S 70°14'00" W, 84.26 feet; thence N 63°52'48" W, 163.26 feet; thence N 71°49'57" W, 91.32 feet; thence N 56°38'48" W, 106.72 feet; thence N 37°38'37" W, 96.72 feet; thence N 69°48'38" W, 85.22 feet; thence N 85°15'14" W, 95.72 feet; thence N 76°56'11" W, 104.56 feet; thence S 28°55'14" W, 152.43 feet; thence S 13°45'44" E, 47.73 feet to a point of curvature of a curve concave Westerly having a radius of 75.00 feet, and a central angle of 30°06'13"; thence run Southerly along the arc of said curve, 39.41 feet; to a point of reverse curvature of a curve concave Northeasterly having a radius of 45.00 feet, and a central angle of 99°54'55"; thence run Southeasterly along the arc of said curve, 78.47 feet; to a point of reverse curvature of a curve concave Southwesterly having a radius of 250.00 feet, and a central angle of 55°31'16"; thence run Southeasterly along the arc of said curve, 242.26 feet; thence S 28°03'11" E, 95.35 feet to a point of curvature of a curve concave Westerly having a radius of 125.00 feet, and a central angle of 59°41'01"; thence run Southerly along the arc of said curve, 130.21 feet; thence S 31°37'50" W, 165.37 feet; thence S 51°01'41" E, 83.54 feet to a point on a non-tangent curve concave Southeasterly having a radius of 676.49 feet, and a central angle of 29°43'07"; thence from a tangent bearing of N 50°17'44" E run Northeasterly along the arc of said curve, 350.89 feet; thence S 35°59'30" E, 246.14 feet; thence S 55°37'13" E, 316.45 feet; thence S 68°44'46" E, 336.44 feet to a point on a non-tangent curve concave Southerly having a radius of 399.38 feet, and a central angle of 09°53'41"; thence from a tangent bearing of N 79°13'56" E run Easterly along the arc of said curve, 68.97 feet; to a point of reverse curvature of a curve concave Northerly having a radius of 137.63 feet, and a central angle of 14°21'49"; thence run Easterly along the arc of said curve, 34.50 feet; thence S 03°57'40" W, 60.74 feet to a point on a non-tangent curve concave Southerly having a radius of 344.38 feet, and a central angle of 04°15'11"; thence from a tangent bearing of S 86°02'20" E run Easterly along the arc of said curve, 25.56 feet; to a point of compound curvature of a curve concave Southerly having a radius of 132.00 feet, and a central angle of 26°04'01"; thence run Easterly along the arc of said curve, 60.05 feet; to a point on a non-tangent curve concave Southwesterly having a radius of 184.37 feet, and a central angle of 31°44'00"; thence from a tangent bearing of S 49°44'21" E run Southeasterly along the arc of said curve, 102.11 feet; to a point of compound curvature of a curve concave Westerly having a radius of 679.36 feet, and a central angle of 08°51'48"; thence run Southerly along the arc of said curve, 105.09 feet; to a point of reverse curvature of a curve concave Easterly having a radius of 437.18 feet, and a central angle of 18°37'07"; thence run Southerly along the arc of said curve, 142.06 feet; to a point of compound curvature of a curve concave Northeasterly having a radius of 395.25 feet, and a central angle of 18°13'39"; thence run Southeasterly along the arc of said curve, 125.74 feet; to a point of reverse curvature of a curve concave Southwesterly having a radius of 645.09 feet, and a central angle of 03°21'33"; thence run Southeasterly along the arc of said curve, 37.82 feet; thence N 82°18'14" W, 71.09 feet; thence N 51°44'44" W, 65.78 feet; thence N 80°24'25" W, 90.39 feet; thence S 48°32'46" W, 80.93 feet; thence S 22°55'38" W, 113.12 feet; thence S 27°19'16" E, 55.45 feet; thence S 18°40'56" W, 159.75 feet; thence S 10°48'30" W, 160.42 feet to a point of curvature of a curve concave Easterly having a radius of 223.65 feet, and a central angle of 59°02'33"; thence run Southerly along the arc of said curve, 230.47 feet; to a point on the Northerly and Easterly boundary of Tract R, Golden Oak Phase 1B according to the Plat thereof recorded in Plat Book 75, Pages 3 through 15 of the Public Records of Orange County, a non-tangent curve concave Northerly having a radius of 25.00 feet, and a central angle of 64°33'48"; thence from a tangent bearing of S 49°58'05" E run Easterly along the arc of said curve, 28.17 feet; thence N 65°28'07" E, 122.36 feet; thence N 76°27'23" E, 76.59 feet to a point of curvature of a curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 25°14'16"; thence run Northeasterly along the arc of said curve, 11.01 feet; thence S 78°11'38" E, 85.68 feet to a point on a non-tangent curve concave Easterly having a radius of 1010.00 feet, and a central angle of 07°58'42"; thence from a tangent bearing of S 11°48'22" W run Southerly along the arc of said curve, 140.64 feet; to a point on a non-tangent curve

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concave Southwesterly having a radius of 25.00 feet, and a central angle of 87°13'52"; thence from a tangent bearing of N 03°49'41" E run Northwesterly along the arc of said curve, 38.06 feet; thence N 83°24'11" W, 42.54 feet to a point of curvature of a curve concave Southerly having a radius of 221.37 feet, and a central angle of 29°07'38"; thence run Westerly along the arc of said curve, 112.54 feet; to a point of reverse curvature of a curve concave Northerly having a radius of 132.76 feet, and a central angle of 48°16'12"; thence run Westerly along the arc of said curve, 111.85 feet; to a point on a non-tangent curve concave Northeasterly having a radius of 234.18 feet, and a central angle of 14°51'36"; thence from a tangent bearing of N 64°15'37" W run Northwesterly along the arc of said curve, 60.74 feet; thence S 24°23'32" E, 34.06 feet; thence S 18°04'39" E, 78.70 feet to a point on a non-tangent curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 115°40'49"; thence from a tangent bearing of S 17°50'29" E run Southwesterly along the arc of said curve, 50.48 feet; thence N 82°09'40" W, 26.47 feet; thence S 26°43'01" W, 107.99 feet; thence S 13°53'13" W, 84.71 feet; thence S 20°06'37" W, 86.21 feet; thence S 22°42'17" W, 90.27 feet; thence S 48°33'38" W, 93.96 feet; thence S 51°48'05" W, 58.47 feet; thence S 70°41'52" W, 98.39 feet; thence S 75°48'30" W, 82.70 feet; thence N 82°22'12" W, 18.57 feet; thence S 59°48'12" W, 61.99 feet; thence S 23°48'42" W, 31.41 feet; thence S 21°34'58" E, 112.96 feet; thence S 25°04'56" E, 80.36 feet; thence S 06°58'19" E, 51.79 feet to a point of curvature of a curve concave Westerly having a radius of 25.00 feet, and a central angle of 54°17'13"; thence run Southerly along the arc of said curve, 23.69 feet; thence S 47°18'54" W, 37.10 feet; thence S 03°48'45" E, 24.29 feet to a point of curvature of a curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 79°16'52"; thence run Southwesterly along the arc of said curve, 34.59 feet; thence S 75°28'07" W, 70.19 feet to a point of curvature of a curve concave Northerly having a radius of 25.00 feet, and a central angle of 41°16'24"; thence run Westerly along the arc of said curve, 18.01 feet; thence N 63°15'30" W, 63.09 feet to a point on the Easterly right-of-way of RCID canal L-105 as described in Official Records Book 1896, Page 232 of the Public Records of this County, and a non-tangent curve concave Easterly having a radius of 1505.50 feet, and a central angle of 37°08'46"; thence from a tangent bearing of S 03°51'20" E run Southerly along the arc of said curve and right-of-way, 976.05 feet; thence continue along said right-of-way S 41°00'06" E, 193.39 feet; thence S 48°59'54" W, 100.00 feet to a point on the westerly right-of-way of said Canal; thence departing said Canal run, N 87°15'41" W, 130.57 feet; thence N 63°21'34" W, 33.90 feet; thence N 81°08'52" W, 154.09 feet; thence N 39°33'00" W, 38.53 feet; thence N 28°54'14" W, 86.79 feet; thence N 28°30'43" W, 101.63 feet; thence N 32°36'46" W, 77.00 feet; thence N 39°30'36" W, 98.30 feet to a point of curvature of a curve concave Easterly having a radius of 25.00 feet, and a central angle of 37°14'40"; thence run Northerly along the arc of said curve, 16.25 feet; thence N 02°15'56" W, 56.50 feet; thence N 39°36'59" W, 135.27 feet; thence N 85°04'00" W, 67.65 feet to a point of curvature of a curve concave Northeasterly having a radius of 25.00 feet, and a central angle of 46°40'29"; thence run Northwesterly along the arc of said curve, 20.37 feet; thence N 38°23'30" W, 64.62 feet; thence N 64°16'04" W, 16.33 feet to a point of curvature of a curve concave Northeasterly having a radius of 25.00 feet, and a central angle of 58°38'45"; thence run Northwesterly along the arc of said curve, 25.59 feet; thence N 05°37'20" W, 20.54 feet; thence N 44°31'28" W, 62.56 feet; thence S 23°42'54" W, 95.95 feet to a point of curvature of a curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 84°46'10"; thence run Southwesterly along the arc of said curve, 36.99 feet; thence N 71°30'56" W, 65.59 feet; thence N 67°45'46" W, 71.42 feet; thence N 47°09'12" W, 129.61 feet; thence N 28°09'10" W, 67.04 feet to a point of curvature of a curve concave Easterly having a radius of 25.00 feet, and a central angle of 58°17'03"; thence run Northerly along the arc of said curve, 25.43 feet; thence N 30°07'52" E, 66.18 feet; thence N 41°27'39" E, 82.62 feet; thence N 28°03'16" E, 61.53 feet; thence N 21°03'09" W, 47.93 feet; thence N 17°13'11" W, 99.26 feet; thence N 00°32'57" E, 48.45 feet; thence N 12°21'10" E, 151.79 feet; thence N 23°46'35" E, 109.94 feet; thence N 39°26'51" E, 91.52 feet; thence N 17°00'45" E, 45.16 feet; thence N 34°56'26" W, 27.03 feet; thence N 26°29'23" W, 104.81 feet; thence S 48°40'54" W, 30.14 feet to a point on a non-tangent curve concave Southerly having a radius of 7.86 feet, and a central angle of 78°20'37"; thence from a tangent bearing of N 28°56'03" W run Westerly along the arc of said curve, 10.75 feet; to a point of compound curvature of a curve concave Southeasterly having a radius of 19.64 feet, and a central angle of 36°52'37"; thence run Southwesterly along the arc of said curve, 12.64 feet; to a point of compound curvature of a curve concave Easterly having a radius of 3.95 feet, and a central angle of 74°25'35"; thence run Southerly along the arc of said curve, 5.13 feet; thence S 38°34'51" E, 13.88 feet;

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RCES
REEDY CREEK ENERGY SERVICES
SURVEYING AND MAPPING DEPARTMENT
P.O.B. 10000
LAKE BUENA VISTA
FL 32830-1000
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE:
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 3 OF 31 SHEETS	FILENAME: 10JG09096R2

CONTINUED FROM SHEET 3

thence S 51°58'30" W, 145.54 feet; thence N 37°57'09" W, 16.70 feet to a point on a non-tangent curve concave Northeasterly having a radius of 1080.42 feet, and a central angle of 20°21'16"; thence from a tangent bearing of N 48°06'54" W run Northwesterly along the arc of said curve, 383.82 feet; thence N 37°56'18" W, 17.87 feet; thence N 30°54'21" W, 193.79 feet to a point on a non-tangent curve concave Southeasterly having a radius of 762.70 feet, and a central angle of 08°52'54"; thence from a tangent bearing of S 63°58'49" W run Southwesterly along the arc of said curve, 118.23 feet; thence S 55°05'55" W, 58.77 feet to a point of curvature of a curve concave Southeasterly having a radius of 160.82 feet, and a central angle of 19°16'01"; thence run Southwesterly along the arc of said curve, 54.08 feet; to a point of reverse curvature of a curve concave Northwesterly having a radius of 159.35 feet, and a central angle of 36°15'00"; thence run Southwesterly along the arc of said curve, 100.82 feet; thence S 72°04'54" W, 26.78 feet to a point of curvature of a curve concave Southeasterly having a radius of 158.03 feet, and a central angle of 21°54'44"; thence run Southwesterly along the arc of said curve, 60.44 feet; to a point on a non-tangent curve concave Northeasterly having a radius of 52.89 feet, and a central angle of 104°26'29"; thence from a tangent bearing of S 75°27'00" W run Northwesterly along the arc of said curve, 96.41 feet; thence N 00°06'31" W, 54.31 feet; thence N 74°49'42" W, 43.41 feet; thence S 44°47'41" W, 145.43 feet; thence S 45°05'06" E, 18.68 feet; thence S 03°14'02" W, 84.66 feet; thence S 05°12'38" E, 58.35 feet to a point of curvature of a curve concave Easterly having a radius of 1125.00 feet, and a central angle of 27°57'29"; thence run Southerly along the arc of said curve, 548.95 feet; thence S 33°10'07" E, 163.59 feet to a point of curvature of a curve concave Westerly having a radius of 492.00 feet, and a central angle of 26°59'13"; thence run Southerly along the arc of said curve, 231.74 feet; thence N 86°26'26" E, 126.87 feet; thence N 76°15'46" E, 63.89 feet; thence S 64°36'17" E, 118.17 feet; thence S 52°36'40" E, 63.05 feet; thence S 45°16'16" E, 127.88 feet to a point of curvature of a curve concave Southwesterly having a radius of 25.00 feet, and a central angle of 35°13'41"; thence run Southeasterly along the arc of said curve, 15.37 feet; thence S 10°02'35" E, 93.01 feet to a point of curvature of a curve concave Westerly having a radius of 25.00 feet, and a central angle of 46°18'35"; thence run Southerly along the arc of said curve, 20.21 feet; thence S 36°16'00" W, 28.53 feet; thence S 20°23'46" W, 184.90 feet; thence S 25°05'40" W, 31.33 feet to a point on a non-tangent curve concave Northwesterly having a radius of 25.00 feet, and a central angle of 33°58'13"; thence from a tangent bearing of S 21°14'14" W run Southwesterly along the arc of said curve, 14.82 feet; thence S 55°12'27" W, 19.76 feet; thence S 18°42'59" W, 22.23 feet to a point on a non-tangent curve concave Southwesterly having a radius of 1908.34 feet, and a central angle of 22°05'51"; thence from a tangent bearing of S 75°17'36" E run Southeasterly along the arc of said curve, 736.00 feet; thence S 53°11'44" E, 1498.58 feet to a point of curvature of a curve concave Northeasterly having a radius of 950.92 feet, and a central angle of 14°29'06"; thence run Southeasterly along the arc of said curve, 240.40 feet; to a point of compound curvature of a curve concave Northerly having a radius of 513.39 feet, and a central angle of 13°13'42"; thence run Easterly along the arc of said curve, 118.53 feet; thence S 80°54'32" E, 34.76 feet to a point of curvature of a curve concave Northerly having a radius of 1109.03 feet, and a central angle of 07°17'21"; thence run Easterly along the arc of said curve, 141.09 feet; thence S 88°11'54" E, 77.05 feet; thence S 89°29'03" E, 140.11 feet; thence S 89°29'03" E, 433.68 feet; thence N 89°58'59" E, 1465.17 feet; thence N 00°00'00" E, 131.18 feet; thence N 45°00'00" W, 71.68 feet; thence N 00°00'00" E, 633.08 feet; thence N 89°59'00" W, 445.76 feet; thence N 00°27'46" E, 673.19 feet; thence S 89°58'17" E, 398.81 feet; thence N 00°00'00" E, 753.74 feet; thence N 90°00'00" W, 362.43 feet; thence N 05°16'59" W, 106.23 feet; thence N 26°33'54" W, 135.35 feet; thence N 47°32'44" E, 146.69 feet; thence N 11°28'34" E, 24.04 feet to a point of curvature of a curve concave Westerly having a radius of 15.00 feet, and a central angle of 52°09'22"; thence run Northerly along the arc of said curve, 13.65 feet; thence N 40°40'48" W, 82.81 feet; thence N 90°00'00" W, 73.87 feet to a point on a non-tangent curve concave Westerly having a radius of 1396.50 feet, and a central angle of 06°53'10"; thence from a tangent bearing of N 07°09'56" E run Northerly along the arc of said curve, 167.84 feet; thence N 00°16'47" E, 0.50 feet to the Northwest corner of the Northeast 1/4 of the Southwest 1/4 of Section 17 Township 24 South Range 28 East; thence S 89°56'53" E, 3992.90 feet along the North line of the South half of Section 17, to the East 1/4 corner of Section 17; thence S 00°24'52" W, 2682.68 feet along the East section line of Section 17 to the Southeast corner of Section 17 and the Northeast corner of Section 20, Township 24 South, Range 28 East; thence S 00°01'36" E, 1333.66 feet along the East section line of Section 20 to the Southeast corner of the Northeast 1/4 of the Northeast 1/4 of Section 20

CONTINUED ON SHEET 5

REEDY CREEK ENERGY SERVICES
SURVEYING AND MAPPING DEPARTMENT
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CONTINUED FROM SHEET 4

and the Southwest corner of the Northwest 1/4 of the Northwest 1/4 of Section 21, Township 24 South, Range 28 East; thence N 89°57'37" E, 670.11 feet to the Northwest corner of the Northeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of Section 21; thence S 00°08'32" E, 668.06 feet to the Southwest corner thereof; thence S 89°55'30" E, 671.45 feet to the Northeast corner of the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of Section 21; thence S 00°15'27" E, 669.41 feet to the Northwest corner of the Northeast 1/4 of the Southwest 1/4 of Section 21; thence S 00°44'42" E, 656.38 feet to the Northwest corner of Lot 85, Munger and Company Subdivision of Section 21, according to the Plat recorded in Plat Book E Page 22 of the Public Records of this County; thence S 89°51'01" E, 335.66 feet to the Northeast corner of said Lot 85; thence S 00°40'49" E, 656.31 feet to the Southeast corner of Lot 85; thence S 89°53'15" E, 1004.75 feet along the North line of the Southeast 1/4 of the Southwest 1/4 of Section 21 to the Northeast corner thereof; thence S 00°29'10" E, 655.63 feet along the West line of the Northwest 1/4, Southwest 1/4 of the Southeast 1/4 of Section 21 to the Southwest corner thereof; thence N 89°20'56" E, 666.99 feet along the South line of the Northwest 1/4, Southwest 1/4 of the Southeast 1/4 of Section 21 to the Southeast corner thereof; thence N 00°21'22" W, 652.39 feet along the West line of the Northeast 1/4, Southwest 1/4 of the Southeast 1/4 of Section 21 to the Northwest corner thereof; thence N 89°37'38" E, 2005.42 feet along the North line of the South half of the Southeast 1/4 of Section 21 to the Northeast corner thereof, said point also being the Southwest corner of the Northwest 1/4 of the Southwest 1/4 of Section 22, Township 24 South, Range 28 East; thence N 00°02'32" E, 1285.39 feet along the West line of Section 22 to the West 1/4 corner of Section 22; thence N 89°50'49" E, 2691.31 feet along the North line of the South half of Section 22 to the Westerly right-of-way of State Road 400 as shown in map section 75280-2465 and dated 2/22/1993; thence run along said right-of-way, S 38°29'42" W, 7143.82 feet to a point on the Westerly right-of-way line of State Road 536 as shown in map section 75000-2520 and dated 3/05/1998; thence departing State Road 400 run along State Road 536 the following courses; S 43°35'42" W, 1571.48 feet to a point on a non-tangent curve concave Northwesterly having a radius of 1809.86 feet, and a central angle of 37°23'06"; thence from a tangent bearing of S 42°29'42" W run Southwesterly along the arc of said curve, 1180.92 feet; thence S 79°52'51" W, 1498.72 feet to a point on the West line of Section 28, and on the East line of Section 29, Township 24 South, Range 28 East, said point lying N 00°00'07" W, 387.61 feet from the Southwest corner of Section 28; thence S 79°52'53" W, 95.47 feet to a point of curvature of a curve concave Northerly having a radius of 2191.83 feet and a central angle of 32°28'09"; thence run Westerly along the arc of said curve, 1242.10 feet; thence N 69°59'50" W, 311.61 feet; thence run S 23°29'47" W, 304.91 feet to a point on a non-tangent curve concave Southwesterly, having a radius of 11402.16 feet and a central angle of 00°29'43"; thence from a tangent bearing of S 65°33'17" E, run Southeasterly along the arc of said curve, 98.56 feet; thence S 58°56'26" E, 509.41 feet to a point on a non-tangent curve concave Southwesterly, having a radius of 900.00 feet and a central angle of 02°31'40"; thence run Southeasterly along the arc of said curve 39.70 feet to a point on the South line the Southeast 1/4 of Section 29, said point lying N 89°50'43" W, 1167.48 feet from the Southeast corner of Section 29; thence leaving said right-of-way, run N 89°50'43" W along the South line of the Southeast 1/4 of Section 29, 1496.10 feet, to the South Quarter corner thereof; thence N 89°50'42" W, 2152.59 feet along the South line of the Southwest 1/4 of Section 29 to a point on the right-of-way of Chelonia Parkway as shown on the Plat of Bonnet Creek Resort recorded in Plat Book 56, Page 41 of the Public Records of this County; thence run along said right-of-way the following courses; due North 163.29 feet to the point of curvature of a curve concave Southeasterly, having a radius of 675.00 feet and a central angle of 45°40'47"; thence run Northeasterly along the arc of said curve 538.15 feet to a point of reverse curvature of a curve concave Westerly, having a radius of 825.00 feet and a central angle of 98°34'08"; thence run Northeasterly and Northwesterly along the arc of said curve 1419.29 feet to a point of reverse curvature of a curve concave Northeasterly having a radius of 500.84 feet and a central angle of 22°53'21"; thence run Northwesterly and Northerly along the arc of said curve 200.08 feet; thence N 30°00'00" W, 607.96 feet; thence due North, 86.60 feet; thence due West 67.60 feet to a point of curvature of a curve concave Southerly having a radius of 611.16 feet and a central angle of 19°01'18"; thence run Westerly along the arc of said curve and Southerly right-of-way 202.90 feet; thence S 57°06'40" E, 167.71 feet; S 30°00'00" E, 180.00 feet; S 06°15'02" E, 54.63 feet; S 30°00'00" E, 408.17 feet to a point of curvature of a curve concave Northeasterly, having a radius of 650.84 feet and a central angle of 22°53'21"; run Southeasterly along the arc of said curve 260.00 feet; to a point of reverse

CONTINUED ON SHEET 6

RCES
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FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE:
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 5 OF 31 SHEETS	FILENAME: 10JG09096R2

CONTINUED FROM SHEET 5

curvature of a curve concave Westerly, having a radius of 675.00 feet and a central angle of 98°34'08"; thence run Southeasterly and Southwesterly along the arc of said curve 1161.24 feet to a point of reverse curvature of a curve concave Southeasterly, having a radius of 825.00 feet and a central angle of 45°40'47"; thence run Southwesterly along the arc of said curve, 657.74 feet; thence due South, 162.89 feet to the South line of the Southwest 1/4 of Section 29; thence departing the right-of-way line of Chelonia Parkway run N 89°50'42" W along the South line of the Southwest 1/4 of Section 29, 360.99 feet to the Southwest corner of Section 29 and the Northeast corner of Section 31, Township 24 South, Range 28 East; thence S 00°40'50" E, 2749.41 feet along the East line of the Northeast 1/4 of Section 31 to the Southeast corner thereof; thence S 00°27'13" W, 2643.90 feet along the East line of the Southeast 1/4 of Section 31 to the Southeast corner of Section 31; thence N 89°36'01" W, 2646.94 feet along the South line of the Southeast 1/4 of Section 31 to the Southwest corner thereof; thence N 89°56'54" W, 2748.82 feet along the South line of the Southwest 1/4 of Section 31 to the Southwest corner thereof and the Southeast corner of Section 36, Township 24 South Range 27 East; thence S 89°50'04" W, 2658.48 feet along the South line of the Southeast 1/4 of Section 36 to the Southwest corner thereof; thence S 89°46'36" W, 2656.21 feet along the South line of the Southwest 1/4 of Section 36 to the Southwest corner thereof and the Southeast corner of Section 35, Township 24 South Range 27 East; thence S 89°48'35" W, 2652.59 feet along the South line of the Southeast 1/4 of Section 35 to the Southwest corner thereof; thence S 89°44'07" W, 2661.05 feet along the South line of the Southwest 1/4 of Section 35 to the Southwest corner of said Section and the Southeast corner of Section 34, Township 24 South Range 27 East; thence S 89°46'46" W, 3438.73 feet along the South line of Section 34 to a point on the boundary of Black Lake Village according to the Plat thereof recorded in Plat Book 75, Page 149 of the Public Records of this County; thence leaving the South line of Section 34, run along the Easterly and Northerly boundary of said Plat following courses; N 00°13'59" W, 29.01 feet; N 14°42'28" W, 114.62 feet; N 06°53'49" W, 123.97 feet to a point of curvature of a curve concave Easterly having a radius of 25.00 feet, and a central angle of 16°36'26"; run Northerly along the arc of said curve, 7.25 feet; N 09°42'37" E, 104.21 feet to a point of curvature of a curve concave Southeasterly having a radius of 25.00 feet, and a central angle of 51°24'11"; run Northeasterly along the arc of said curve, 22.43 feet; N 61°06'48" E, 53.88 feet; N 71°34'02" E, 17.56 feet; N 18°25'51" W, 18.21 feet to a point on a non-tangent curve concave Northeasterly having a radius of 50.00 feet, and a central angle of 106°48'50"; from a tangent bearing of N 80°45'36" W run Northwesterly along the arc of said curve, 93.21 feet; N 31°47'40" W, 44.69 feet to a point on a non-tangent curve concave Northwesterly having a radius of 436.00 feet, and a central angle of 15°56'47"; from a tangent bearing of S 58°12'21" W run Southwesterly along the arc of said curve, 121.35 feet; S 74°09'08" W, 308.68 feet to a point of curvature of a curve concave Southeasterly having a radius of 514.00 feet, and a central angle of 20°05'00"; run Southwesterly along the arc of said curve, 180.17 feet; S 54°04'10" W, 67.69 feet to a point of curvature of a curve concave Northerly having a radius of 315.00 feet, and a central angle of 35°55'53"; run Westerly along the arc of said curve, 197.54 feet; N 89°59'58" W, 83.84 feet to a point of curvature of a curve concave Northerly having a radius of 381.00 feet, and a central angle of 34°07'58"; run Westerly along the arc of said curve, 226.97 feet; to a point of reverse curvature of a curve concave Southerly having a radius of 384.88 feet, and a central angle of 34°00'28"; run Westerly along the arc of said curve, 228.44 feet; to a point of reverse curvature of a curve concave Northerly having a radius of 185.00 feet, and a central angle of 35°39'45"; run Westerly along the arc of said curve, 115.15 feet; to a point of compound curvature of a curve concave Easterly having a radius of 47.00 feet, and a central angle of 130°32'06"; run Northerly along the arc of said curve, 107.08 feet; N 76°19'21" E, 28.14 feet; S 89°22'47" E, 9.24 feet; N 75°08'23" E, 42.15 feet; N 66°44'45" E, 45.92 feet; N 58°10'56" E, 7.13 feet; N 40°00'00" E, 8.68 feet; N 28°21'12" E, 21.50 feet; N 19°11'06" E, 7.97 feet; N 05°44'49" E, 22.07 feet; N 09°37'03" E, 18.85 feet; N 28°18'59" E, 25.32 feet; N 39°33'24" E, 18.56 feet; N 51°48'12" E, 17.01 feet; N 53°20'03" E, 12.93 feet; N 67°23'56" E, 18.89 feet; N 61°31'34" E, 16.11 feet; N 85°31'20" E, 16.65 feet; S 84°27'04" E, 14.79 feet; S 66°07'30" E, 25.25 feet; S 70°01'08" E, 21.22 feet; S 76°11'40" E, 28.29 feet; S 81°04'45" E, 15.99 feet; S 63°15'14" E, 32.58 feet; S 71°35'23" E, 7.28 feet; S 83°45'15" E, 20.77 feet; N 86°06'18" E, 21.64 feet; S 75°49'09" E, 17.31 feet; S 87°55'16" E, 10.48 feet; N 72°43'50" E, 26.75 feet; N 60°42'21" E, 36.44 feet; N 77°16'53" E, 19.62 feet; N 68°37'24" E, 7.52 feet; N 57°06'15" E, 21.62 feet; N 48°30'29" E, 7.40 feet; N 29°59'26" E, 8.68 feet; N 13°42'55" E, 39.82 feet;

CONTINUED ON SHEET 7

RCES REEDY CREEK ENERGY SERVICES
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FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 6 OF 31 SHEETS	FILENAME: 10JG09096R2

CONTINUED FROM SHEET 6

N 10°06'24" E, 32.03 feet; N 01°43'31" W, 29.22 feet; N 05°37'39" W, 26.82 feet; N 12°01'53" W, 42.36 feet; N 21°06'43" W, 7.72 feet; N 36°50'10" W, 37.65 feet; N 47°37'33" W, 25.00 feet; N 56°19'26" W, 44.83 feet; N 49°30'53" W, 55.06 feet; N 59°47'57" W, 8.89 feet; N 72°21'36" W, 36.00 feet; N 82°08'10" W, 65.71 feet; S 89°42'01" W, 51.60 feet; N 80°08'53" W, 56.11 feet; N 89°26'00" W, 8.09 feet; S 81°14'14" W, 46.34 feet; S 78°42'25" W, 40.49 feet; S 77°43'02" W, 63.74 feet; S 79°09'43" W, 47.65 feet; S 72°48'44" W, 44.03 feet; S 63°14'34" W, 42.60 feet; S 57°48'39" W, 28.70 feet; S 64°21'00" W, 20.44 feet; S 67°06'48" W, 29.21 feet; S 83°28'20" W, 29.99 feet; S 83°04'31" W, 27.06 feet; S 84°19'19" W, 42.81 feet to a point of curvature of a curve concave Northeasterly having a radius of 50.00 feet, and a central angle of 83°36'01"; run Northwesterly along the arc of said curve, 72.95 feet; to a point of compound curvature of a curve concave Easterly having a radius of 188.00 feet, and a central angle of 27°45'45"; run Northerly along the arc of said curve, 91.10 feet; S 89°52'10" W, 174.16 feet; thence departing said Plat run along the West line of the Southwest 1/4 of Section 34, N 00°00'19" E, 313.89 feet to the Northwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 34 and the Northeast corner of the Southeast 1/4 of the Southeast 1/4 of Section 33, Township 24 South, Range 27 East; thence continue N 00°00'19" E 498.35 feet to the Southeast corner of the North 5/8 of the Northeast 1/4 of the Southeast 1/4 of Section 33; thence run along the South line of the North 5/8 of the Northeast 1/4 of the Southeast 1/4 of Section 33, N 89°47'57" W, 1326.58 feet to the Southwest corner thereof; thence run along the West line of the North 5/8 of the Northeast 1/4, of the Southeast 1/4 of Section 33, N 00°00'31" E, 835.26 feet to the Northwest corner thereof; thence run along the West line of the Southeast 1/4 of the Northeast 1/4 of Section 33, N 00°00'25" E, 1321.43 feet to the Northwest corner thereof; thence run along the North line of the Southeast 1/4 of the Northeast 1/4 of Section 33, S 89°55'44" E, 1326.40 feet; to the Northeast corner thereof; thence run along the West line of the Northwest 1/4 of Section 34 Township 24 South Range 27 East, N 00°00'06" E, 1329.09 feet to the Northwest corner thereof; thence N 89°53'53" E, 2679.47 feet along the North line of the Northwest 1/4 of Section 34 to the Northeast corner thereof and the Southwest corner of the Southeast 1/4 of Section 27, Township 24 South, Range 27 East; thence N 00°01'11" W, 3964.69 feet along the West line of the East 1/2 of Section 27 to the Southeast corner of the Northeast 1/4 of the Northwest 1/4 of Section 27; thence S 89°37'54" W, 1332.15 feet along the South line of the Northeast 1/4 of the Northwest 1/4 of Section 27 to the Southwest corner thereof; thence N 00°08'12" E, 1330.97 feet along the West line of the Northeast 1/4 of the Northwest 1/4 of Section 27 to the Northwest corner thereof,; thence S 89°46'29" W, 1328.51 feet along the North line of the Northwest 1/4 of Section 27 to the Northwest corner of Section 27 and the Northeast corner of Section 28, Township 24 South, Range 27 East; thence S 89°48'06" W, 1331.20 feet along the North line of the Northeast 1/4 of the Northeast 1/4 of Section 28, to the Northeast corner of the West 1/2 of the Northeast 1/4 of Section 28; thence S 00°12'18" W, 882.69 feet along the East line of the West 1/2 and the Northeast 1/4 of Section 28, Township 24 South, Range 27 E to a point on the Westerly right of way line of State Road 429 as described in Official Records Book 7070, Page 2553 and Book 7106, Page 2802 of the Public Records of Orange County, Florida and a point on a non-tangent curve concave Southwesterly having a radius of 2204.09 feet, and a central angle of 07°27'37"; thence from a tangent bearing of N 29°38'58" W run Northwesterly along the arc of said curve and right of way line, 286.99 feet; thence continue along said right of way line the following two courses; N 37°06'36" W, 690.17 feet to a point on a non-tangent curve concave Northeasterly having a radius of 770.43 feet, and a central angle of 09°59'15"; thence from a tangent bearing of N 39°00'55" W run Northwesterly along the arc of said curve, 134.30 feet; thence N 88°43'15" W, 555.85 feet to a point on the Easterly right of way line of Flamingo Crossing Blvd. as described in Official Records Book 10815, Page 4619 of the Public Records of Orange County, Florida and a non-tangent curve concave Westerly having a radius of 1010.00 feet, and a central angle of 01°59'18"; thence from a tangent bearing of S 05°40'55" E run Southerly along the arc of said curve and right of way line, 35.05; thence S 89°48'06" W, 125.95 feet along the South line of the Southeast 1/4 of Section 21, Township 24 South, Range 27 East to the Southwest corner thereof; thence S 89°49'36" W, 483.70 feet; along the South line of the Southwest 1/4 of Section 21, Township 24 South, Range 27 East; thence N 40°17'32" W, 323.52 feet; thence N 32°21'38" W, 271.63 feet; thence N 34°30'31" W, 120.76 feet; thence N 46°26'37" W, 108.80 feet; thence S 89°49'14" W, 28.71 feet to a point of curvature of a curve concave Southerly having a radius of 934.00 feet, and a central angle of 01°05'30"; thence run Westerly along the arc of said curve, 17.79 feet; thence S 00°10'31" E, 11.26 feet; thence S 89°49'29" W, 28.35 feet; thence S 04°02'58" E,

CONTINUED ON SHEET 8

RCES
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FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 7 OF 31 SHEETS	FILENAME: 10JG09096R2

CONTINUED FROM SHEET 7

4.66 feet; thence S 86°05'06" W, 22.85 feet; thence N 03°54'54" W, 6.14 feet; thence S 89°49'29" W, 173.97 feet to a point of curvature of a curve concave Northerly having a radius of 2158.53 feet, and a central angle of 24°05'38"; thence run Westerly along the arc of said curve, 907.70 feet; thence N 66°04'53" W, 548.81 feet; thence N 00°35'44" E, 1606.72 feet along the West line of the Southwest 1/4 of Section 21, Township 24 South, Range 27 East to the Northwest corner thereof; thence N 00°35'56" E, 2659.37 feet along the West line of the Northwest 1/4 of Section 21 to the Northwest corner of Section 21 and the Southeast corner of Section 17, Township 24 South, Range 27 East; thence N 00°02'13" E, 2669.40 feet along the East line of the Southeast 1/4 of Section 17 to the Northeast corner thereof; thence S 89°43'49" W, 1347.90 feet along the South line of the East 1/2 of the Northeast 1/4 of Section 17, to the Southwest corner thereof; thence N 00°18'18" W, 2652.68 feet along the West line of the East 1/2 of the Northeast 1/4 of Section 17 to the Northwest corner thereof; thence S 89°39'31" W, 2661.03 feet along the North line of Section 17 to the Northwest corner of the Northeast 1/4 of the Northwest 1/4 of Section 17 and the Southwest corner of the Southeast 1/4 of the Southwest 1/4 of Section 8, Township 24 South, Range 27 East; thence N 00°24'44" E, 242.11 feet along the West line of the Southeast 1/4 of the Southwest 1/4 of Section 8 to a point on the Easterly right-of-way line of County Road 545 as described in Deed Book 402, Page 355 of the Public Records of this County; said point being a point on a non-tangent curve concave Westerly, having a radius of 2826.01 feet, and a central angle of 19°14'15"; thence from a tangent bearing of N 18°34'50" E, run Northerly along the arc of said curve and right-of-way, 948.86 feet; thence continue along said right-of-way, N 00°39'25" W, 141.86 feet; thence N 89°41'27" E, 1188.92 feet along the North line of the Southeast 1/4 of the Southwest 1/4 of Section 8 to the Northeast corner thereof; thence N 00°15'09" E, 1315.34 feet along the West line of the Northwest 1/4 of the Southeast 1/4 of Section 8 to the Northwest corner thereof; thence N 00°14'57" E, 50.00 feet along the West line of the Northeast 1/4 of Section 8 to a point on the Northerly right-of-way line of Flamingo Crossings Boulevard as described in Official Records Book 9782, Page 7172 of the Public Records of this County; thence run along said right-of-way line the following three courses; N 89°43'25" E, 671.30 feet; N 23°57'49" E, 158.82 feet to a point on a non-tangent curve concave Southwesterly having a radius of 2750.09 feet, and a central angle of 04°43'07"; from a tangent bearing of S 33°16'29" E run Southeasterly along the arc of said curve, 226.49 feet; thence N 89°43'24" E, 1808.38 feet along the North line of the Southeast 1/4 of Section 8 to the Northeast corner thereof and the Northwest corner of the Southwest 1/4 of Section 9, Township 24 South, Range 27 East; thence run N 89°44'05" E, 1325.36 feet along the North line of the Northwest 1/4 of the Southwest 1/4 of Section 9 to the Northeast corner thereof; thence S 00°08'51" W, 1314.23 feet along the East line of the Northwest 1/4 of the Southwest 1/4 of Section 9 to the Southeast corner thereof; thence N 89°45'10" E, 1327.55 feet along the North line of the Southeast 1/4 of the Southwest 1/4 of Section 9 to the Northeast corner thereof; thence S 00°03'05" W, 1314.64 feet along the East line of the Southeast 1/4 of the Southwest 1/4 of Section 9 to the Southeast corner of the Southwest 1/4 of Section 9; thence N 89°53'46" E, 2633.36 feet along the South line of the Southeast 1/4 of Section 9 to the Southeast corner thereof and the Southwest corner of Section 10, Township 24 South, Range 27 East; thence N 00°15'35" E, 5286.81 feet along the West section line of Section 10 to the Northwest corner thereof and the Southwest corner of Section 3, Township 24 South, Range 27 East; thence N 00°11'50" W, 2661.64 feet along the West line of the Southwest 1/4, Section 3 to the Northwest corner thereof; thence N 89°39'50" E, 3976.31 feet along the North line of the South half of Section 3 to the Northeast corner of the Northwest 1/4 of the Southeast 1/4 of Section 3; thence S 00°04'39" E, 1326.78 feet along the East line of the Northwest 1/4 of the Southeast 1/4 of Section 3 to the Northwest corner of the Southeast 1/4 of the Southeast 1/4 of Section 3; thence N 89°37'16" E, 1328.99 feet along the North line of the Southeast 1/4 of the Southeast 1/4 of Section 3 to the Northeast corner thereof and the Northwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 2, Township 24 South, Range 27 East; thence N 00°07'50" W, 1325.78 feet along the West line of Northwest 1/4, of the Southwest 1/4, of Section 2 to the Northwest corner thereof; thence N 00°07'43" W, 400.13 feet along the West line of the Northwest 1/4, of Section 2; thence run along the Northerly boundary of a deed recorded in Official Records Book 1457, Page 934 of the Public Records of this County the following three courses; N 86°46'13" E, 1024.87 feet; N 77°37'23" E, 1103.42 feet; N 53°18'38" E, 1872.82 feet to a point on the Southerly right-of-way line of Reams Road as shown on Plat book 3, Page 85 of the Public Records of this County; thence run along said right-of-way line the following three courses; S

CONTINUED ON SHEET 9

SURVEYING AND MAPPING DEPARTMENT
P.O.B. 10000
LAKE BUENA VISTA
FL 32830-1000
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA: *WDW DISNEY OVERALL*	DATE: 12/07/17
PROJECT NAME: *RCID WATER/WASTE WATER TERRITORY*	SCALE
SURVEY TYPE: *SKETCH OF DESCRIPTION*	DRAWN BY: JLG
COMMENTS: *EXHIBIT A1, SHEET 8 OF 31 SHEETS*	FILENAME: 10JG09096R2

CONTINUED FROM SHEET 8

43°40'10" E, 1382.92 feet to the beginning of a curve concave to the Northeast, having a radius of 546.86 feet and a central angle of 46°21'00"; thence run Southeasterly along the arc of said curve 442.39 feet; thence N 89°58'50" E, 341.61 feet; thence leaving said right-of-way, run S 00°19'24" E, 603.75 feet along the East line of the Northeast 1/4 of Section 2, to the Southeast corner thereof, and the Northwest corner of the Northwest 1/4 of the Southwest 1/4 of Section 1, Township 24 South, Range 27 East; thence N 89°43'47" E, along the North line of the Northwest 1/4 of the Southwest 1/4 of Section 1, 1297.19 feet to a point 25 feet West of the Northeast corner of the Northwest 1/4 of the Southwest 1/4 of Section 1; thence N 00°12'21" W, 598.76 feet along a line that is 25.00 feet West of and parallel to the West line of the Southeast 1/4 of the Northwest 1/4 of Section 1 to the Southerly right-of-way line of aforesaid Reams Road; thence N 89°56'46" E, 100.00 feet along said Southerly right-of-way of Reams Road; thence run along the Easterly and Northerly boundary of a deed recorded in Official Records Book 1465, Page 307 of the Public Records of this County the following five courses; S 02°04'12" E, 523.43 feet; N 89°43'40" E, 52.00 feet; S 00°12'21" E, 49.00 feet; N 89°43'41" E, 229.00 feet; S 00°12'25" E, 26.23 feet; thence N 89°43'47" E, 1039.16 feet along the North line of the South half of Section 1 to a point 90.00 feet East of the Northeast corner of the Southwest 1/4 of Section 1; thence S 05°34'33" W, 911.86 feet; thence S 00°05'18" E, 420.00 feet along the East line of the Northeast 1/4 of the Southwest 1/4 of Section 1 to the Southeast corner thereof; thence N 89°44'10" E, 2649.93 feet along the North line of the South half of the Southeast 1/4 of Section 1 to the Point of Beginning.

Also including the following described parcels:

A parcel of land lying in Sections 27 and 28, Township 24 South, Range 28 East, Orange County, Florida, and being more particularly described as follows:

Begin at the West Quarter corner of Section 27, run along the West line of the Northwest 1/4 of Section, N 00°02'53" E, 682.89 feet; thence run along the South line of the Northeast 1/4 of the Southeast 1/4 of the Northeast 1/4 of Section 28, N 89°56'04" W, 599.63 feet to a point on the Easterly right-of-way line of State Road 400 as shown in map section 75280-2465 and dated 2/22/1993; thence run along said right-of-way line the following five courses; N 38°29'40" E, 85.01 feet; thence S 51°29'59" E, 24.30 feet; thence N 42°29'47" E, 519.07 feet to a point of curvature of a curve concave Southeasterly having a radius of 616.02 feet, and a central angle of 37°22'29"; thence run Northeasterly along the arc of said curve, 401.84 feet; thence N 79°53'24" E, 876.12 feet; thence run along the westerly boundary of a deed recorded in Official Recorded Book 5128, Page 3223 of the public Records of this County the follow six courses; S 10°05'08" E, 841.27 feet to a point on a non-tangent curve concave Northwesterly having a radius of 50.00 feet, and a central angle of 89°59'49"; thence from a tangent bearing of S 10°05'20" E run Southwesterly along the arc of said curve, 78.54 feet; thence S 79°54'26" W, 57.02 feet to a point on a non-tangent curve concave Southeasterly having a radius of 85.00 feet, and a central angle of 85°16'57"; thence from a tangent bearing of S 79°54'19" W run Southwesterly along the arc of said curve, 126.52 feet; thence S 05°22'41" E, 31.47 feet; thence N 79°52'20" E, 360.78 feet; thence run along the Westerly right-of-way line of State Road 535 as shown in map section 75560-2610 and dated 8/7/1992, S 10°07'19" E, 100.00 feet; thence run along the Northerly and Westerly boundary of a deed recorded in Official Recorded Book 4869, Page 2401 of the Public Records of this County the follow five courses; S 79°52'17" W, 391.52 feet to a point on a non-tangent curve concave Southerly having a radius of 420.98 feet, and a central angle of 02°26'38"; thence from a tangent bearing of S 79°53'33" W run Westerly along the arc of said curve, 17.96 feet; thence S 12°33'06" E, 124.13 feet; thence N 79°52'06" E, 52.23 feet; thence S 10°07'42" E, 221.02 feet to a point on the South line of the Northwest 1/4 of Section 27; thence run along said South line S 89°42'32" W, 1102.84 feet to the Point of Beginning.

CONTINUED ON SHEET 10

CONTINUED FROM SHEET 9

Less the following described parcels:

That portion of Lots 110 and 111 of the Munger and Company Subdivision of Section 22, Township 24 South, Range 28 East according to the Plat recorded in Plat Book E Page 22 of the Public Records of Orange County, Florida, being more particularly described as:

Commence at the Northwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 22, run S 89°27'13" E, 464.18 feet along the North line of the Southwest 1/4 of the Southwest 1/4 of Section 22; thence S 00°32'47" W, 15.00 feet to a point on the North line of said Lot 111 and the Point of Beginning; thence S 89°27'13" E, 300.00 feet along the North line of Lots 110, and 111 to the West right-of-way of State Road 400 as shown in map section 75280-2465 and dated 2/22/1993; thence S 04°05'32" E, 150.49 feet along the said right-of-way; thence N 89°27'13" W, 312.17 feet along the South line of the North 150.00 feet said Lots 110 and 111; thence N 00°32'47" E, 150.00 feet to the Point of Beginning.

And

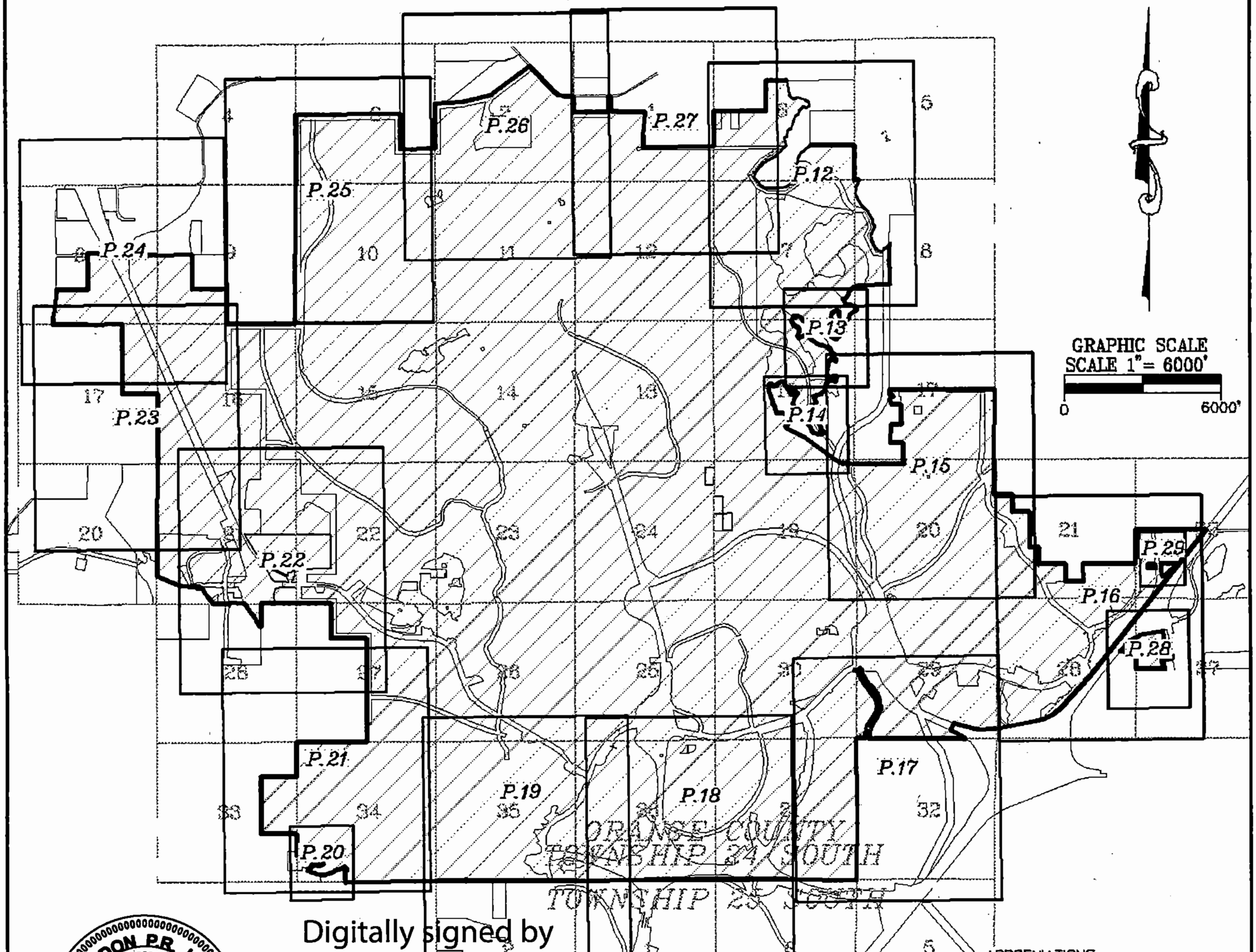
That part of the Northwest 1/4 of the Southeast 1/4 of the Southwest 1/4 and the Northeast 1/4 of the Southwest 1/4 of the Southwest 1/4 of Section 22, Township 24 South, Range 28 East, being more particularly described as:

Commence at the Northwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 22, run along the North line of the South 1/2 of the Southwest 1/4 of Section 22, S 89°27'13" E, 985.26 feet, to the Point of Beginning; thence continue along said line S 89°27'13" E, 642.78 feet; thence run along the Westerly right-of-way line of State Road 400 as shown in map section 75280-2465 and dated 2/22/1993 the following three courses; S 46°05'23" W, 681.12 feet to a point on a non-tangent curve concave Northerly having a radius of 60.00 feet, and a central angle of 118°45'23"; from a tangent bearing of S 46°06'36" W run Westerly along the arc of said curve, 124.36 feet; N 15°07'40" W, 205.41 feet; thence run along the West line of Lot 109 of the Munger and Company Subdivision of Section 22, according to the Plat recorded in Plat Book E Page 22 of the Public Records of this County, N 00°14'30" E, 252.64 feet to the Point of Beginning.

Containing 17,764.366 acres more or less.

RCES REEDY CREEK ENERGY SERVICES
SURVEYING AND MAPPING DEPARTMENT
P.O.B. 10000
LAKE BUENA VISTA
FL 32830-1000
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE:
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 10 OF 31 SHEETS	FILENAME: 10JG09096R2



Digitally signed by gordon.p.land@disney.com
Date: 2018.10.23 13:15:13 -04'00'

GORDON P.R. LAND
License Number 7127
STATE OF FLORIDA
Professional Surveyor and Mapper

Gordon P.R. Land, PSM
Florida Certificate No. 7127

12/07/2017

Reedy Creek Energy Services, Survey and Mapping Department LB 7714
751 Backstage Lane, Bay Lake, Florida 32830-1000

Note: Not valid without the signature and the original raised seal, or electronic signature of a Florida licensed Surveyor and Mapper.

ABBREVIATIONS
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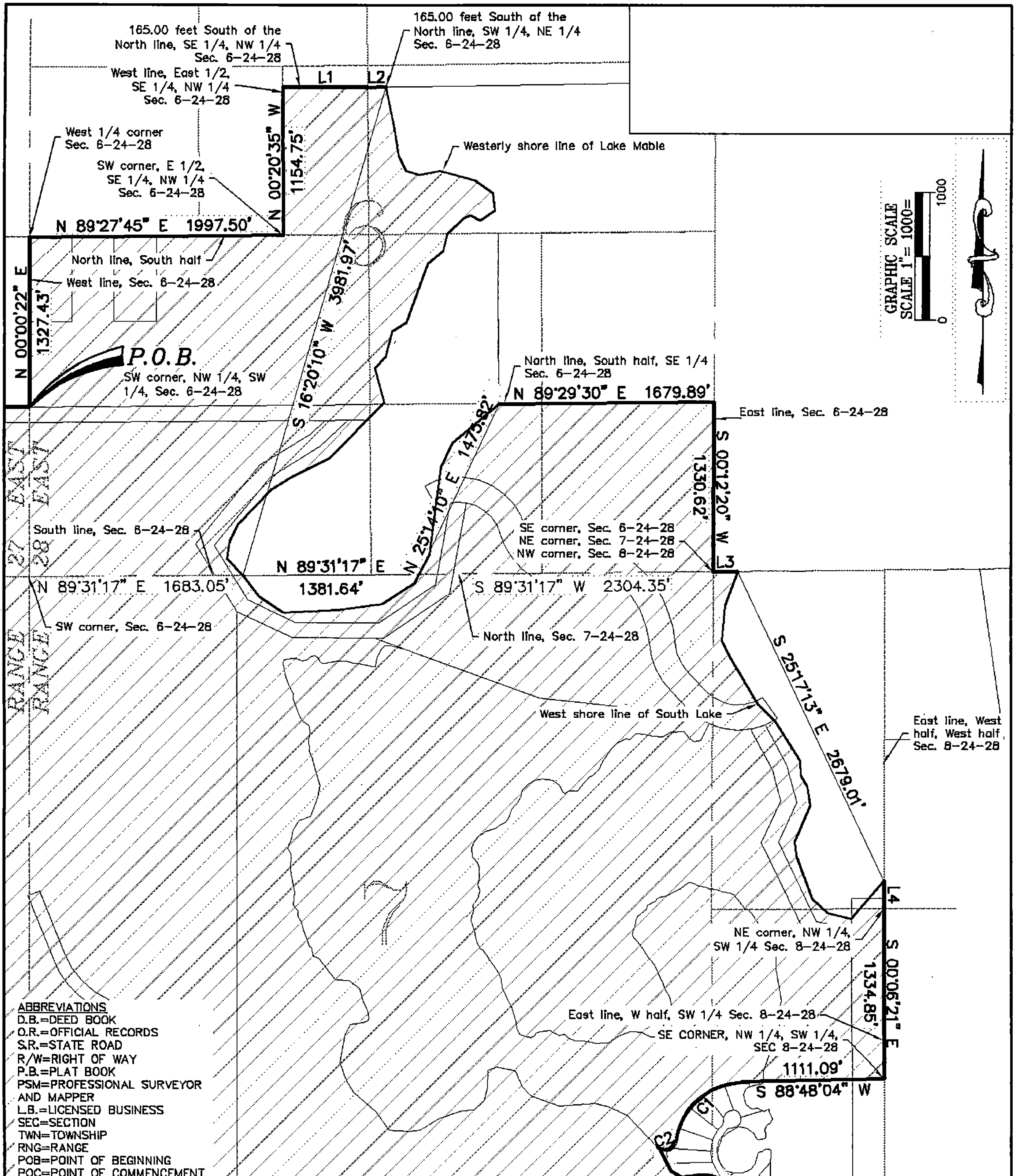
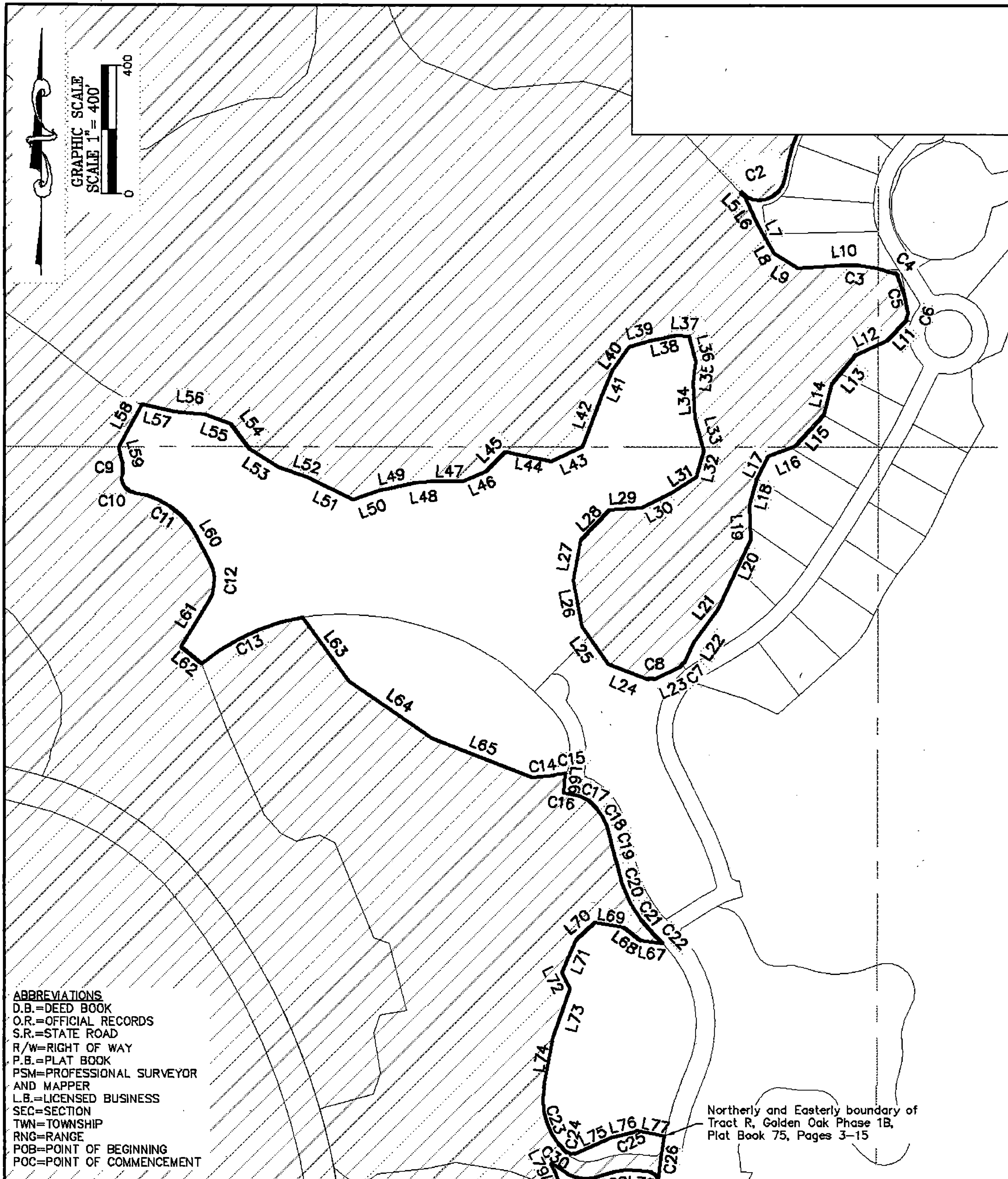
SURVEYOR'S NOTE
CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE REQUIRES THE FOLLOWING STATEMENT.
"THIS IS NOT A BOUNDARY SURVEY"

BEARINGS ARE BASED ON THE WEST LINE OF THE SW 1/4, OF SEC. 6, TWN 24 S, RNG 28 E AS BEING N 00°00'22" E

RCES REEDY CREEK ENERGY SERVICES	SURVEYING AND MAPPING DEPARTMENT P.O.B. 10000 LAKE BUENA VISTA FL 32830-1000 PHONE (407)560-7118 FAX (407)560-7869	FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
		PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE
		SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
		COMMENTS: EXHIBIT A1, SHEET 11 OF 31 SHEETS	FILENAME: 10JG09096R2



RCES REEDY CREEK ENERGY SERVICES	SURVEYING AND MAPPING DEPARTMENT P.O.B. 10000 LAKE BUENA VISTA FL 32830-1000 PHONE (407)560-7118 FAX (407)560-7869	FILING AREA *WDW DISNEY OVERALL*	DATE: 12/07/17
		PROJECT NAME *RCID WATER/WASTE WATER TERRITORY*	SCALE 1" = 1000'
		SURVEY TYPE *SKETCH OF DESCRIPTION*	DRAWN BY: JLG
		COMMENTS *EXHIBIT A1, SHEET 12 OF 31 SHEETS*	FILENAME: 10JG09096R2



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FL 32830–1000
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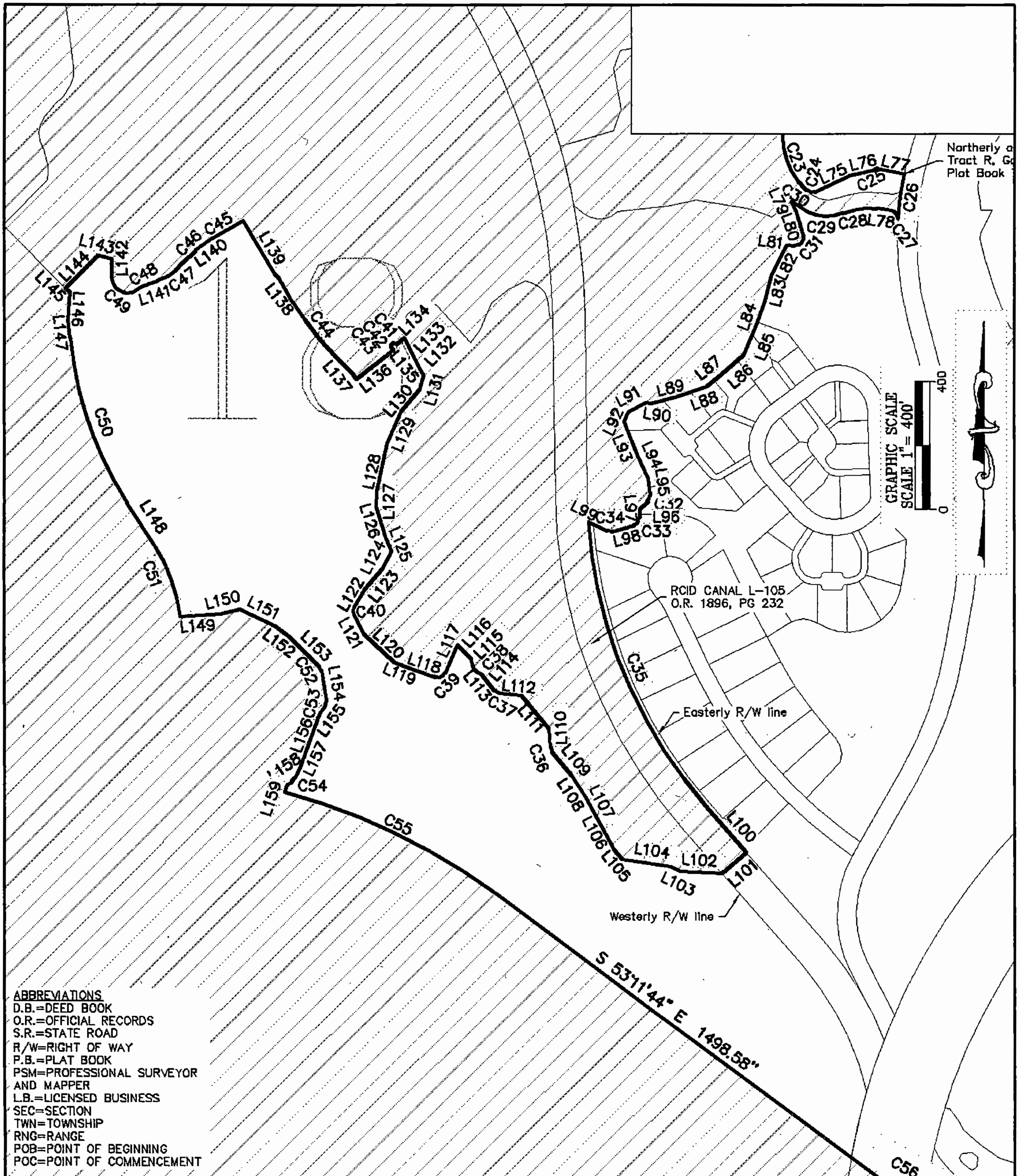
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 400'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 13 OF 31 SHEETS	FILENAME: 10JG09096R2



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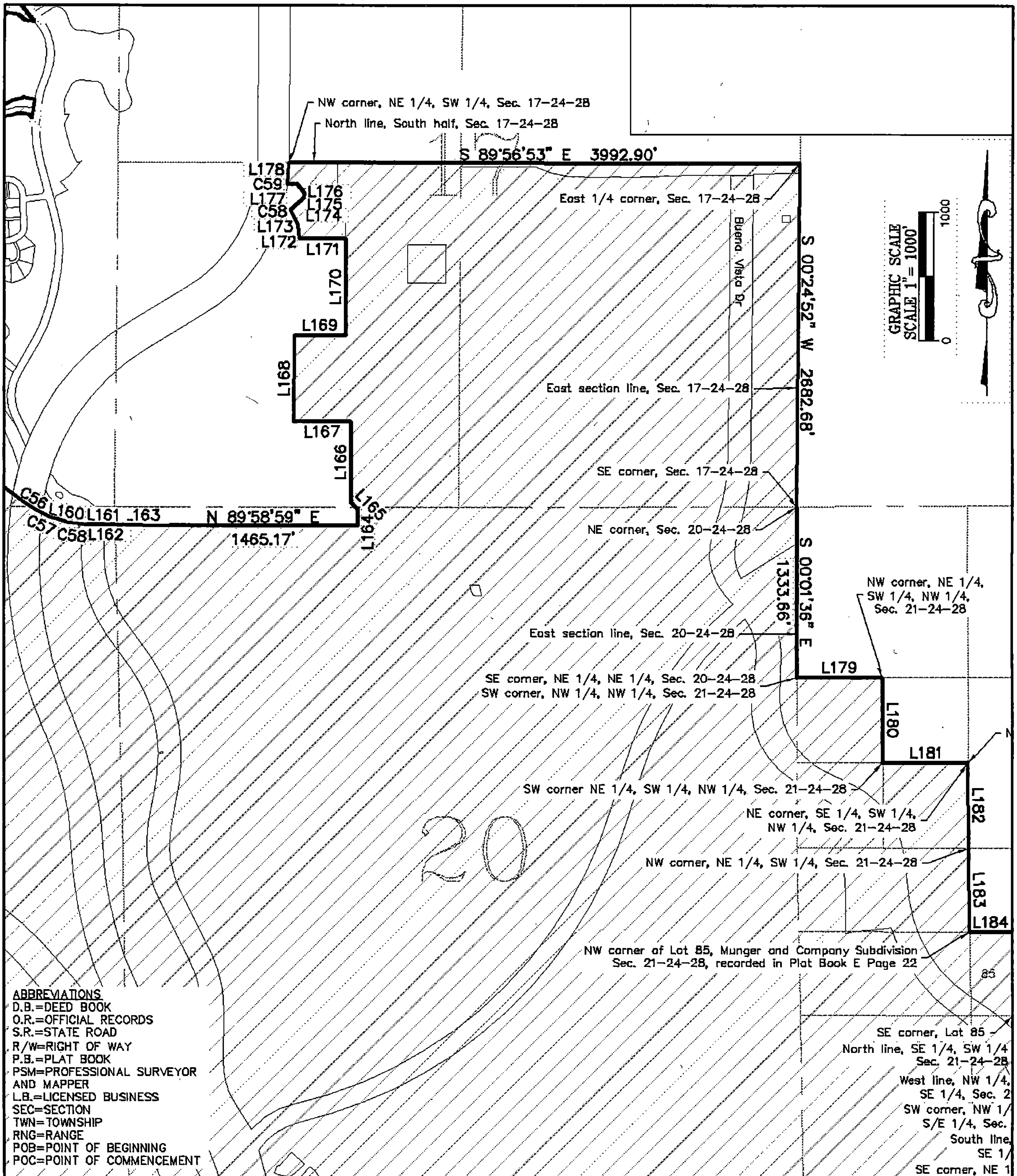
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 400'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 14 OF 31 SHEETS	FILENAME: 10JG09096R2



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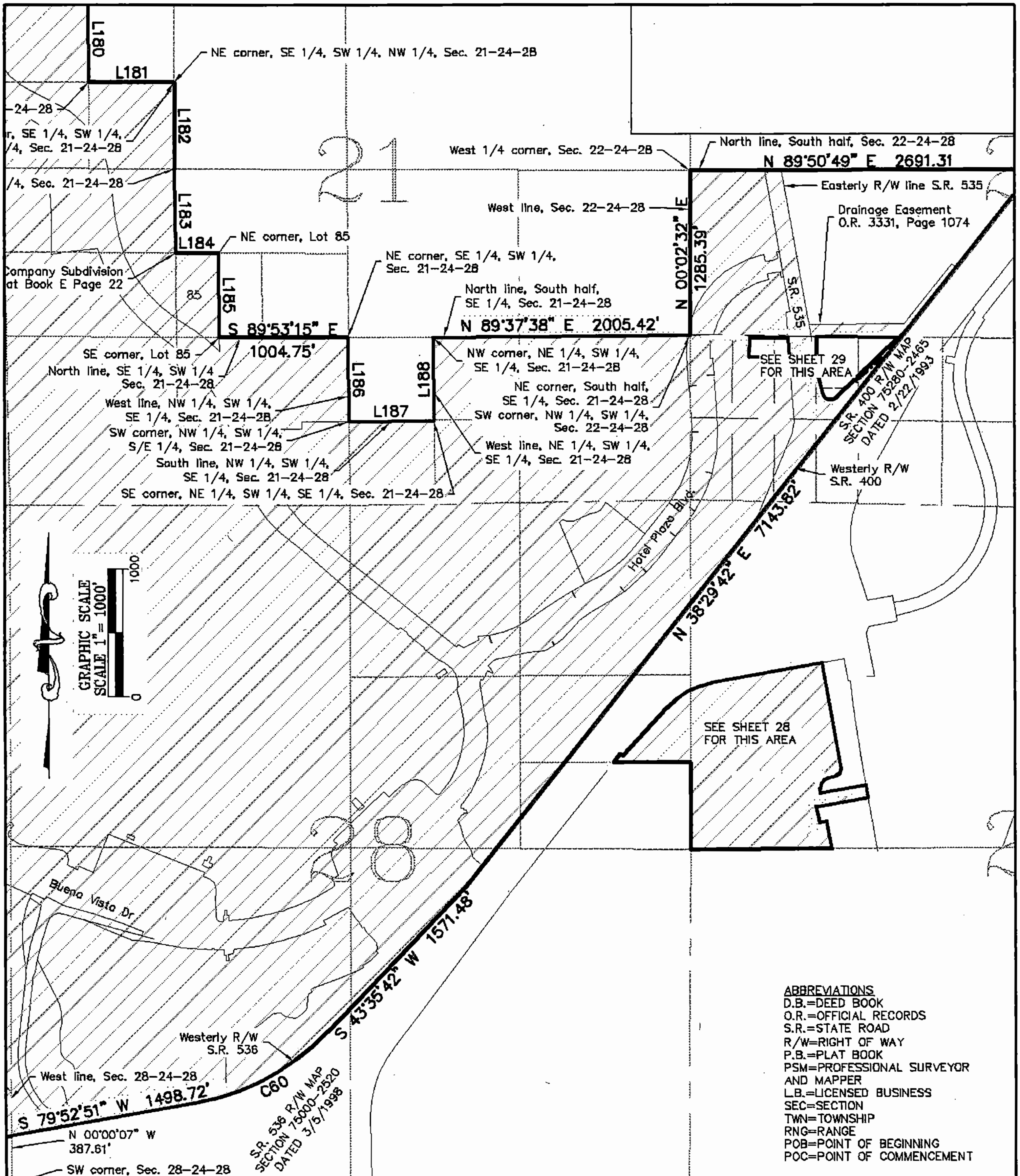
FL. 32830-1000
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 15 OF 31 SHEETS	FILENAME: 10JG09096R2



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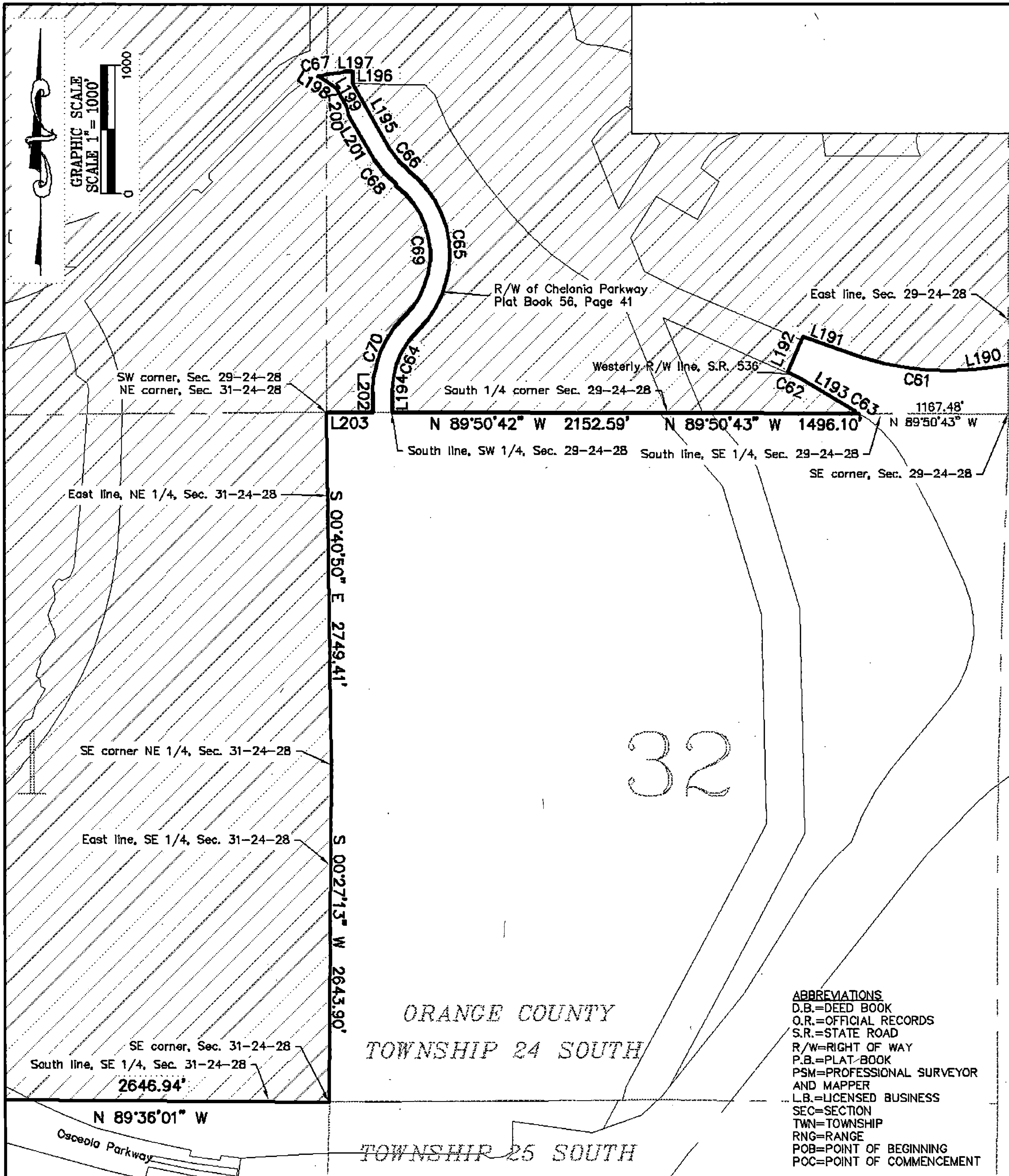
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 16 OF 31 SHEETS	FILENAME: 10JG09096R2



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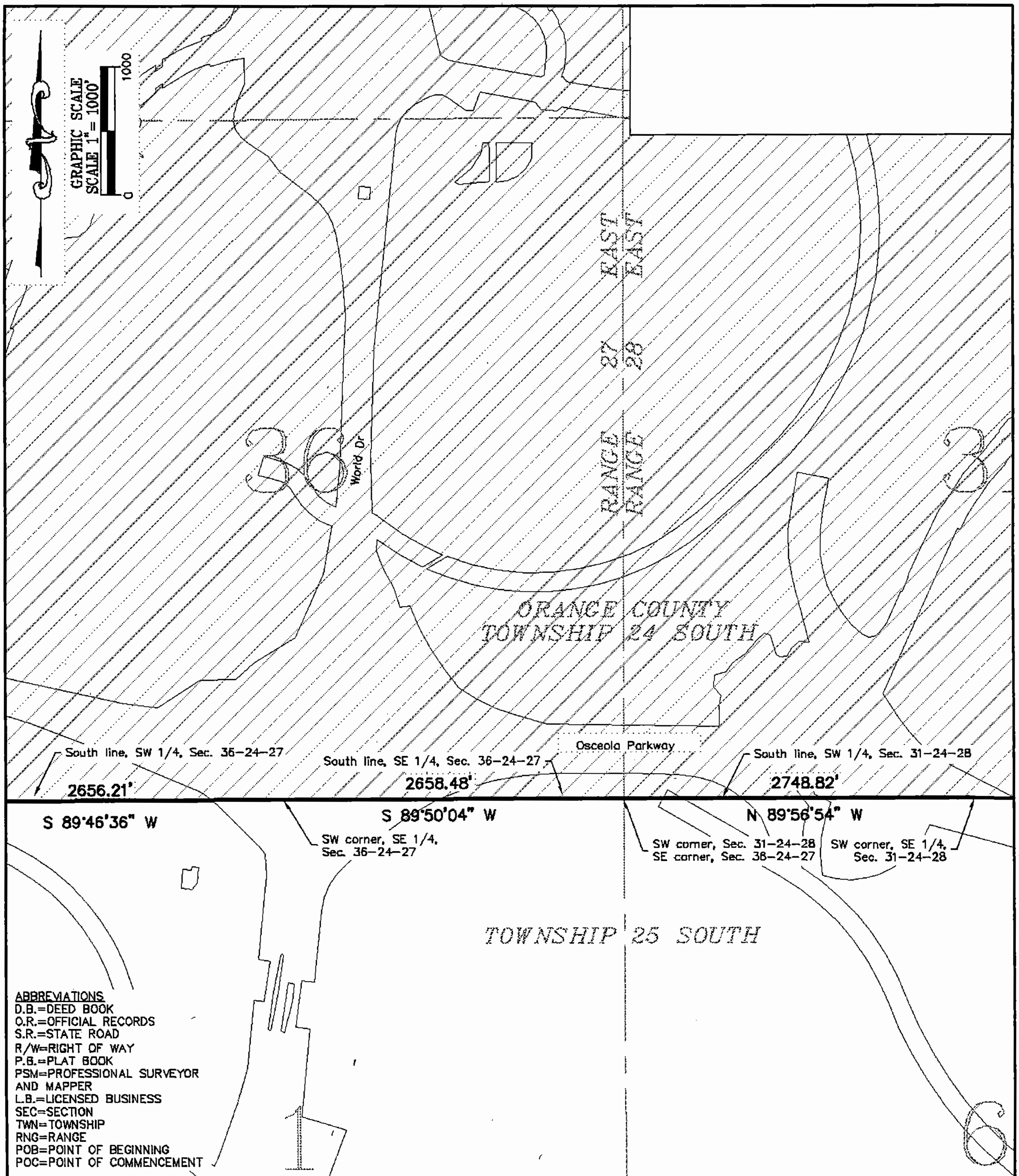
FILING AREA WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME RCID WATER/WASTE WATER TERRITORY	SCALE 1" = 1000'
SURVEY TYPE SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS EXHIBIT A1, SHEET 17 OF 31 SHEETS	FILENAME: 10JG09096R2



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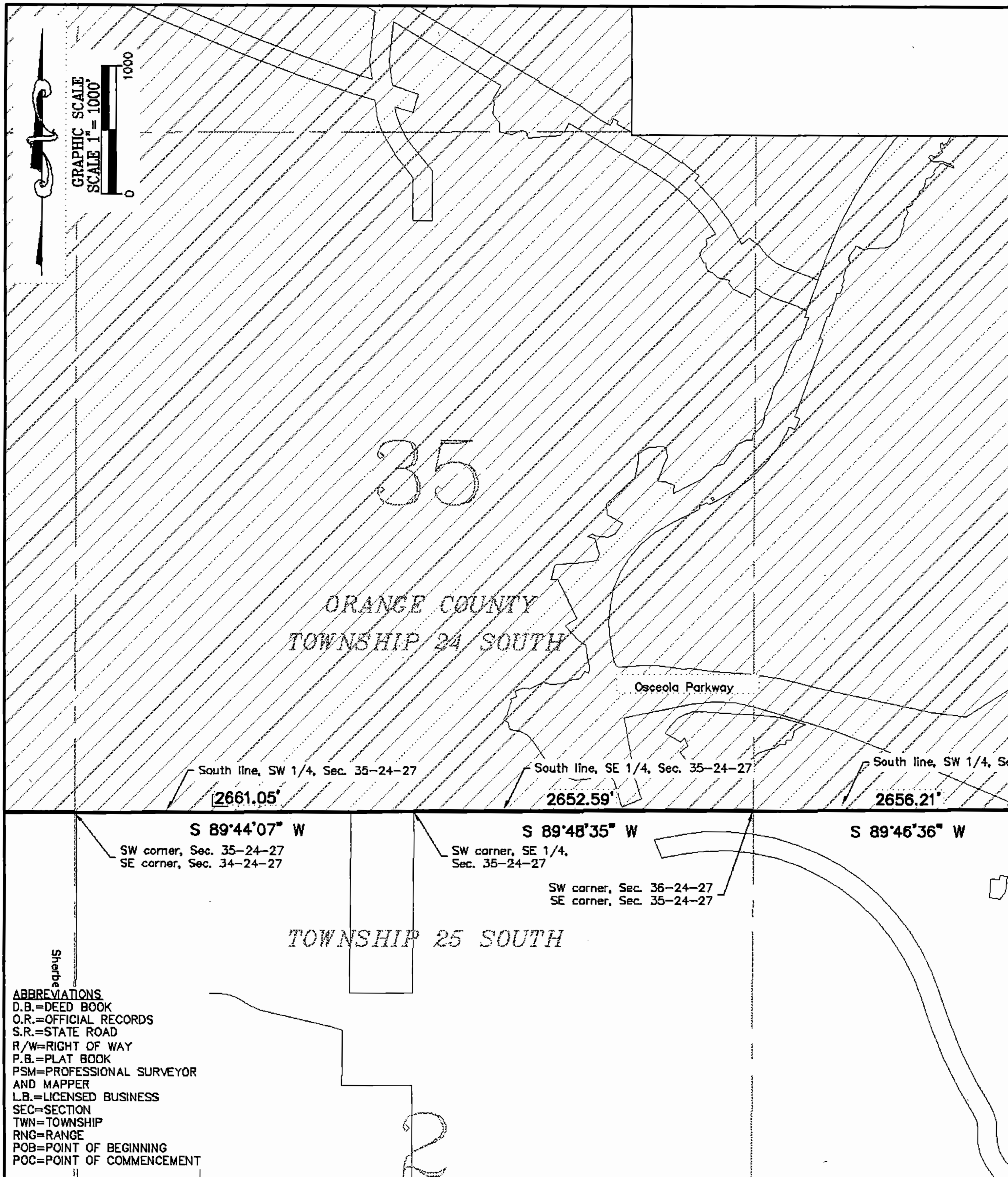
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 18 OF 31 SHEETS	FILENAME: 10JG09096R2



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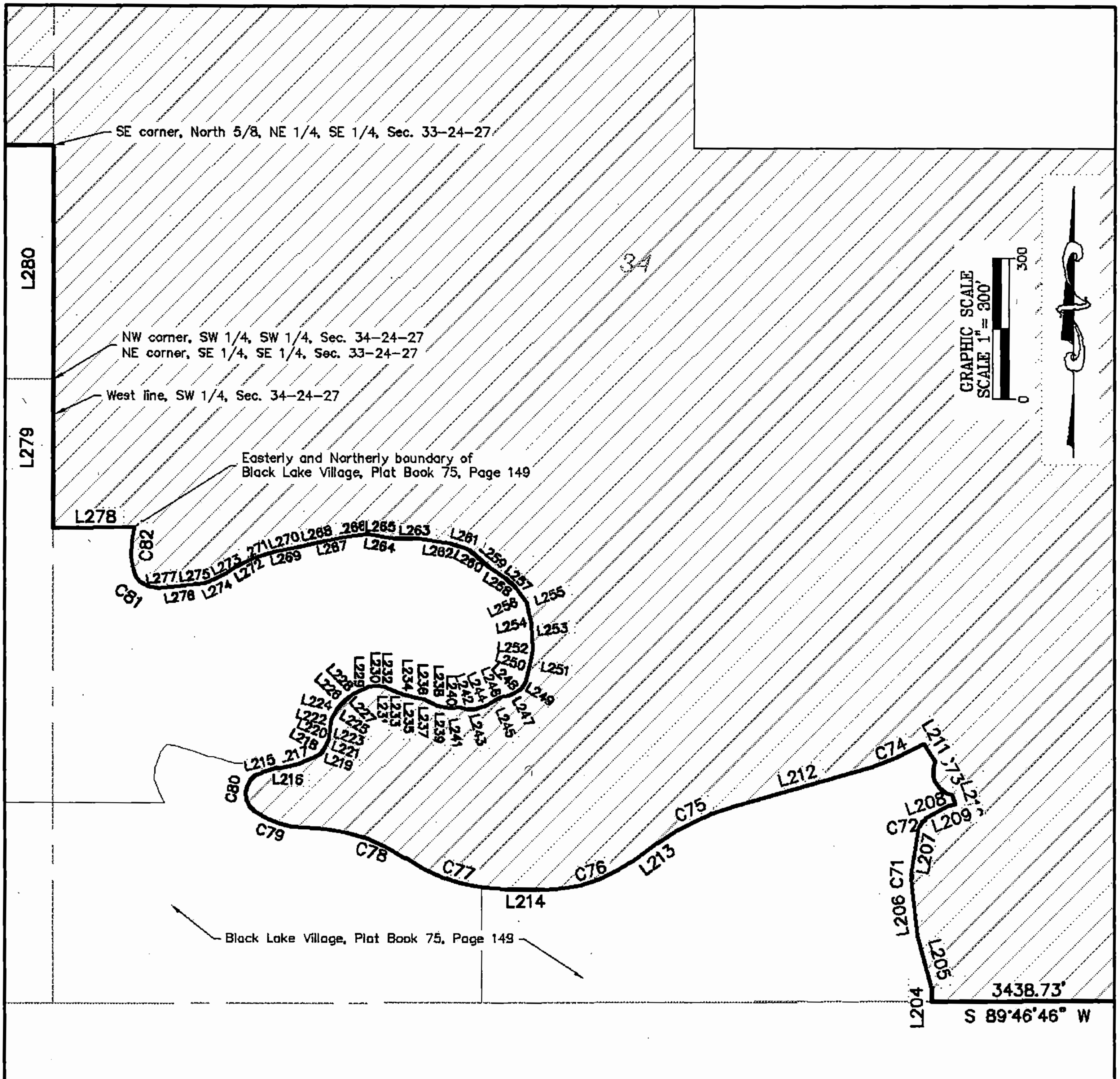
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 19 OF 31 SHEETS	FILENAME: 10JG09096R2



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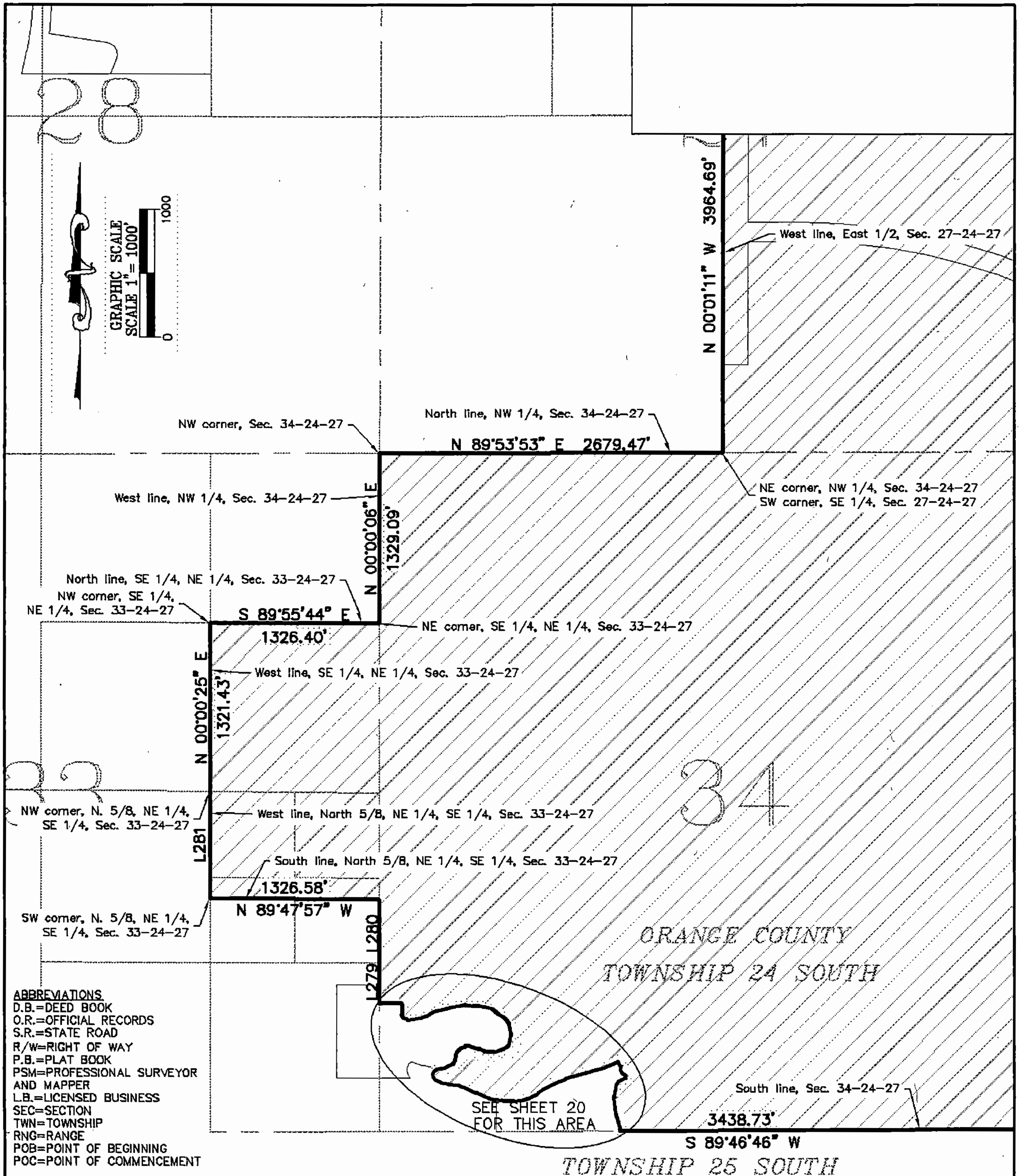
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 300'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 20 OF 31 SHEETS	FILENAME: 10JG09096R2



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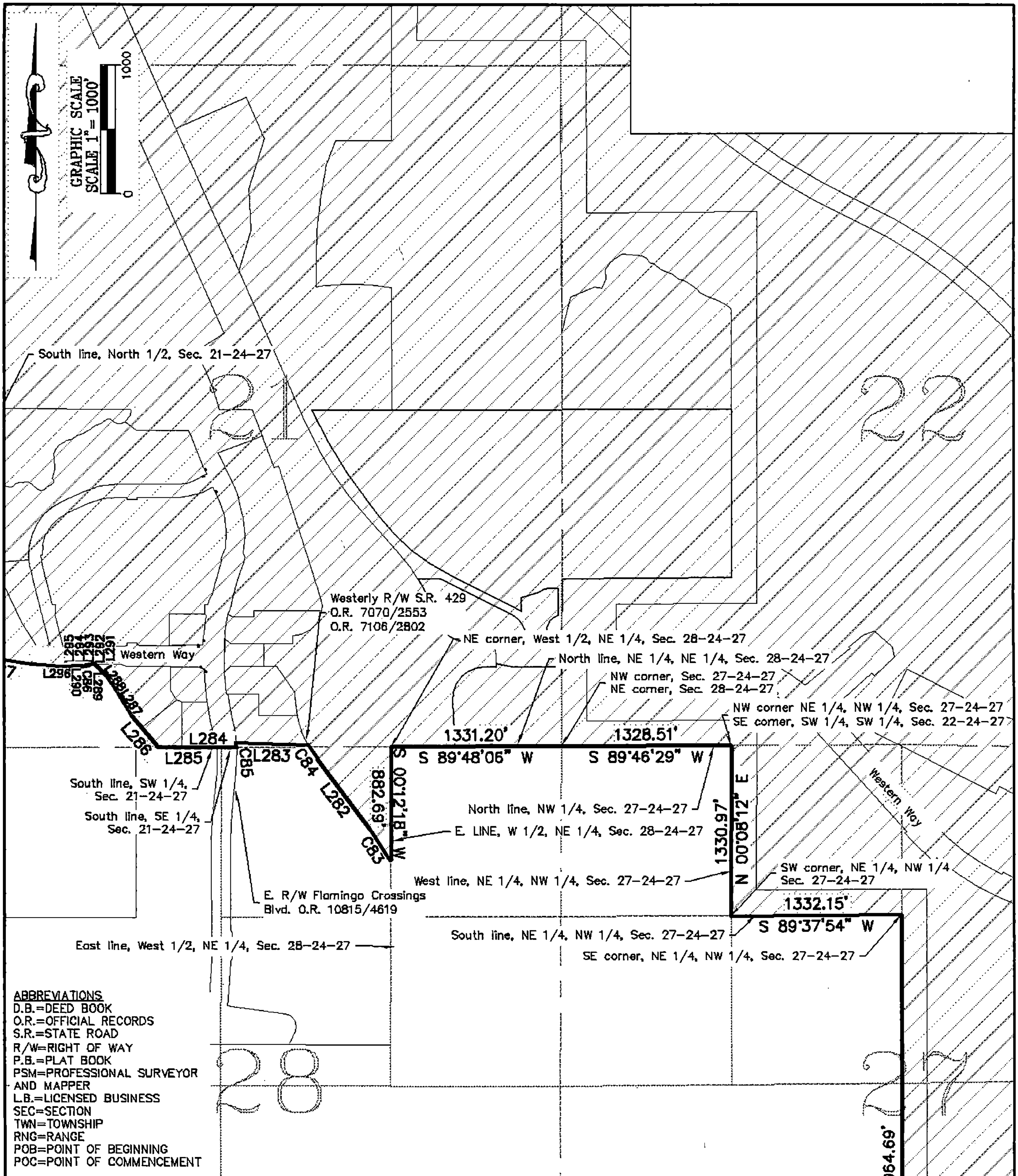
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 21 OF 31 SHEETS	FILENAME: 10JG09096R2



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LAKE BUENA VISTA
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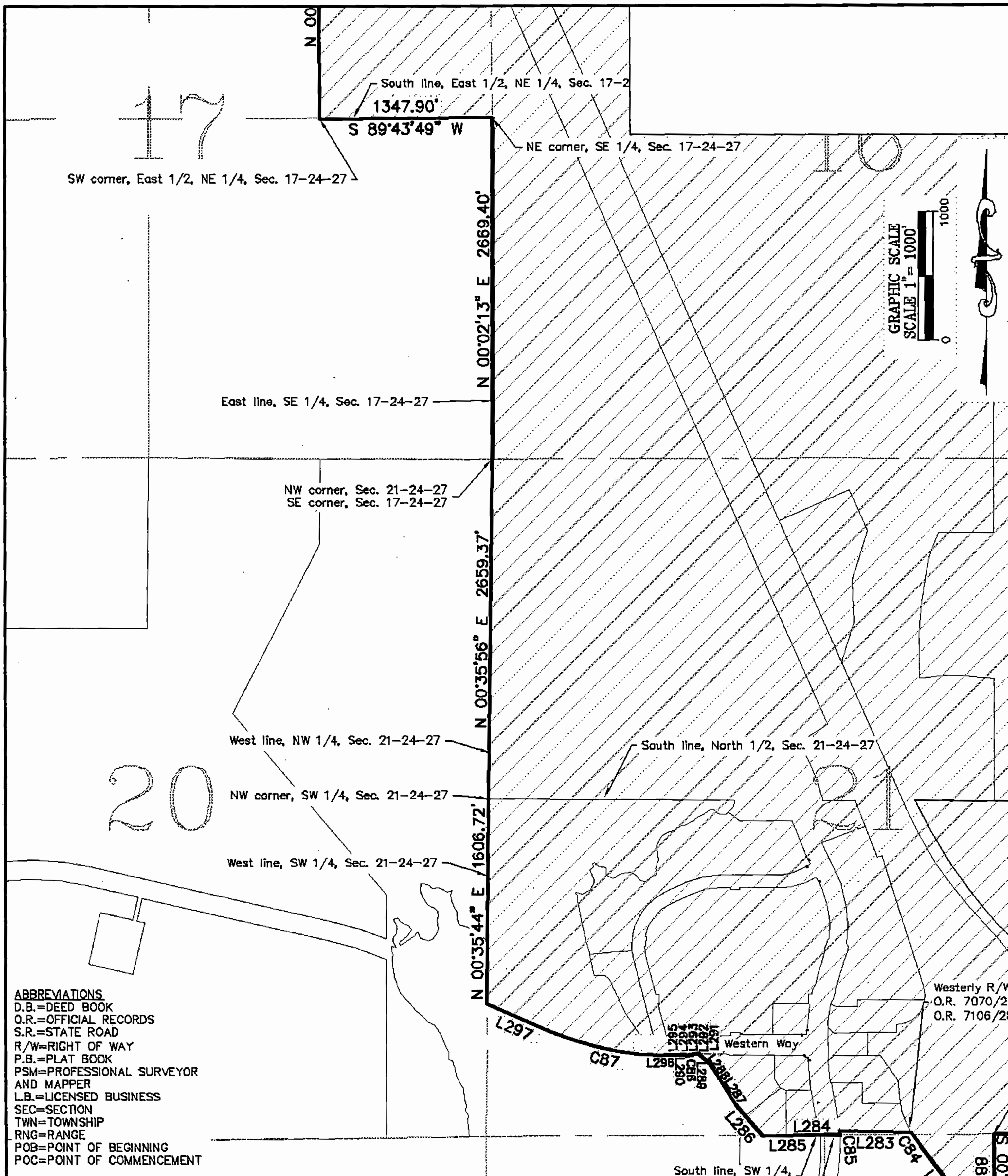
FAX (407)560-7869

FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 22 OF 31 SHEETS	FILENAME: 10JG09096R2



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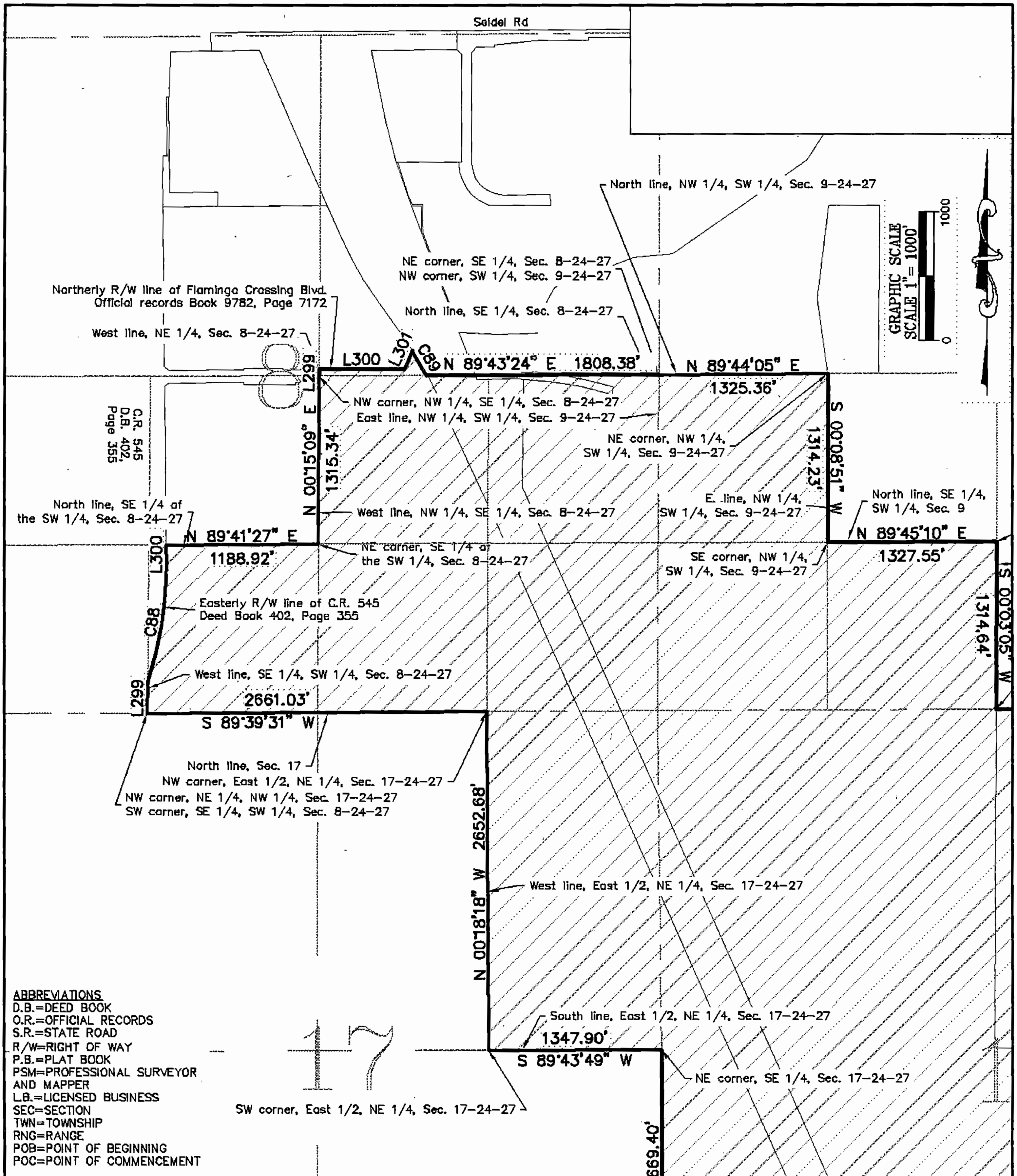
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 23 OF 31 SHEETS	FILENAME: 10JG09096R2



ABBREVIATIONS
D.B.=DEED BOOK
O.R.=OFFICIAL RECORDS
S.R.=STATE ROAD
R/W=RIGHT OF WAY
P.B.=PLAT BOOK
PSM=PROFESSIONAL SURVEYOR AND MAPPER
L.B.=LICENSED BUSINESS
SEC=SECTION
TWN=TOWNSHIP
RNG=RANGE
POB=POINT OF BEGINNING
POC=POINT OF COMMENCEMENT

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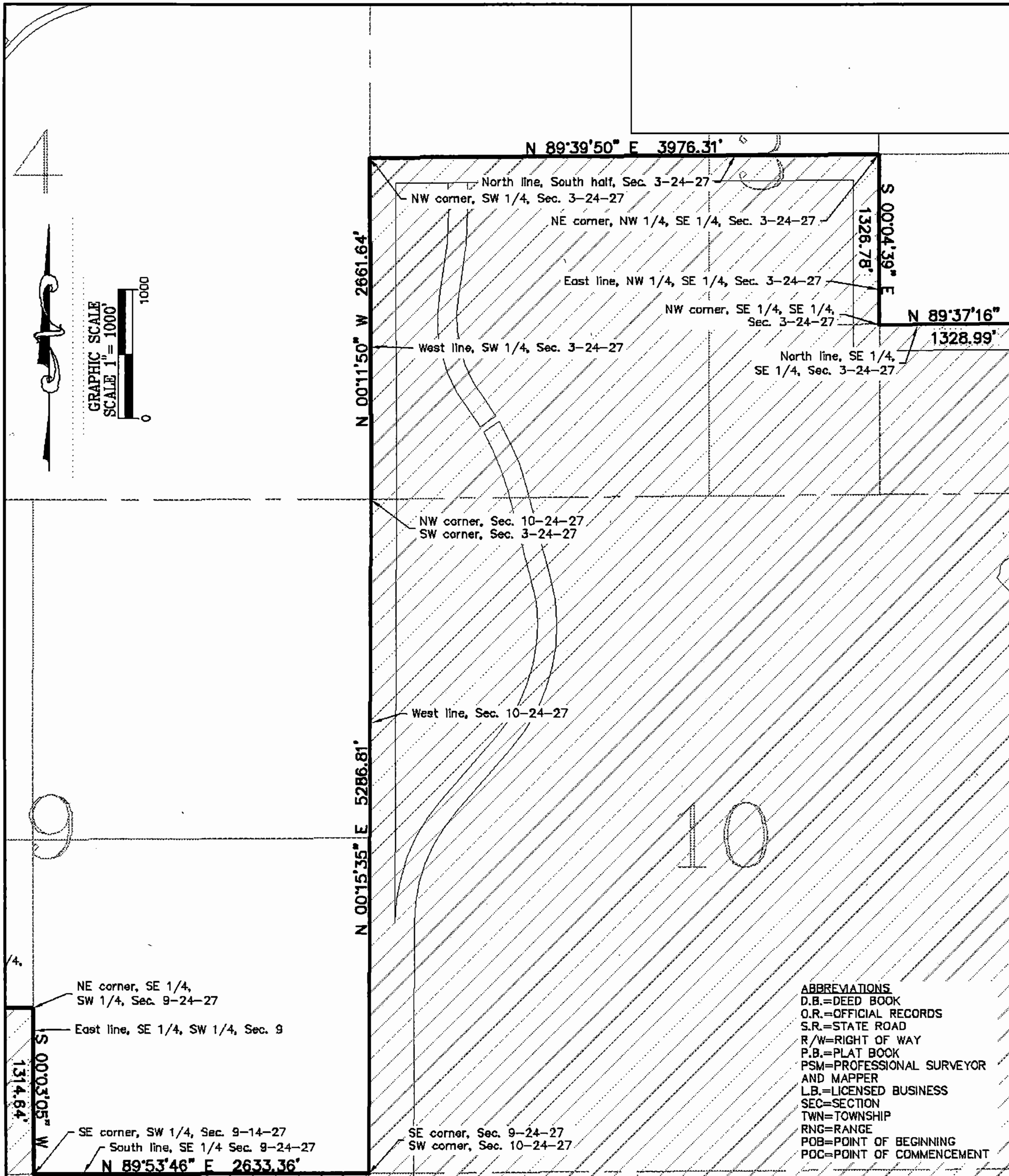
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 24 OF 31 SHEETS	FILENAME: 10JG09096R2



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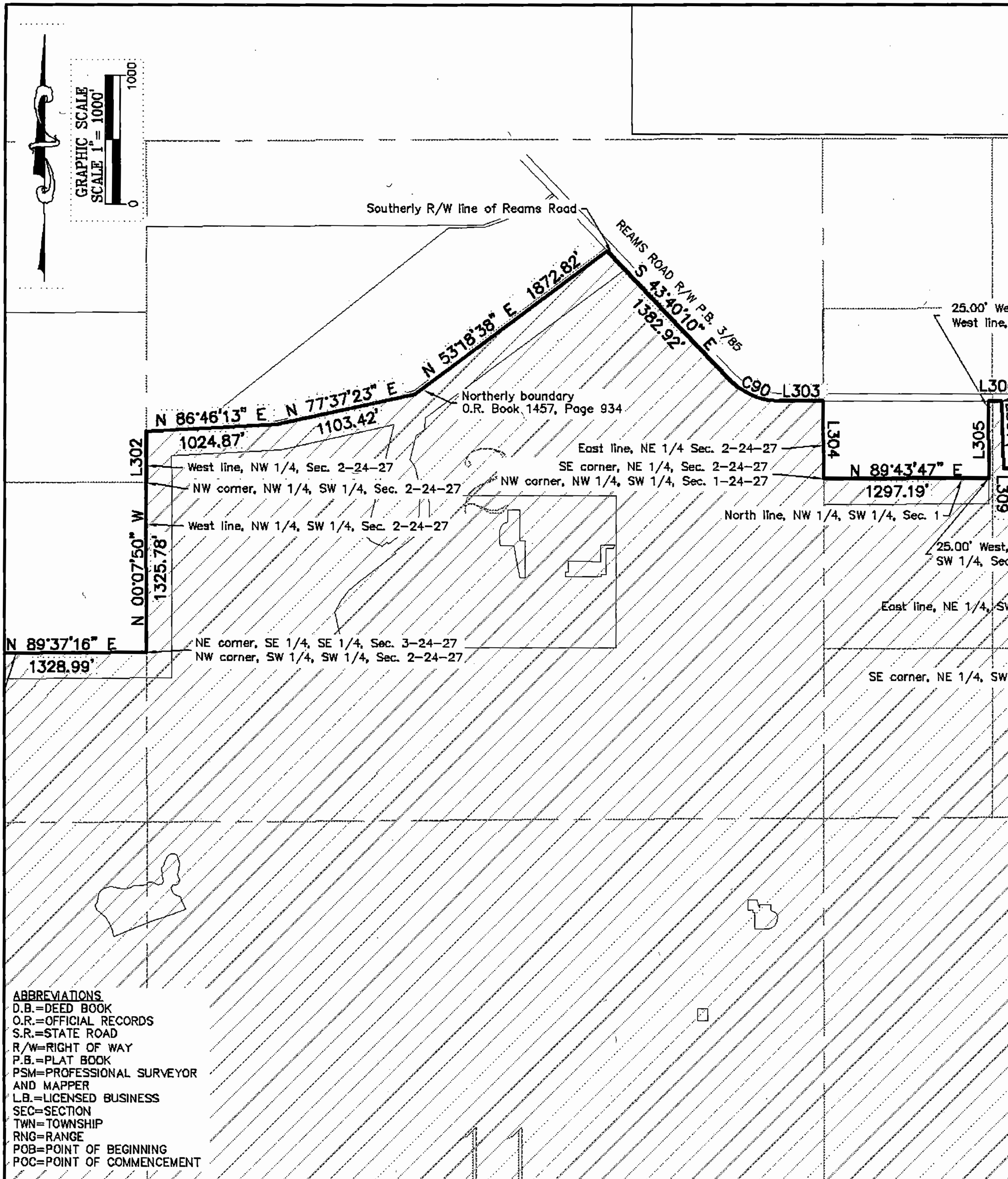
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 25 OF 31 SHEETS	FILENAME: 10JG09096R2



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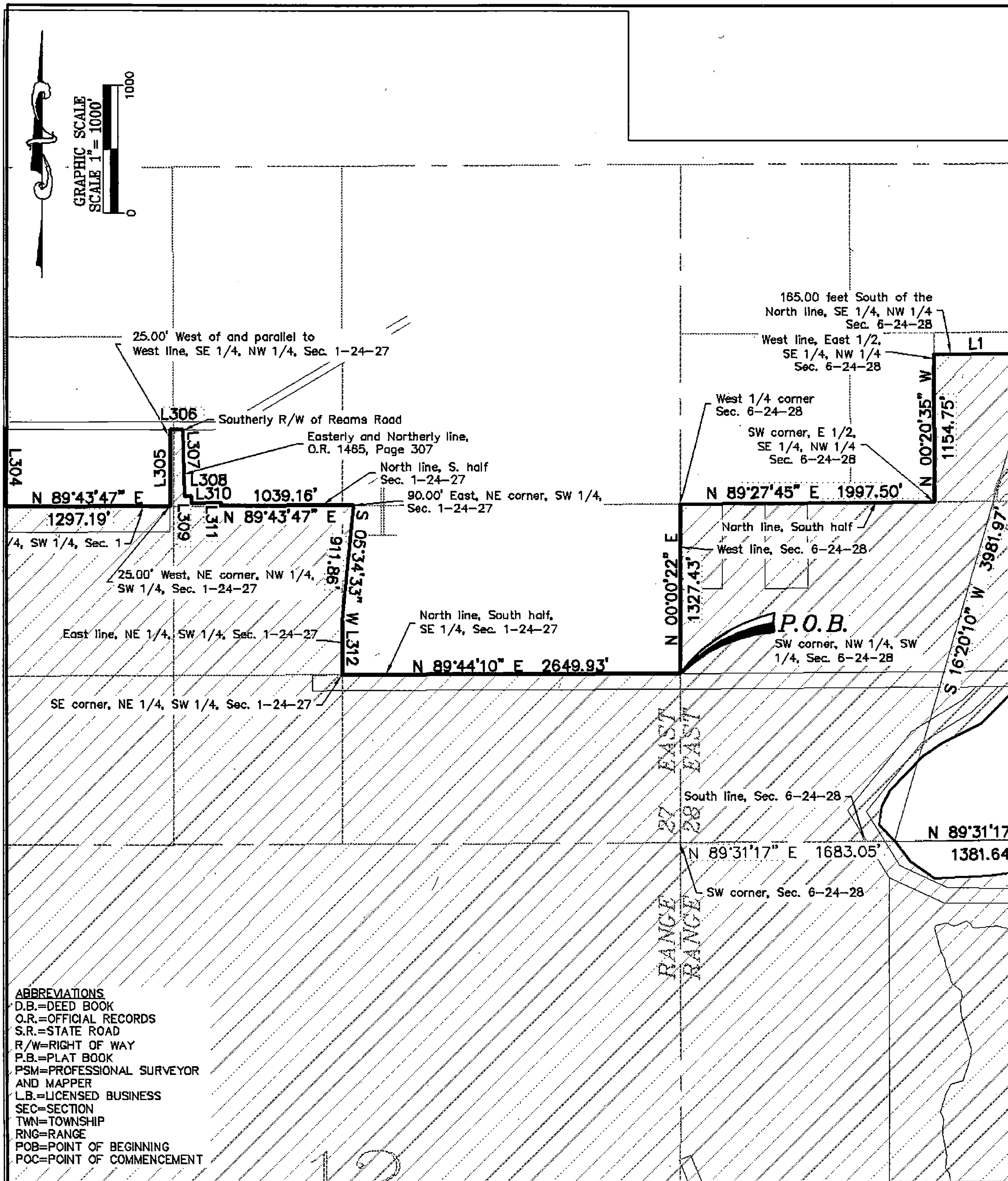
FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 26 OF 31 SHEETS	FILENAME: 10JG09096R2



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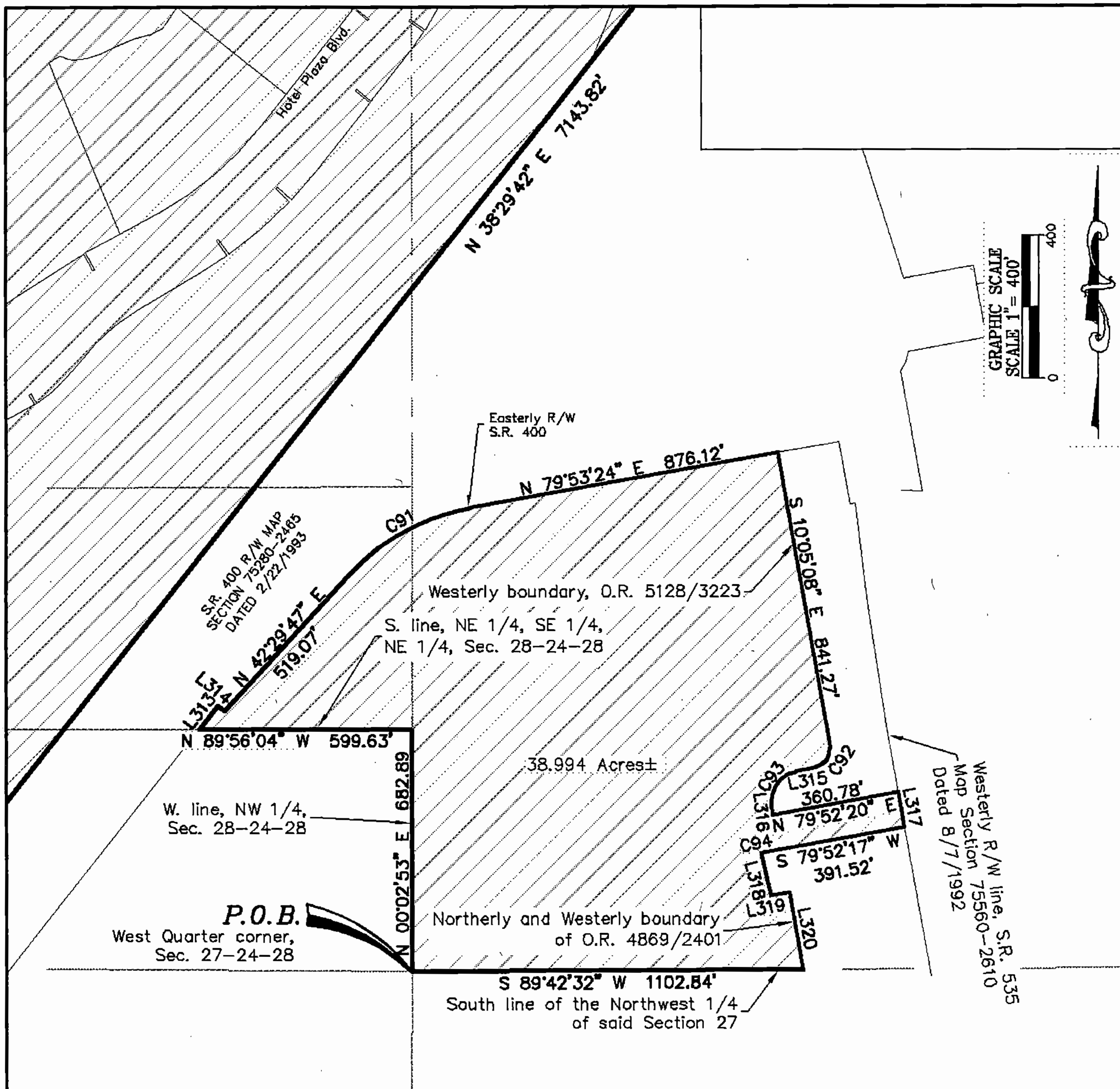
FILING AREA: WDW DISNEY OVERALL	DATE: 9/16/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 1000'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 27 OF 31 SHEETS	FILENAME: 10JG09096R2



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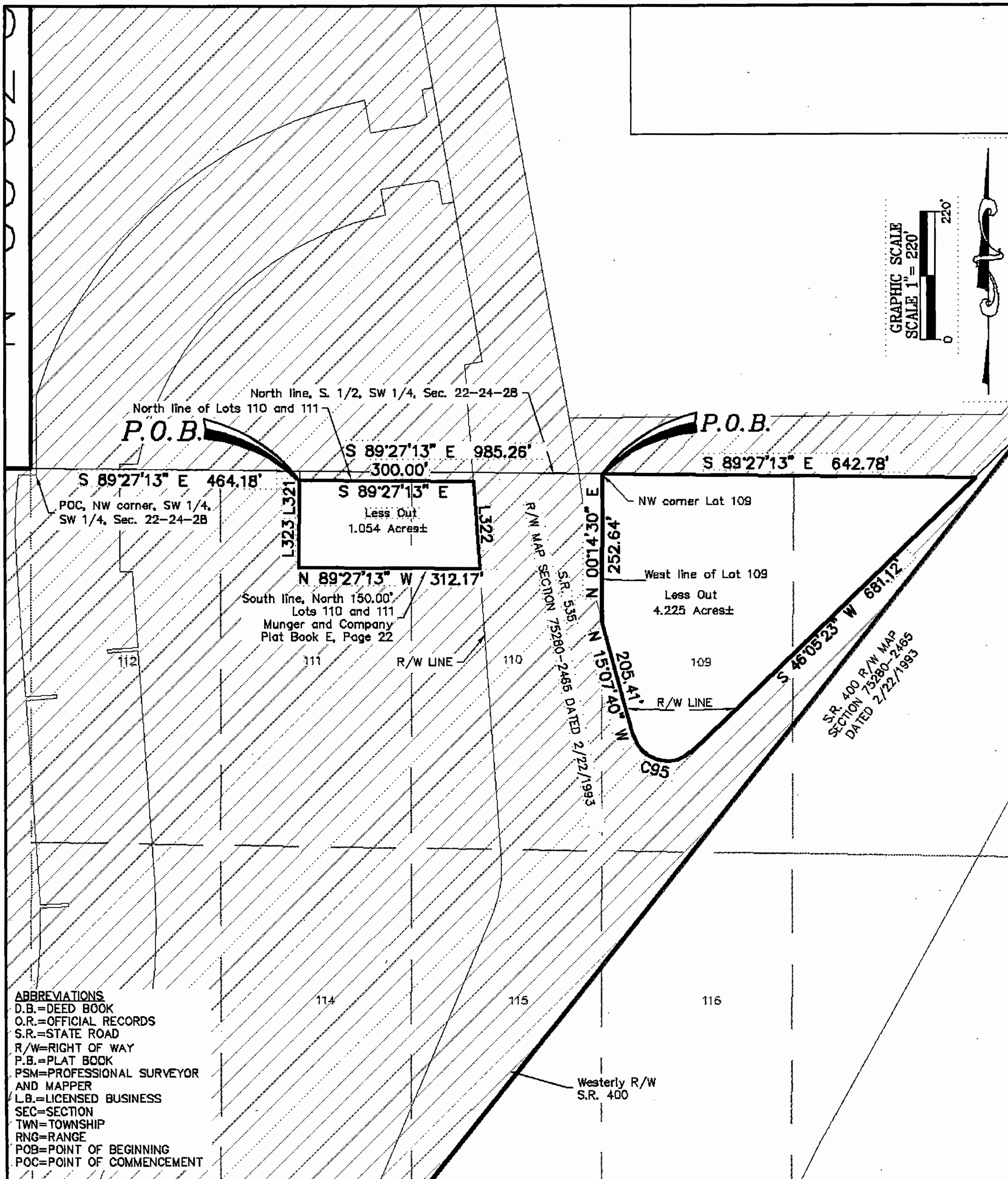
RCES REEDY CREEK ENERGY SERVICES SURVEYING AND MAPPING DEPARTMENT P.O.B. 10000 LAKE BUENA VISTA FL 32830-1000 PHONE (407)560-7118 FAX (407)560-7869	FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
	PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 400'
	SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
	COMMENTS: EXHIBIT A1, SHEET 28 OF 31 SHEETS	FILENAME: 10JG09096R2



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FILING AREA: WDW DISNEY OVERALL	DATE: 12/07/17
PROJECT NAME: RCID WATER/WASTE WATER TERRITORY	SCALE: 1" = 220'
SURVEY TYPE: SKETCH OF DESCRIPTION	DRAWN BY: JLG
COMMENTS: EXHIBIT A1, SHEET 29 OF 31 SHEETS	FILENAME: 10JG09096R2

CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH	TANG. BRG.
C1	545.08	81°15'08"	772.99	
C2	80.00	128°43'50"	179.74	
C3	425.00	23°29'59"	174.31	
C4	15.00	46°20'48"	12.13	
C5	425.00	16°33'54"	122.87	
C6	25.00	51°32'25"	22.49	
C7	25.00	40°55'45"	17.86	
C8	25.00	46°29'32"	20.29	
C9	75.00	30°06'13"	39.41	
C10	45.00	99°54'55"	78.47	
C11	250.00	55°31'16"	242.26	
C12	125.00	59°41'01"	130.21	
C13	676.49	29°43'07"	350.89	N 50°17'44" E
C14	399.38	09°53'41"	68.97	N 79°13'56" E
C15	137.63	14°21'49"	34.50	
C16	344.38	04°15'11"	25.56	S 86°02'20" E
C17	132.00	26°04'01"	60.05	
C18	184.37	31°44'00"	102.11	S 49°44'21" E
C19	679.36	08°51'48"	105.09	
C20	437.18	18°37'07"	142.06	
C21	395.25	18°13'39"	125.74	
C22	645.09	03°21'33"	37.82	
C23	223.65	59°02'33"	230.47	
C24	25.00	64°33'48"	28.17	S 49°58'05" E
C25	25.00	25°14'16"	11.01	
C26	1010.00	07°58'42"	140.64	S 11°48'22" W
C27	25.00	87°13'52"	38.06	N 03°49'41" E
C28	221.37	29°07'38"	112.54	
C29	132.76	48°16'12"	111.85	
C30	234.18	14°51'36"	60.74	N 64°15'37" W
C31	25.00	115°40'49"	50.48	S 17°50'29" E
C32	25.00	54°17'13"	23.69	
C33	25.00	79°16'52"	34.59	
C34	25.00	41°16'24"	18.01	
C35	1505.50	37°08'46"	976.05	S 03°51'20" E
C36	25.00	37°14'40"	16.25	
C37	25.00	46°40'29"	20.37	
C38	25.00	58°38'45"	25.59	
C39	25.00	84°46'10"	36.99	
C40	25.00	58°17'03"	25.43	
C41	7.86	78°20'37"	10.75	N 28°56'03" W
C42	19.64	36°52'37"	12.64	
C43	3.95	74°25'35"	5.13	
C44	1080.42	20°21'16"	383.82	N 48°06'54" W
C45	762.70	08°52'54"	118.23	S 63°58'49" W
C46	160.82	19°16'01"	54.08	
C47	159.35	36°15'00"	100.82	
C48	158.03	21°54'44"	60.44	
C49	52.89	104°26'29"	96.41	S 75°27'00" W
C50	1125.00	27°57'29"	548.95	
C51	492.00	26°59'13"	231.74	
C52	25.00	35°13'41"	15.37	
C53	25.00	46°18'35"	20.21	
C54	25.00	33°58'13"	14.82	S 21°14'14" W
C55	1908.34	22°05'51"	736.00	S 75°17'36" E
C56	950.92	14°29'06"	240.40	
C57	513.39	13°13'42"	118.53	
C58	1109.03	07°17'21"	141.09	
C58	15.00	52°09'22"	13.65	
C59	1396.50	06°53'10"	167.84	N 07°09'56" E
C60	1809.86	37°23'06"	1180.92	S 42°29'42" W
C61	2191.83	32°28'09"	1242.10	
C62	11402.16	00°29'43"	98.56	S 65°33'17" E
C63	900.00	02°31'40"	39.70	
C64	675.00	45°40'47"	538.15	
C65	825.00	98°34'08"	1419.29	
C66	500.84	22°53'21"	200.08	
C67	611.16	19°01'18"	202.90	
C68	650.84	22°53'21"	260.00	
C69	675.00	98°34'08"	1161.24	
C70	825.00	45°40'47"	657.74	
C71	25.00	16°36'26"	7.25	
C72	25.00	51°24'11"	22.43	
C73	50.00	106°48'50"	93.21	N 80°45'36" W
C74	436.00	15°56'47"	121.35	S 58°12'21" W
C75	514.00	20°05'00"	180.17	
C76	315.00	35°55'53"	197.54	
C77	381.00	34°07'58"	226.97	
C78	384.88	34°00'28"	228.44	
C79	185.00	35°39'45"	115.15	
C80	47.00	130°32'06"	107.08	
C81	50.00	83°36'01"	72.95	
C82	188.00	27°45'45"	91.10	
C83	2204.09	07°27'37"	286.99	N 29°38'58" W
C84	770.43	09°59'15"	134.30	N 39°00'55" W
C85	1010.00	01°59'18"	35.05	S 05°40'55" E
C86	934.00	01°05'30"	17.79	
C87	2158.53	24°05'38"	907.70	
C88	2826.01	19°14'15"	948.86	N 18°34'50" E
C89	2750.09	04°43'07"	226.49	S 33°16'29" E
C90	546.86	46°21'00"	442.39	
C91	616.02	37°22'29"	401.84	
C92	50.00	89°59'49"	78.54	S 10°05'20" E
C93	85.00	85°16'57"	126.52	S 79°54'19" W
C94	420.98	02°26'38"	17.96	S 79°53'33" W
C95	60.00	118°45'23"	124.36	S 46°06'36" W

TANGENT TABLE

LINE#	BEARING	DIST.
L1	N 89°38'50" E	663.64
L2	N 89°11'34" E	148.62
L3	N 89°21'03" E	191.58
L4	S 00°13'59" W	221.07
L5	S 43°40'59" E	16.92
L6	S 34°38'41" E	8.13
L7	S 25°16'40" E	86.79
L8	S 28°57'56" E	106.03
L9	S 58°01'53" E	87.73
L10	N 85°59'29" E	134.58
L11	S 43°56'36" W	91.06
L12	S 64°40'37" W	105.25
L13	S 40°45'32" W	117.42
L14	S 13°26'04" W	97.39
L15	S 42°14'20" W	133.97
L16	S 68°59'11" W	89.71
L17	S 28°50'44" W	77.77
L18	S 14°52'47" W	88.32
L19	S 01°59'29" E	106.28
L20	S 24°42'46" W	241.59
L21	S 36°55'50" W	126.64
L22	S 24°03'44" W	71.01
L23	S 64°59'30" W	91.68
L24	N 68°30'58" W	131.37
L25	N 34°57'28" W	145.43
L26	N 10°44'04" W	144.09
L27	N 10°34'18" E	129.55

CONTINUED ON SHEET 31

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FILING AREA: WDW DISNEY OVERALL

PROJECT NAME: RCID WATER/WASTE WATER TERRITORY

SURVEY TYPE: SKETCH OF DESCRIPTION

COMMENTS: EXHIBIT A1, SHEET 30 OF 31 SHEETS

DATE: 12/07/17

SCALE:

DRAWN BY: JLG

FILENAME: 10JG09096R2

TANGENT TABLE
CONTINUED FROM SHEET 30

LINE#	BEARING	DIST.	LINE#	BEARING	DIST.	LINE#	BEARING	DIST.	LINE#	BEARING	DIST.
L28	N 44°03'35" E	129.67	L102	N 87°15'41" W	130.57	L176	N 40°40'48" W	82.81	L251	N 10°06'24" E	32.03
L29	N 86°35'32" E	100.03	L103	N 63°21'34" W	33.90	L177	N 90°00'00" W	73.87	L252	N 01°43'31" W	29.22
L30	N 62°48'18" E	100.08	L104	N 81°08'52" W	154.09	L178	N 00°16'44" E	0.50	L253	N 05°37'39" W	26.82
L31	N 58°16'14" E	95.99	L105	N 39°33'00" W	38.53	L179	N 89°57'37" E	670.11	L254	N 12°01'53" W	42.36
L32	N 15°01'47" E	86.03	L106	N 28°54'14" W	86.79	L180	S 00°08'32" E	668.06	L255	N 21°06'43" W	7.72
L33	N 14°30'32" W	104.94	L107	N 28°30'43" W	101.63	L181	S 89°55'30" E	671.45	L256	N 36°50'10" W	37.65
L34	N 03°06'23" W	111.09	L108	N 32°36'46" W	77.00	L182	S 00°15'27" E	669.41	L257	N 47°37'33" W	25.00
L35	N 07°32'42" E	68.01	L109	N 39°30'36" W	98.30	L183	S 00°44'42" E	656.38	L258	N 56°19'26" W	44.83
L36	N 15°14'13" W	80.67	L110	N 02°15'56" W	56.50	L184	S 89°51'01" E	335.66	L259	N 49°30'53" W	55.06
L37	N 87°12'48" W	40.11	L111	N 39°36'59" W	135.27	L185	S 00°40'49" E	656.31	L260	N 59°47'57" W	8.89
L38	S 77°42'57" W	84.88	L112	N 85°04'00" W	67.65	L186	S 00°29'10" E	655.63	L261	N 72°21'36" W	36.00
L39	S 74°44'47" W	66.79	L113	N 38°23'30" W	64.62	L187	N 89°20'56" E	666.99	L262	N 82°08'10" W	65.71
L40	S 35°20'27" W	90.33	L114	N 64°16'04" W	16.33	L188	N 00°21'22" W	652.39	L263	S 89°42'01" W	51.60
L41	S 22°58'13" W	87.94	L115	N 05°37'20" W	20.54	L190	S 79°52'53" W	95.47	L264	N 80°08'53" W	56.11
L42	S 20°05'22" W	168.18	L116	N 44°31'28" W	62.56	L191	N 69°59'50" W	311.61	L265	N 89°26'00" W	8.09
L43	S 65°39'23" W	108.46	L117	S 23°42'54" W	95.95	L192	S 23°29'47" W	304.91	L266	S 81°14'14" W	46.34
L44	N 79°02'16" W	146.86	L118	N 71°30'56" W	65.59	L193	S 58°56'26" E	509.41	L267	S 78°42'25" W	40.49
L45	S 44°41'24" W	85.24	L119	N 67°45'46" W	71.42	L194	N 00°00'00" E	163.29	L268	S 77°43'02" W	63.74
L46	S 66°58'59" W	80.82	L120	N 47°09'12" W	129.61	L195	N 30°00'00" W	607.96	L269	S 79°09'43" W	47.65
L47	N 89°03'00" W	96.88	L121	N 28°09'10" W	67.04	L196	N 00°00'00" E	86.60	L270	S 72°48'44" W	44.03
L48	S 84°18'13" W	51.79	L122	N 30°07'52" E	66.18	L197	N 90°00'00" W	67.60	L271	S 63°14'34" W	42.60
L49	S 77°56'53" W	116.91	L123	N 41°27'39" E	82.62	L198	S 57°06'40" E	167.71	L272	S 57°48'39" W	28.70
L50	S 70°14'00" W	84.26	L124	N 28°03'16" E	61.53	L199	S 30°00'00" E	180.00	L273	S 64°21'00" W	20.44
L51	N 63°52'48" W	163.26	L125	N 21°03'09" W	47.93	L200	S 06°15'02" E	54.63	L274	S 67°06'48" W	29.21
L52	N 71°49'57" W	91.32	L126	N 17°13'11" W	99.26	L201	S 30°00'00" E	408.17	L275	S 83°28'20" W	29.99
L53	N 56°38'48" W	106.72	L127	N 00°32'57" E	48.45	L202	S 00°00'00" E	162.89	L276	S 83°04'31" W	27.06
L54	N 37°38'37" W	96.72	L128	N 12°21'10" E	151.79	L203	N 89°50'42" W	360.99	L277	S 84°19'19" W	42.81
L55	N 69°48'38" W	85.22	L129	N 23°46'35" E	109.94	L204	N 00°13'59" W	29.01	L278	S 89°52'10" W	174.16
L56	N 85°15'14" W	95.72	L130	N 39°26'51" E	91.52	L205	N 14°42'28" W	114.62	L279	N 00°00'19" E	313.89
L57	N 76°56'11" W	104.56	L131	N 17°00'45" E	45.16	L206	N 06°53'49" W	123.97	L280	N 00°00'19" E	498.35
L58	S 28°55'14" W	152.43	L132	N 34°56'26" W	27.03	L207	N 09°42'37" E	104.21	L281	N 00°00'31" E	835.26
L59	S 13°45'44" E	47.73	L133	N 26°29'23" W	104.81	L208	N 61°06'48" E	53.88	L282	N 37°06'36" W	690.17
L60	S 28°03'11" E	95.35	L134	S 48°40'54" W	30.14	L209	N 71°34'02" E	17.56	L283	N 88°43'15" W	555.85
L61	S 31°37'50" W	165.37	L135	S 38°34'51" E	13.88	L210	N 18°25'51" W	18.21	L284	S 89°48'06" W	125.95
L62	S 51°01'41" E	83.54	L136	S 51°58'30" W	145.54	L211	N 31°47'40" W	44.69	L285	S 89°49'36" W	483.70
L63	S 35°59'30" E	246.14	L137	N 37°57'09" W	16.70	L212	S 74°09'08" W	308.68	L286	N 40°17'32" W	323.52
L64	S 55°37'13" E	316.45	L138	N 37°56'18" W	17.87	L213	S 54°04'10" W	67.69	L287	N 32°21'38" W	271.63
L65	S 68°44'46" E	336.44	L139	N 30°54'21" W	193.79	L214	N 89°59'58" W	83.84	L288	N 34°30'31" W	120.76
L66	S 03°57'40" W	60.74	L140	S 55°05'55" W	58.77	L215	N 76°19'21" E	28.14	L289	N 46°26'37" W	108.80
L67	N 82°18'14" W	71.09	L141	S 72°04'54" W	26.78	L216	S 89°22'47" E	9.24	L290	S 89°49'14" W	28.71
L68	N 51°44'44" W	65.78	L142	N 00°06'31" W	54.31	L217	N 75°08'23" E	42.15	L291	S 00°10'31" E	11.26
L69	N 80°24'25" W	90.39	L143	N 74°49'42" W	43.41	L218	N 66°44'45" E	45.92	L292	S 89°49'29" W	28.35
L70	S 48°32'46" W	80.93	L144	S 44°47'41" W	145.43	L219	N 58°10'56" E	7.13	L293	S 04°02'58" E	4.66
L71	S 22°55'38" W	113.12	L145	S 45°05'06" E	18.68	L220	N 40°00'00" E	8.68	L294	S 86°05'06" W	22.85
L72	S 27°19'16" E	55.45	L146	S 03°14'02" W	84.66	L221	N 28°21'12" E	21.50	L295	N 03°54'54" W	6.14
L73	S 18°40'56" W	159.75	L147	S 05°12'38" E	58.35	L222	N 19°11'06" E	7.97	L296	S 89°49'29" W	173.97
L74	S 10°48'30" W	160.42	L148	S 33°10'07" E	163.59	L223	N 05°44'49" E	22.07	L297	N 66°04'53" W	548.81
L75	N 65°28'07" E	122.36	L149	N 86°26'26" E	126.87	L224	N 09°37'03" E	18.85	L299	N 00°24'44" E	242.11
L76	N 76°27'23" E	76.59	L150	N 76°15'46" E	63.89	L225	N 28°18'59" E	25.32	L299	N 00°14'57" E	50.00
L77	S 78°11'38" E	85.68	L151	S 64°36'17" E	118.17	L226	N 39°33'24" E	18.56	L300	N 00°39'25" W	141.86
L78	N 83°24'11" W	42.54	L152	S 52°36'40" E	63.05	L227	N 51°48'12" E	17.01	L300	N 89°43'25" E	671.30
L79	S 24°23'32" E	34.06	L153	S 45°16'16" E	127.88	L228	N 53°20'03" E	12.93	L301	N 23°57'49" E	158.82
L80	S 18°04'39" E	78.70	L154	S 10°02'35" E	93.01	L229	N 67°23'56" E	18.89	L302	N 00°07'43" W	400.13
L81	N 82°09'40" W	26.47	L155	S 36°16'00" W	28.53	L230	N 61°31'34" E	16.11	L303	N 89°58'50" E	341.61
L82	S 26°43'01" W	107.99	L156	S 20°23'46" W	184.90	L231	N 85°31'20" E	16.65	L304	S 00°19'24" E	603.75
L83	S 13°53'13" W	84.71	L157	S 25°05'40" W	31.33	L232	S 84°27'04" E	14.79	L305	N 00°12'21" W	598.76
L84	S 20°06'37" W	86.21	L158	S 55°12'27" W	19.76	L233	S 66°07'30" E	25.25	L306	N 89°56'46" E	100.00
L85	S 22°42'17" W	90.27	L159	S 18°42'59" W	22.23	L234	S 70°01'08" E	21.22	L307	S 02°04'12" E	523.43
L86	S 48°33'38" W	93.96	L160	S 80°54'32" E	34.76	L235	S 76°11'40" E	28.29	L308	N 89°43'40" E	52.00
L87	S 51°48'05" W	58.47	L161	S 88°11'54" E	77.05	L236	S 81°04'45" E	15.99	L309	S 00°12'21" E	49.00
L88	S 70°41'52" W	98.39	L162	S 89°29'03" E	140.11	L237	S 63°15'14" E	32.58	L310	N 89°43'41" E	229.00
L89	S 75°48'30" W	82.70	L163	S 89°29'03" E	433.68	L238	S 71°35'23" E	7.28	L311	S 00°12'25" E	26.23
L90	N 82°22'12" W	18.57	L164	N 00°00'00" E	131.18	L239	S 83°45'15" E	20.77	L312	S 00°05'18" E	420.00
L91	S 59°48'12" W	61.99	L165	N 45°00'00" W	71.68	L240	N 86°06'18" E	21.64	L313	N 38°29'40" E	85.01
L92	S 23°48'42" W	31.41	L166	N 00°00'00" E	633.08	L241	S 75°49'09" E	17.31	L314	S 51°29'59" E	24.30
L93	S 21°34'58" E	112.96	L167	N 89°59'00" W	445.76	L242	S 87°55'16" E	10.48	L315	S 79°54'26" W	57.02
L94	S 25°04'56" E	80.36	L168	N 00°27'46" E	673.19	L243	N 72°43'50" E	26.75	L316	S 05°22'41" E	31.47
L95	S 06°58'19" E	51.79	L169	S 89°58'17" E	398.81	L244	N 60°42'21" E	36.44	L317	S 10°07'19" E	100.00
L96	S 47°18'54" W	37.10	L170	N 00°00'00" E	753.74	L245	N 77°16'53" E	19.62	L318	S 12°33'06" E	124.13
L97	S 03°48'45" E	24.29	L171	N 90°00'00" W	362.43	L246	N 68°37'24" E	7.52	L319	N 79°52'06" E	52.23
L98	S 75°28'07" W	70.19	L172	N 05°16'59" W	106.23	L247	N 57°06'15" E	21.62	L320	S 10°07'42" E	221.02
L99	N 63°15'30" W	63.09	L173	N 26°33'54" W	135.35	L248	N 48°30'29" E	7.40	L321	S 00°32'47" W	15.00
L100	S 41°00'06" E	193.39	L174	N 47°32'44" E	146.69	L249	N 29°59'26" E	8.68	L322	S 04°05'32" E	150.49
L101	S 48°59'54" W	100.00	L175	N 11°28'34" E	24.04	L250	N 13°42'55" E	39.82	L323	N 00°32'47" E	150.00

RCES
REEDY CREEK ENERGY SERVICES
SURVEYING AND MAPPING DEPARTMENT
P.O.B. 10000
LAKE BUENA VISTA
FL 32830-1000
PHONE (407)560-7118
FAX (407)560-7869

FILING AREA
WDW DISNEY OVERALL

PROJECT NAME
RCID WATER/WASTE WATER TERRITORY

SURVEY TYPE
SKETCH OF DESCRIPTION

COMMENTS
EXHIBIT A1, SHEET 31 OF 31 SHEETS

DATE: 12/07/17
SCALE
DRAWN BY: JLG
FILENAME: 10JG09096R2

INTERLOCAL AGREEMENT
BETWEEN
REEDY CREEK IMPROVEMENT DISTRICT
AND
ORANGE COUNTY
FOR DELIVERY OF WHOLESALE WATER SERVICES
TO THE
FLAMINGO CROSSINGS DEVELOPMENT

THIS INTERLOCAL AGREEMENT (the "Agreement") is made and entered into on the date of later execution below, by and between the **REEDY CREEK IMPROVEMENT DISTRICT**, a public corporation and public body corporate and politic of the State of Florida, whose address is P.O. Box 10170, Lake Buena Vista, Florida 32830 ("Supplier"), and **ORANGE COUNTY,** a charter county and political subdivision of the State of Florida (the "County"), whose address is 201 South Rosalind Avenue, Orlando, Florida 32801. Hereinafter, Supplier and the County may be referred to individually as a "Party" or collectively as the "Parties."

WITNESSETH:

WHEREAS, the Florida Interlocal Cooperation Act of 1969, Section 163.01, Florida Statutes, permits local governments to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and thereby provide services and facilities in a manner that will accord best with the needs and development of local communities; and

WHEREAS, Supplier and the County are retail providers of water, wastewater and reclaimed water services (collectively, "Water Services") in their respective service areas; and

WHEREAS, the County is currently the retail provider of Water Services to property hereinafter referred to "FC Ultimate," a map of which is attached hereto and incorporated herein as **Exhibit "A"**; and

WHEREAS, contemporaneously with the execution of this Agreement, Supplier and the County intend to amend that certain Reedy Creek Improvement District/Orange County Amended and Restated Water, Wastewater, and Reclaimed Water Service Territorial Agreement, dated September 30, 2008 (the "Territorial Agreement"), by which it is recognized that parcels FC-1 and FC-2, which are areas inside of FC Ultimate, have been removed from the water, wastewater, and reclaimed water territory of the Reedy Creek Improvement District (the "RCID's Territorial Area") and are now within the territorial jurisdiction of the County (the "Adjacent Territorial Area"); and

WHEREAS, the County has agreed to remedy any hydraulic constraints in its water system that would constrain its ability to meet the FC Ultimate water demands within ten years of the Effective Date, as that term is defined below in this Agreement; and

WHEREAS, Supplier acknowledges that the developers of FC Ultimate must construct or cause to be constructed, at their sole cost, and dedicate to the County water, wastewater, and reclaimed water transmission, collection, and distribution lines, and related appurtenances, as required to serve FC Ultimate to a point of connection as hereinafter set forth in this Agreement. No later than the execution of this Agreement, Supplier and the County intend to execute an Access and Utility Easement over Supplier's right-of-way within the FC Ultimate and between the FC Ultimate and CR 545, up to and including the County System Point of Connection, as defined in Paragraph 3.b; and

WHEREAS, while FC Ultimate will be developed by third parties, the Master Utility Plan has been approved by the County through their development review process (the "County Approved MUP"), which is attached hereto and incorporated herein as **Exhibit "B;"** and

WHEREAS, pursuant to the Territorial Agreement, all customers within the FC Ultimate shall be customers of the County and subject to, *inter alia*, connection fees, capital charges, and rates for all Water Services as established by the County from time to time; and

WHEREAS, Supplier desires to provide wholesale Water Services to the County, and the County desires to receive wholesale Water Services from Supplier under terms and conditions set forth in this Agreement; and

WHEREAS, the Parties entered into a letter agreement entitled "Amendment to Substitute Letter Agreement for Orange Lake/Reams Road Wastewater Interconnection and Wholesale Service" (the "Wastewater Letter Agreement"), which has an effective date of January 24, 2018, in accordance with the Territorial Agreement, to govern the provision of certain wholesale wastewater service by Supplier to the County; and

WHEREAS, the Parties entered into a letter agreement entitled "Amendment to 2012 Flamingo Crossings Letter Agreement for Water and Reclaimed Water Interconnection and Wholesale Service" (the "Water Letter Agreement") which has an effective date of January 24, 2018, in accordance with the Territorial Agreement, to govern the provision of certain wholesale water and reclaimed water services by Supplier to the County; and

WHEREAS, the intent of this Agreement is not to amend, modify, or in any way affect any terms or conditions or the Territorial Agreement, the Water Letter Agreement, or the Wastewater Letter Agreement; and

WHEREAS, Supplier and the County hereby determine this Agreement to be in the public interest.

NOW THEREFORE, in consideration of the commitment of Supplier to provide wholesale Water Services to the County, and the commitment of the County to accept these Water Services, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree to the following terms and conditions.

1. PREMISES

Each and all of the foregoing recitals are agreed to and form a material part of this Agreement.

2. TERM OF THE AGREEMENT; EXPIRATION; TERMINATION OF SERVICE

The term of this Agreement shall commence on the date it is fully executed by both Parties (the "Effective Date"). This Agreement shall expire on the last date that Supplier provides wholesale Water Services, and the County initiates water, wastewater, and reclaimed water services to the FC Ultimate directly from its utility systems (the "Term"). Notwithstanding the foregoing, if the County experiences a hydraulic constraint in its water system due, in whole or in part, to the delivery of water to the FC Ultimate, then the Term shall be extended to the date the County eliminates the hydraulic constraint as provided in paragraph 3(d) below. Supplier's provision of wholesale water, wastewater, or reclaimed water services may be individually terminated prior to the expiration of this Agreement pursuant to Sections 3, 4, and 5 below.

3. PROVISION OF WHOLESALE WATER SERVICE

(a) The County agrees to complete construction and place in service the County's Malcolm Road Water Supply Facility (the "MRWSF") and the County's Avalon

Road Water Storage and Repump Facility (the "WSRF") on or before the eighth anniversary of the Effective Date.

(b) Supplier shall provide wholesale water service to the County, based on the County Approved MUP attached in **Exhibit "B,"** for its retail customers within the FC Ultimate on a temporary basis (1) until the date of construction substantial completion and the placing into service of the MRWSF and the WSRF, County infrastructure is available at the intersection of CR 545 and Western Way (the "County System Point of Connection"), and the FC Ultimate water service is connected, at no cost to the County, to the County system as shown on **Exhibit "C;"** or (2) until the date of construction substantial completion of the MRWSF and WSRF, and the FC Ultimate water service is connected to the County system beyond the County System Point of Connection, at no cost to the County, at the intersection of CR 545 and Western Way.

(c) At any time after the MRWSF and WSRF have reached substantial completion and have been placed into service or after eight years from the Effective Date, whichever comes first, if Supplier requires all or a portion of the volume of water that is wholesaled to the County to provide water service to the FC Ultimate for use within Supplier's water service area, then Supplier may construct a new water interconnect with the County's water system at Reams Road or near the intersection of Buena Vista Drive and CR 535 at the Supplier's sole cost. Such interconnect shall be used to deliver water from the County's water system to Supplier's water system in an amount equivalent to that being delivered to the FC Ultimate by Supplier. A separate agreement will be required to govern the use of the interconnect and water deliveries described in this paragraph.

(d) If after the County initiates water service to the FC Ultimate and the County determines that it needs additional water to address a hydraulic constraint due to peak hourly flows or fire flow demand in its water system due to the County's delivery of water to the FC Ultimate, then at the County's request Supplier shall provide wholesale water service to the County for use by the FC Ultimate for peak hourly flow and/or fire flow until such time as the County eliminates the hydraulic constraint. The County shall eliminate the hydraulic constraint on or before the tenth anniversary of the Effective Date.

(e) Upon fulfillment of the above conditions within Section 3, wholesale water service will be terminated and the County shall provide water service from its facilities to the FC Ultimate, based on the County Approved MUP, at the County's sole cost.

(f) The Parties agree that the quantity of water that flows to the County for the FC Ultimate shall not be included in the quantities identified in the Water Letter Agreement, but rather shall be in addition thereto.

4. PROVISION OF WHOLESALE WASTEWATER SERVICE

(a) The County agrees to complete construction and place in service the County's new Southwest Water Reclamation Facility (the "SWWRF") and the County's Avalon Road Master Wastewater Pump Station (the "MPS") on or before the tenth anniversary of the Effective Date.

(b) Supplier shall provide wholesale wastewater service to the County, based on the County Approved MUP attached in **Exhibit "B,"** for its retail customers in the FC Ultimate on a temporary basis (1) until the date of construction substantial completion and the placing into service of the SWWRF and the MPS, County infrastructure is available at the intersection of CR 545 and Western Way, and the FC Ultimate wastewater service is connected, at no cost to the County, to the County system as shown on **Exhibit "C;"** or (2) until the SWWRF and the MPS are placed into service, and the FC Ultimate wastewater services are connected to the County system beyond the County System Point of Connection, at no cost to the County, at the intersection of CR 545 and Western Way.

(c) Upon fulfillment of the above conditions within Section 4, wholesale wastewater service will be terminated and the County shall provide wastewater service from its facilities to the FC Ultimate, based on the County Approved MUP, at the County's sole cost.

(d) Parties agree that the quantity of wastewater that flows from the County from the FC Ultimate shall not be included in the quantities identified in the Wastewater Letter Agreement, but rather shall be in addition thereto.

5. PROVISION OF WHOLESALE RECLAIMED WATER SERVICE

(a) The County agrees to complete construction and place in service the County's Avalon Road Reclaimed Water Storage and Repump Facility (the "RWSRF") on or before the tenth anniversary of the Effective Date.

(b) Supplier shall provide wholesale reclaimed water service to the County, based on the County Approved MUP attached in **Exhibit "B,"** for its retail customers in the FC Ultimate on a temporary basis (1) until the date of construction substantial completion and the placing into service of the RWSRF, County infrastructure that is connected to the RWSRF, as shown in **Exhibit "C,"** is available at the intersection of CR 545 and Western Way, and the FC Ultimate reclaimed water service is connected to the County system at no cost to the County; or (2) until the RWSRF is placed into service, and at no cost to the County, the FC Ultimate reclaimed water service is connected to the County system beyond the intersection of CR 545 and Western Way, including a connection to the RWSRF.

(c) Upon fulfillment of the above conditions within Section 5, wholesale reclaimed water service will be terminated and the County shall provide reclaimed water service from its facilities to the FC Ultimate, based on the County Approved MUP, at the County's sole cost.

(d) The Parties agree that the quantity of reclaimed water that flows to the County for the FC Ultimate shall not be included in the quantities identified in the Water Letter Agreement, but rather shall be in addition thereto.

6. RATE, PAYMENT, AND BILLING

(a) Throughout the term of this Agreement, Supplier shall provide the Water Services to the County at the rates provided herein.

Water Rate

Supplier will charge and the County will pay wholesale rate equivalent to 96.2% of Supplier's Potable Water GS-1 retail rate (currently $1.02 per thousand gallons equating to a wholesale rate of $0.98 per thousand gallons). Whenever Supplier raises its retail Potable Water GS-1 rate, the wholesale rate applied to the County shall likewise increase proportionately.

Reclaimed Water Rate

Supplier will charge and the County will pay wholesale rate equivalent to 70.4% of Supplier's Reclaimed Water GS-1 retail rate (currently $0.84 per thousand gallons equating to a wholesale rate of $0.59 per thousand gallons). Whenever Supplier raises its retail Reclaimed Water GS-1 rate, the wholesale rate applied to the County shall likewise increase proportionately.

Wastewater Rate

Supplier will charge and the County will pay a wholesale rate equivalent to 47% of Supplier's Wastewater SC-1 retail rate (currently $5.62 per thousand gallons of wastewater flow equating to a wholesale rate of $2.64 per thousand gallons). Whenever Supplier raises its retail SC-1 rate, the wholesale rate applied to the County shall likewise increase proportionately.

(b) Notwithstanding the foregoing, at no time shall the Water Services rates Supplier charges the County hereunder exceed the lowest respective water, wastewater, and reclaimed water services rates Supplier charges any of its wholesale customers.

(c) Payment for Water Services delivered by Supplier to the County under this Agreement must be made to the Supplier's Authorized Representative at the address set forth below. Supplier reserves the right to notify the County of a change in the Authorized Representative or its address by providing County a minimum of ten days advance notice of such change. The Authorized Representative is:

Reedy Creek Improvement District
Utility Division
Attn: Payables Clerk
P.O. Box 30000
Orlando, Florida 32891-8132

(d) Bills for water and reclaimed water service shall be calculated based on the respective monthly meter readings at the Wholesale Points of Connection as described in Section 8.

(e) The wastewater bill shall be based on the monthly water volume use as measured by the water meter at the Wholesale Point of Connection, multiplied by a factor of 0.818 (225 gpd per ERU divided by 275 gpd per ERC), where an Equivalent Residential Unit (ERU) for wastewater is equal to 225 gpd and an Equivalent Residential Connection (ERC) for water is equal to 275 gallons per day (gpd). Water used during construction of the new development within FC Ultimate may be subtracted from the wastewater bill upon request by the County provided that the water use is metered.

(f) Supplier shall bill the County on a monthly basis for Water Services. The County agrees to make payments to the Supplier within forty-five days from the date it receives such bill from the Supplier.

7. WATER USES

The County's use of the Water Services shall be limited to service only to those customers located within the FC Ultimate area as described in **Exhibit "A."**

8. WHOLESALE POINTS OF CONNECTION

(a) At no cost to the County, Supplier shall ensure that its Water Services systems are connected to the County's utility system, with flow meters and all appurtenances thereto, at the Wholesale Points of Connection depicted in **Exhibit "D,"** such that the volume of Water Services delivered hereunder can be accurately measured. **Exhibit "D"** is attached hereto and incorporated herein by reference. All connections shall meet the County standards and are subject to approval by the County, which approval shall not be unreasonably delayed, conditioned, or withheld.

(b) Meter assemblies shall be constructed on or before the second anniversary of the Effective Date. After the Effective Date, and prior to the construction of the meter assemblies, the wholesale utility bills shall be based on the monthly water and reclaimed water volume use as measured at the retail meters.

(c) Meter assemblies to be installed at the water and reclaimed water Wholesale Points of Connection shall be as shown in **Exhibit "E."** The division of ownership shall be as shown in **Exhibit "D." Exhibit "E"** is attached hereto and incorporated herein by reference.

(d) At no cost to the County, Supplier shall operate, maintain, and modify as necessary, its distribution, collection, and transmission systems on Supplier's side of the Wholesale Points of Connection to the County's utility system to the extent necessary to ensure delivery of Water Services to the FC Ultimate.

(e) At the time when Water Services end per Sections 3, 4, and 5 of this Agreement, the Parties agree to coordinate the facilitation of the transition of each utility Water Service from Suppliers' system to the County's utility system as soon as reasonably practical.

9. WATER QUALITY, QUANTITY

(a) Throughout the term of this Agreement, Supplier shall:

(1) deliver to the County water in volumes necessary to meet the needs of all County customers within FC Ultimate until permanent connection at the County System Point of Connection is made, unless previously terminated prior to the expiration of the term of the Agreement.

(2) deliver to the County reclaimed water in volumes necessary to meet the needs of all County customers within FC Ultimate until permanent connection at the County System Point of Connection is made, unless previously terminated prior to the expiration of the term of the Agreement.

(3) accept from the County wastewater in volumes necessary to meet the needs of all County customers within FC Ultimate until permanent connection at the County System Point of Connection is made, unless previously terminated prior to the expiration of the term of the Agreement.

(b) All water delivered by Supplier shall be of a quality consistent with the drinking water standards of the FDEP, EPA, and all other applicable laws and regulations.

(c) All reclaimed water delivered by Supplier shall be of a quality consistent with the requirements for "public access" treatment levels as described in rules of the FDEP, Chapters 62-600 through 62-650, Florida Administrative Code (FAC), and all other applicable laws and regulations.

(d) The County represents that it will not authorize wastewater from industrial users, as defined within Chapter 62-625, FAC, to be transmitted to Supplier's system.

(e) In the event an industrial user is allowed within the area serviced by this Agreement absent a prior modification to this Agreement as contemplated above, it shall be deemed a breach of this Agreement by the responsible Party.

10. METERING

Supplier shall install and properly calibrate metering equipment at all water and reclaimed water Wholesale Points of Connection. Such equipment shall remain the property of Supplier, who shall be responsible for its operation, maintenance, calibration and replacement throughout the term of this Agreement. Supplier shall read the meters for billing purposes. The metering equipment shall be of standard make and type and shall meet the standards of the American Water Works Association ("AWWA") for accuracy. With the County present, Supplier shall test the metering equipment for accuracy without charge to the County once during any twelve month period. Supplier shall perform such additional testing as may be requested by the County, with the County present, at a charge to the County not to exceed Supplier's actual cost for such tests. Supplier shall provide the County with copies of the test results within thirty days of each test. Notwithstanding the foregoing, Supplier will not charge the County for tests that discover an inaccurate meter, as defined by AWWA. If an inaccurate meter is discovered, Supplier shall make bill adjustments for up to twelve months preceding the test. Bill adjustments will be accounted for in the next billing cycle and a separate bill will not be generated.

11. COST OF CAPACITY

The applicant for utility connections for all parcels within FC Ultimate shall pay all applicable capital charges in accordance with Chapter 37 of the Orange County Code.

12. DEVELOPMENT APPROVALS

All development that occurs within FC Ultimate shall be subject to the requirements and approvals of the County's development process and applicable County ordinances and regulations, and shall be in accordance with the County Approved MUP. The County is not obligated to provide Water Service under this Agreement to any property within FC Ultimate until all applicable regulations are satisfied, including payment of capital charges. Supplier shall not enter into any contracts or approve any development or uses within the Flamingo Crossing Development that will conflict with the County's development processes. No construction of utility infrastructure shall be undertaken at the cost of the County. This agreement does not create a specific duty for either Supplier or the County to pay for infrastructure to support the demands of FC Ultimate. Developers of parcels or structures within the FC Ultimate shall be solely responsible for the cost of infrastructure needed to provide Water Services to those projects. This Agreement does not preclude Supplier from participating or acting as or on behalf of a developer. The County has no duty to provide Water Services within the FC Ultimate in addition to the Water Services set forth in this Agreement.

13. CONSTRUCTION AND CONVEYANCE OF FUTURE INFRASTRUCTURE

All infrastructure within the FC Ultimate that provides Water Service to FC Ultimate shall be constructed in accordance with the County's most recent version of its Standards and Specification Manual. Developers of the FC Ultimate properties shall be responsible for acquiring all required governmental permits and approvals for the construction activities. All development in unincorporated Orange County shall be in accordance with the Orange County Standards within the standard review process and timing. The County shall have the right to make periodic inspections during the construction of the mains.

14. EASEMENTS

At no cost to the County, Supplier shall grant the County an Access and Utility Easement over Supplier's right-of-way for existing and future Utility System infrastructure needed to serve the FC Ultimate. This conveyance will be executed on or before the Effective Date and subject to the conditions set forth in Section 12 herein.

15. FORCE MAJEURE

(a) As used in this Agreement, an event of "Force Majeure" shall mean an unforeseeable act or event that prevents or delays or otherwise adversely affects a Party's performance of its obligations under this Agreement or compliance with any conditions required by the other Party under this Agreement if such act or event is beyond the reasonable control of and not the fault of the affected Party, including acts of God (e.g. flood, lightning, tornado, hurricane, sinkhole), acts of public enemy, and compliance with an order of governmental authority. In no event shall either Party be excused from payment obligations under this Agreement by reason of Force Majeure.

(b) If either Party is rendered wholly or partly unable to perform its obligations under this Agreement because of a Force Majeure event, that Party will be excused from whatever performance is affected by the Force Majeure event to the extent so affected, provided that: (1) the non-performing party, within forty-eight hours after knowing of the occurrence of the Force Majeure event, gives the other Party written notice describing the particulars of the occurrence; (2) the suspension of performance is of no greater scope and of no longer duration than is reasonably required by the Force Majeure event; and the non-performing party uses reasonable efforts to overcome or mitigate the effects of such an occurrence.

16. ASSIGNMENT

Neither Party shall assign this Agreement to an entity other than a public agency, as that term is defined in Section 163.01(3)(b), Florida Statutes. Furthermore, neither Party shall assign this Agreement without the express written consent of the other, which shall not be unreasonably delayed, conditioned, or withheld.

17. COMPLIANCE WITH LAWS AND REGULATIONS

The Parties shall comply with all applicable federal, state, and local laws and regulations relating to the performance of the obligations set forth in this Agreement.

18. REASONABLE APPROVALS

In those instances in this Agreement in which a Party's approval, consent or satisfaction is required and a time period is not specified, then it shall be implied that such action shall be exercised in a reasonable manner and within a reasonable time frame relative to the nature of work or act in progress.

19. DEFAULT AND REMEDIES

(a) Failure by a party to perform any of its obligations hereunder shall constitute a default hereunder, entitling the non-defaulting party to pursue the remedies of specific performance, injunctive relief, or damages. Prior to either Party filing any action as a result of a default by the other Party under this Agreement, the non-defaulting Party exercising such right shall first provide the defaulting party with written notice specifying such default and the actions needed to cure same, in reasonable detail. Upon receipt of said notice, the defaulting Party shall be provided a thirty day opportunity within which to cure such default, unless such default is not capable of being cured within thirty days, in which case that Party must cure the default as soon as practicable. Failure to cure within the appropriate cure period, the non-defaulting Party may seek specific performance arising from such default.

(b) Notwithstanding any other provision of this Agreement, in no event shall either Party have liability to the other Party under this Agreement, whether based in contract, in tort, or otherwise, for (a) any special, incidental, indirect, exemplary or consequential damages, (b) damages with respect to cost of capital, loss of use of plant or plant capacity or equipment or claims of customers of either Party, as the case may be, if such damages are categorized as special, incidental, indirect, exemplary, or consequential, or (c) costs, loses, damages, fines or penalties to the extent that either Party is entitled to receive insurance proceeds pursuant to an insurance policy or policies covering such costs, loses, damages, expenses, fines or penalties.

(c) The Parties shall be responsible for their individual attorney's fees, costs, and expenses in any litigation, suit, dispute, controversy, mediation, or proceeding, including appellate proceedings, arising out of, based on, or related to, this Agreement.

(d) This Section of the Agreement shall survive termination/expiration of the Agreement.

20. NOTICES

(a) All notices required or authorized under this Agreement shall be given in writing and shall be served by mail on the parties at the addresses listed below:

Supplier:	District Administrator Reedy Creek Improvement District Post Office Box 10170 Lake Buena Vista, Florida 32830
	Director Reedy Creek Energy Services 5300 Center Drive Lake Buena Vista, FL 32830
The County:	Director Orange County Utilities 9150 Curry Ford Road Orlando, Florida 32825-7600
With a copy to:	County Administrator Orange County Administrator's Office 201 S. Rosalind Avenue, 5th Floor Orlando, Florida 32801-3527

(b) Either Party may notify the others in writing of a change of address for Notices under this section, at least ten days prior to the effective date of the address change.

21. RELATIONSHIP OF THE PARTIES

The Parties do not intend to create hereby any joint venture, partnership, association, or other entity for the conduct of any business for profit. The Parties deem Supplier and the County to be independent contractors for the purposes of this Agreement, and not as agents or partners of the other.

22. AMENDMENTS

Any and all modifications to the provisions of this Agreement shall be made by mutual agreement of the Parties, in writing, and executed by the Parties.

23. DISCLAIMER OF THIRD PARTY BENEFICIARIES

This Agreement is solely for the benefit of the formal parties hereto and no right or cause of action shall accrue upon or by reason hereof, to or for the benefit of any third party not a formal party hereto.

24. SEVERABILITY

If any part of this Agreement is found invalid or unenforceable by any court, such invalidity or unenforceability shall not affect the other parts of this Agreement if the rights and obligations of the Parties contained therein are not materially prejudiced and if the intentions of the Parties can continue to be effectuated. To that end, this Agreement is declared severable.

25. NON-WAIVER

The failure of either Party to insist upon the other Party's compliance with its obligations under this Agreement in any one or more instances shall not operate to release such other Party from its duties to comply with such obligations in all other instances.

26. SOVEREIGN IMMUNITY

Nothing in this Agreement shall be deemed a waiver of sovereign immunity or limits of liability of either Party, including their respective commissioners, supervisors, officers, agents or employees, beyond the statutory limited waiver of immunity set forth in Section 768.28, Florida Statutes (2017), or other statute.

27. INDEMNIFICATION AND INSURANCE

(a) Each Party to this Agreement shall be responsible for all personal liability and property damage attributable to the negligent acts or omissions of that Party and its officials, agents, and employees, or arising out of or resulting from that Party's negligent performance under this Agreement (the "Negligent Party"). The Negligent Party agrees to defend, indemnify and hold harmless the other Party, its officials, agents, and employees from all claims, actions, losses, suits, judgments, fines, liabilities, costs and expenses in connection therewith, to the extent permitted by law.

(b) The contractor(s), subcontractor(s), consultant(s), and subconsultant(s) shall provide evidence of the hold harmless and indemnity prior to commencement of work and access to any of the property of the Parties.

28. APPLICABLE LAW

This Agreement is an Interlocal Agreement as provided in Section 163.01, Florida Statutes (2017). This Agreement and the provisions contained herein shall be construed, controlled, and interpreted according to the laws of the State of Florida. When required by law, the County agrees to join in any application for a required license, permit or other regulatory approval process necessary or appropriate for the operation of the Water Services that is the subject matter of this Agreement. Any litigation arising out of this Agreement shall be had in the federal or state courts located and lying within Orlando, Orange County, Florida. The Parties waive their respective rights to a jury trial.

29. RECORDING

This Agreement, including the Exhibits thereto, shall be recorded in the Public Records of Orange County, Florida. Supplier shall bear the costs and responsibility of such recording.

30. ENTIRE AGREEMENT

This Agreement constitutes the entire agreement and understanding between the Parties and shall supersede and replace any and all prior or contemporaneous representations, negotiations, statements, understandings, or agreements between the Parties, whether verbal or written, relating to the matters set forth herein and the execution of this Agreement and is merged into this Agreement. The Parties fully understand the terms and conditions of this Agreement, have entered into this Agreement voluntarily, and have received or had the opportunity to receive independent advice and legal counsel. This Agreement has been executed by the authorized representative of each Party on the date written below each signature.

31. TIME OF THE ESSENCE

Time is of the essence in implementing the terms of this Agreement.

32. HEADINGS; CONSTRUCTION OF AGREEMENT

The various section headings used in this Agreement are for convenience of reference only and are not to be used to construe, apply or enforce its substantive provisions. The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event ambiguity or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring any Party by virtue of the authorship of any of the provisions of this Agreement.

[SIGNATURES FOLLOW ON NEXT TWO PAGES]

AGREED TO AND EFFECTIVE ON THE DATE on which the later of the Parties to this Agreement executes it.

"SUPPLIER"

REEDY CREEK IMPROVEMENT DISTRICT
By: Board of Supervisors

By: ______________________
John H. Classe, Jr.
District Administrator

WITNESS:

____

Printed Name: Jason Herrick

[ORANGE COUNTY'S SIGNATURES ON NEXT PAGE]

"COUNTY"

ORANGE COUNTY, FLORIDA
By: Board of County Commissioners

By: ______________________
Teresa Jacobs
County Mayor

Date: 11.14.18

ATTEST: Phil Diamond, CPA, Orange County Comptroller
as Clerk to the Board of County Commissioners

By: ______________________
Deputy Clerk

SURVEYING AND MAPPING DEPARTMENT P.O.B. 10000 LAKE BUENA VISTA FL. 32830-1000 PHONE (407)560-7118 FAX (407)560-7869	FILING AREA *FLAMINGO CROSSINGS*	DATE: 11/21/17
	PROJECT NAME *EXHIBIT A1 OF 1 – FC ULTIMATE*	SCALE 1" = 600'
	SURVEY TYPE *GRAPHIC DEPICTION*	DRAWN BY: JLG
	COMMENTS	FILENAME: 10JG17092

Exhibit "B"

to

Interlocal Agreement between Reedy Creek Improvement District and Orange County for Delivery of Wholesale Water Services to the Flamingo Crossings Development

COUNTY APPROVED MUP

Walt Disney World West District

Water, Wastewater, and Reclaimed Water Master Utility Plan

October 2018

Submitted to:

Orange County Utilities (OCU)

Prepared for:

Walt Disney Imagineering

and

Reedy Creek Energy Services (RCES)

Prepared by:

ATKINS

Member of the SNC-Lavalin Group

482 South Keller Road

Orlando, Florida 32810

Table of contents

Tables

Figures

1. Overview

1.1. Overview

Walt Disney Imagineering (WDI) and Reedy Creek Energy Services (RCES) authorized Atkins North America, Inc. (Atkins) to develop a master utility plan (MUP) for the existing and planned developments in the Walt Disney World (WDW) West District. The master plan includes potable water, wastewater, and reclaimed water utilities.

The WDW West District project consists of approximately 309 acres located west of State Road 429 and east of County Road 545 (**Figure 1-1**). The projects limits are within Sections 19, 20, 21, and 28, Township 24, Range 27, in Orange County, Florida. The District is made up of four distinct parcels:

- Existing Flamingo Crossings (FC)
- Proposed Flamingo Crossings Planned Development Phase 1 – East Parcel (FC-1)
- Proposed Flamingo Crossings Planned Development Phase 2 – West Parcel (FC-2)
- Proposed Bear Island (BI-N and BI-S)

The BI parcel will not come online within the immediate future, however, the ultimate (long-term) scenario should accommodate for this development. Therefore, BI flows and demands have been included in the long-term scenario for adequate infrastructure sizing.

Portions of the proposed project may be de-annexed from the Reedy Creek Improvement District (RCID) into Orange County. Each section listed in this MUP outlines which municipality will own each section of the system and the criteria that were used in the design. The information provided in this report for Orange County Utilities (OCU) includes infrastructure that will be transferred to OCU. OCU's review is limited to the OCU side of the interconnects. RCID demands and models for utility infrastructure will not be reviewed by OCU. All infrastructure part of this project were developed and reviewed by RCES, WDW and RCID.

This MUP involves design of potable water, wastewater, reclaimed water systems, and utility extensions to support the WDW West District short-term and long-term buildout. Applicable utility design criteria are listed in each appropriate section. The utility points of connection, sizes, pressures, used were all obtained from RCES and OCU and are included in Appendix A. A schematic pipe layout is given for each proposed utility, including color-coded maps depicting the proposed ownership and pipe sizes. Flows were derived using the flow development program for the existing FC Parcel and pending units included in the proposed development plans for the FC-1, FC-2 and BI Parcels. These flows were calculated and distributed through each proposed parcel. RCID and OCU allow the use of ductile iron pipe or PVC pipe, with the exception of OCU wastewater collection systems where ductile iron pipe is not to be used for underground piping.

The proposed OCU mains to be constructed as dry lines and the existing RCID dry lines to be transferred to OCU are to remain privately owned and maintained until dedicated to OCU with future development. The mains shall be tested and inspected per the OCU Standards and Construction Specifications Manual at time of installation as well as at the time of dedication to OCU. Testing immediately prior to dedication shall be a separate project. A Bill of Sale and Maintenance Guarantee to OCU covering the installed mains for a period of one year following the final certificate of completion are requirements of the project clearing the system for use.

An approved land use plan has been provided in Appendix J, the plan has been approved by the BCC on 2/6/2018 and the DRC.

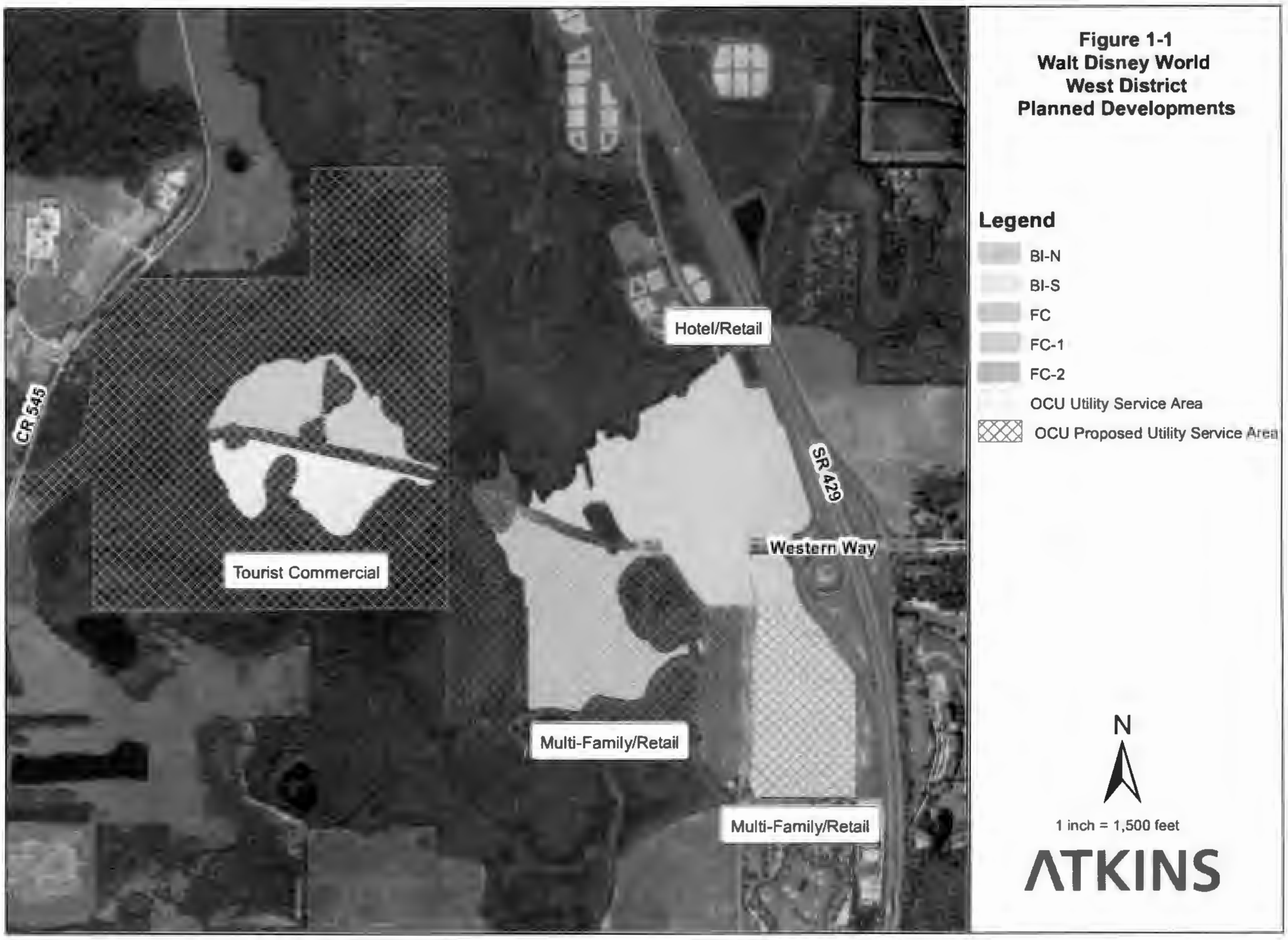


Figure 1-1
Walt Disney World
West District
Planned Developments
Legend
BI-N
BI-S
FC
FC-1
FC-2
OCU Utility Service Area
OCU Proposed Utility Service Area
Hotel/Retail
Tourist Commercial
Multi-Family/Retail
Multi-Family/Retail
Western Way
SR 429
CR 545
N
1 inch = 1,500 feet
ATKINS

2. Potable Water System

2.1. Introduction

The WDW West District is located along Western Way, east of County Road 545 and west of State Road 429. For the purpose of this MUP, the District will be served by RCID from the east (short-term scenario). Once OCU infrastructure is available along County Road 545, the District will be served by OCU from the west (long-term scenario). Parcels FC-1, FC-2, BI-N, and BI-S will be OCU customers and parcel FC will remain a RCID customer The section below outlines which municipality will own what parts of the potable water system and the criteria that were used in the MUP design. **Figure 2-1** presents the potable water system infrastructure by owner required for the short-term scenario, while **Figure 2-2** presents the potable water system infrastructure by owner required for the long-term scenario.

There are currently four existing RCID potable water main systems near the WDW West District project area. a 16-inch water main running along Western Way ending at Flamingo Crossings Blvd.; a 12-inch water main west of Flamingo Crossings Blvd. that ends at the western edge of the FC parcel; a 16-inch water main south of Western Way that runs along Flamingo Crossings Blvd.; and a 12-inch water main system on the FC parcel. The existing potable customers are connected to the RCID water distribution system.

A hydraulic model was developed using Innovyze InfoWater Scenarios were created to analyze the short-term scenario in which potable water is served by RCID and for the long-term scenario in which the potable water is served by both RCID and OCU. The RCID tie-in pressure is 85 pounds per square inch (psi) at an elevation of 108 feet (provided by RCES) and the OCU tie-in pressure available along County Road 545 was estimated to be 56 psi at an elevation of 120 feet (see **Appendix A** for OCU tie-in pressure). The proposed pipes were sized based on OCU design criteria to provide a minimum desired residual pressure at the points of delivery. The sizing of the mains meet RCID standards in addition to OCU standards. Topographic elevations were imported into the model through available shapefiles and utilized in the hydraulic calculations.

The short-term scenario consists of development parcels west of State Road 429 FC, FC-1, FC-2, and Orange Lake parcels In this scenario, all parcels will be distributed potable water by RCID A 16-inch water main is proposed beginning downstream of the potable water interconnect along Flamingo Crossings Boulevard, continuing across Flamingo Crossings Blvd., and a 24-inch then continuing west to the County Road 545 connection point servicing the FC-2 parcel in the short-term scenario as depicted in Figure 2-1. The western boundary of this water main will be valved closed during the short-term scenario after the future FC-2 parcel connection. RCID and OCU mains will be connected near Western Way and a wholesale water meter and interconnect will be installed The proposed 16-inch and 24-inch main will tie into the existing 16-inch RCID main and a gate valve is included at this location separating ownership, which will be open during the short term scenario. The existing 16-inch water main will be disconnected just north of this connection. The potable water system will have three valves: 1.) Western Way and County Road 545, 2.) Western Way and FC-2 parcel; and 3.) on the 16-inch RCID water main at the tie-in location to the existing 16-inch water main (see **Figure 2-1**).

The long-term scenario will include Parcels FC, FC-1, FC-2, Orange Lake, BI-N. and BI-S. In this scenario, when OCU infrastructure becomes available, the gate valves located at Western Way and County Road 545, and FC-2 will be opened and the 24-inch proposed water main will tie-in to the OCU water main along County Road 545. The gate valve located on the RCID 16-inch water main (location of ownership separation) will be closed. Under this scenario, OCU will serve all parcels FC-1, FC-2, BI-N, and BI-S; while RCID will serve FC.

An interim construction scenario was also analyzed. The scenario is the subset of the short-term scenario with the intent to demonstrate the ability of the existing system and proposed temporary piping serving the FC-2 parcel to provide fire flow during constriction prior to other improvements. The system would be supplied by RCID and metering would be accomplished via local construction or hydrant meter assemblies. The intent is to allow site and vertical construction during the interim construction period.

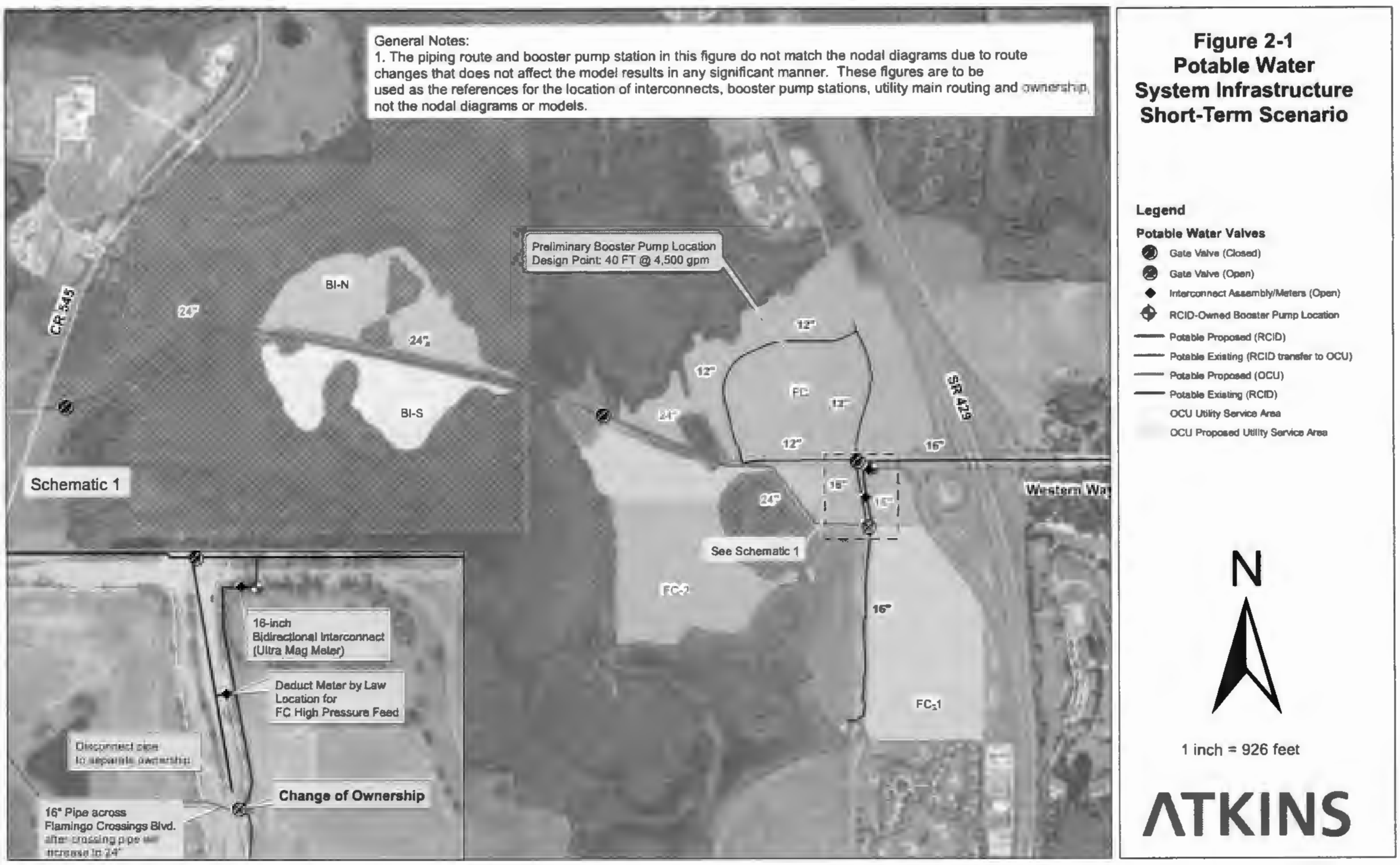
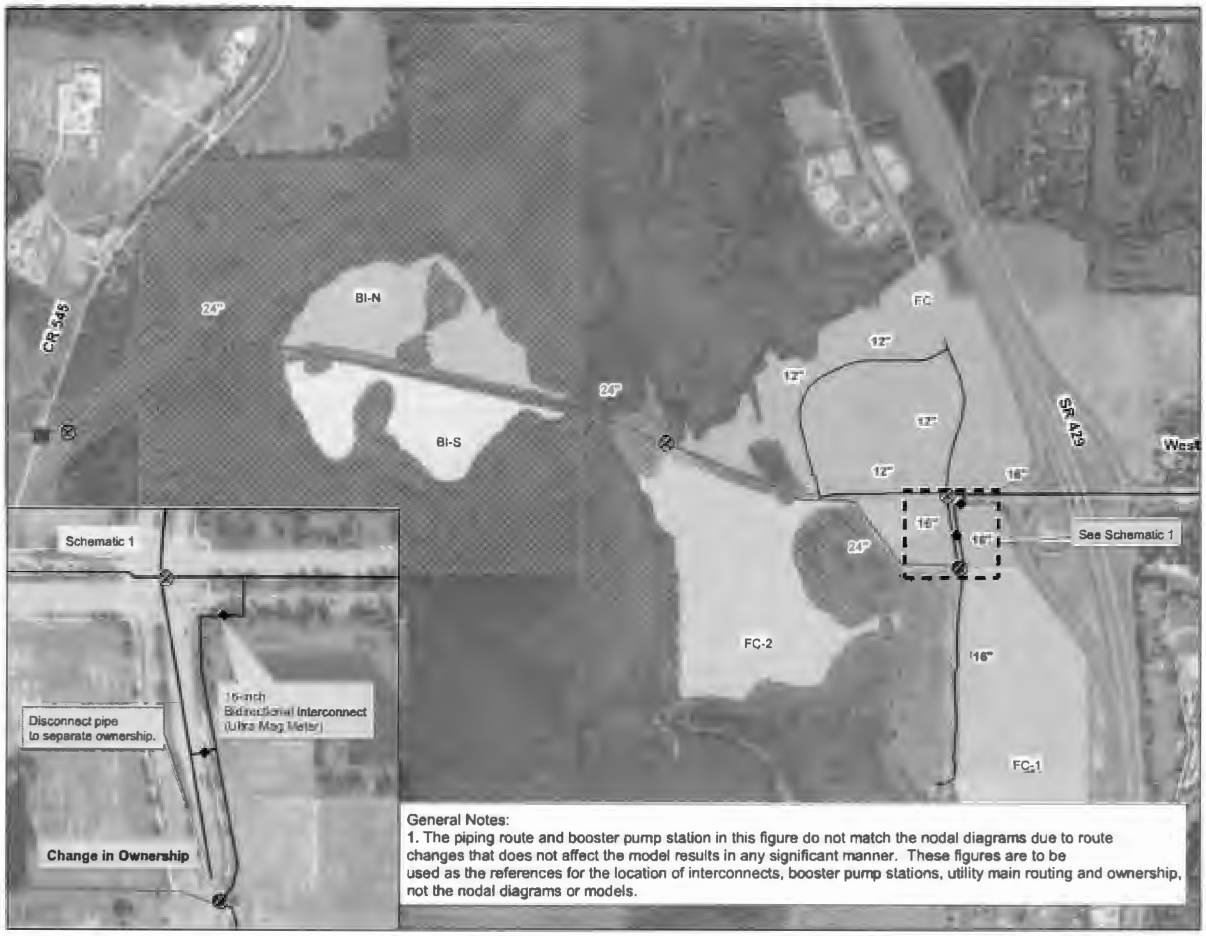


Figure 2-1
Potable Water System Infrastructure Short-Term Scenario



General Notes:
1. The piping route and booster pump station in this figure do not match the nodal diagrams due to route changes that does not affect the model results in any significant manner. These figures are to be used as the references for the location of interconnects, booster pump stations, utility main routing and ownership, not the nodal diagrams or models.

Figure 2-2
Potable Water
System Infrastructure
Long-Term Scenario

Legend
- Gate Valve (Closed)
- Gate Valve (Open)
- OCU Tie-In
- Interconnect Assembly/Meters (Closed)
- OCU Utility Service Area
- OCU Proposed Utility Service Area
- Potable Proposed (OCU)
- Potable Existing (RCID transfer to OCU)
- Potable Proposed (RCID)
- Potable Existing (RCID)

N

1 inch = 900 feet

ATKINS

2.2. Design Criteria

All pipes owned and maintained by RCID as shown in **Figure 2-1** have been designed to their standards. **Table 2-1** outlines the applicable RCID design criteria.

Table 2-1 RCID Potable Water System Design Criteria

Item	Recommended Criteria
Max day peaking factor	1.8
Peak hour peaking factor	3.0
Maximum velocity	8.0 feet per second (fps)
Hazen-Williams coefficient, ductile iron pipe	120
Hazen-Williams coefficient, PVC pipe	130
Minimum fire flow residual pressure	20 psi
Commercial fire flow requirement	2,000 gallons per minute (gpm)

All other public mains within the short-term and long-term scenarios are to be owned and maintained by OCU and designed per the OCU Standards and Construction Specifications Manual (with revisions issued in 2014) as outlined in **Table 2-2**.

Table 2-2 OCU Potable Water System Design Criteria

Item	Recommended Criteria
Max day peaking factor	2.0
Peak hour peaking factor	4.0
Maximum velocity	8.0 fps
Hazen-Williams coefficient, ductile iron pipe	120
Hazen-Williams coefficient, PVC pipe	130
Minimum fire flow residual pressure	20 psi (35 psi upstream of the FLMM/DDCVA)
Multifamily fire flow requirement	2,000 gpm
Commercial/Industrial fire flow requirement	2,000 gpm

2.3. Potable Water Demand Development

Potable water demands for parcels in the WDW West District for both the short-term and long-term scenarios are presented in Table 2-3.

Table 2-3 OCU Potable Water Demand Development

Parcel	Model Demand Node	Description	Unit Type	# of Units Proposed	ERC Factor	Potable Water ERC[3]	Flow per Unit (gpd)	No. of ERC's	Average Daily Demand (gpd)	Average Daily Demand (gpm)	Max Daily Demand (gpm)	Peak Hour Demand (gpm)
FC-1	J94	Restaurant over 100 seats[2]	Seats	2,000	0.1	350	35	200	70,000	49	97	196
		Multifamily - 2+ Bedrooms	Apartment	1,326	0.833	350	292	1,106	387,178	269	538	1,072
		Total Demand from FC-1						1,306	457,178	317	634	1,268
FC-2	J34	Restaurant over 100 seats[2]	Seats	2,000	0.1	350	35	200	70,000	49	97	194
		Multifamily - 2+ Bedrooms	Apartment	1,360	0.833	350	292	1,133	396,508	275	551	1,101
		Total Demand from FC-2						1,333	466,508	324	648	1,296
BI – North	J30	Restaurant over 100 seats	Seats	1,000	0.1	350	35	100	35,000	24	49	97
		Hotel – 1 Bedroom	Room or Suite	128	0.5	350	175	64	22,400	16	31	62
		Hotel – Suite	Suite	328	0.83	350	291	272	95,284	66	132	265
		Total Demand from BI – North						436	152,684	106	212	424
BI – South	J36	Restaurant over 100 seats	Seats	1,000	0.1	350	35	100	35,000	24	49	97
		Hotel – 1 Bedroom	Room or Suite	192	0.5	350	175	96	33,600	23	47	93
		Hotel – Suite	Suite	328	0.83	350	291	272	95,284	66	132	265
		Total Demand from BI – South						468	163,884	114	228	456
		Orange Lake (J66)[1]						-	511,200	355	710	1,420
		Grand Total						3,643	1,761,484	1,216	2,432	4,864

[1]Per 2017 Amended Letter Agreement between RCID and OCU
[2]Not to exceed 150,000 SF for FC-1 and FC-2
[3]Revised ERC per conversations with OCU staff
[4]Bear Island parcel demands are not included in the short-term scenario

2.4. Hydraulic Analysis

2.4.1. Fire Flow Analysis

A maximum day demand plus fire flow analysis was performed for each parcel to assure pressures and velocities are within acceptable ranges according to OCU standards mentioned previously. Based on Orange County Fire Marshal Code of Ordinances Sec 30-247, the minimum fire flow for commercial properties is 2,000 gpm with a residual pressure of 20 psi in the system at delivery point (residual pressure of 35 psi will be required upstream of the meter for each parcel to account for minor losses through meter assembly); RCID requires a fire flow of 2,000 gpm with a residual pressure of 20 psi at point of delivery; 35 psi upstream of meter assembly.

2.4.1.1. Short-Term Scenario

Appendix B provides a summary of the fire flow analysis results for the short-term scenario. During the short-term scenario, the recommended 35 psi residual pressure requirement upstream of the meter assembly is achieved on all parcels. RCID has plans to install a booster pump station at the location presented on Figure 2-1 to achieve this residual pressure.

Per agreement between RCID and OCU dated December 19, 2012 (2012 Letter Agreement) and amended on January 19th 2018, RCID is required to provide 2,710 gpm at 45 psi (maximum daily demand plus fire flow) to serve customers in the Orange Lake development located on Flamingo Crossings Boulevard labeled connection point in **Figure 2-3**.

This maximum day demand and fire flow requirement per the agreement was allocated in the model at the Orange Lake connection point and the model was simulated Appendix B includes a fire flow analysis for the Orange Lake development during the short-term scenario.

2.4.1.2. Long-Term Scenario

During this scenario, the potable water system adequately supplies fire flow at FC-1, FC-2, BI-N, BI-S and Orange Lake parcels. A comprehensive fire flow analysis for the long-term scenario is presented in Appendix B.

2.4.1.3. Short-Term Interim Construction Scenario

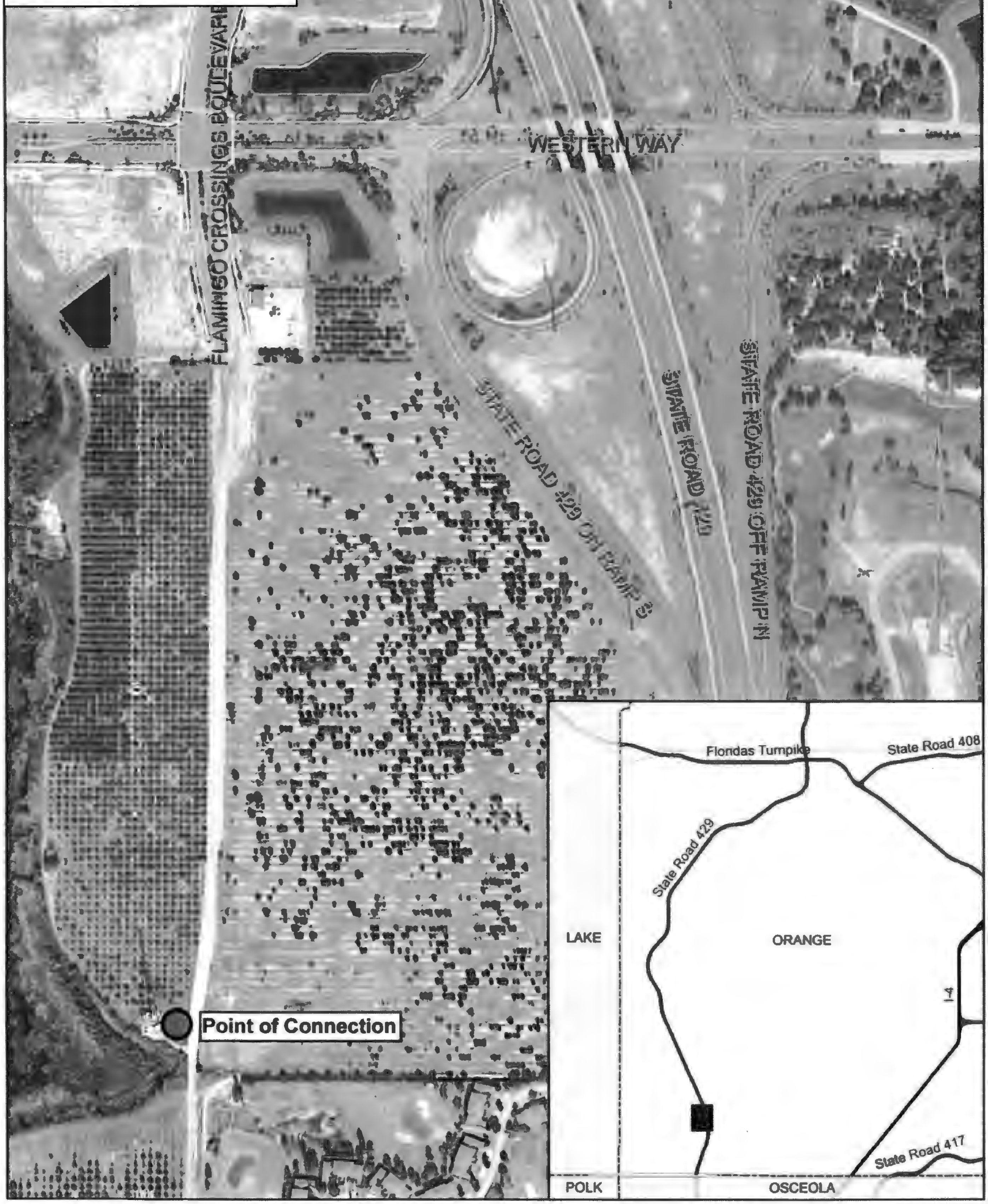
FC-1 and FC-2 parcel construction is estimated to begin in first quarter 2019. The timing of the construction of the booster pump station is estimated last quarter of 2019. Therefore, in the event the booster pump station is not online prior to FC-1 and FC-2 construction, additional scenarios were simulated to confirm adequate fire flows and pressures are provided during the "interim construction condition". During these scenarios existing pipes and proposed temporary pipes serving are used for delivery of demands and will be metered at the parcel hydrants. The scenarios simulated included the following:

1. FC-1. 2,000 gpm Fire Flow with maximum day demands only applied at the Orange Lake parcel.
2. FC-2: 2,000 gpm Fire Flow with maximum day demands only applied at the Orange Lake parcel.
3. Orange Lake. 2,000 gpm Fire Flow with maximum day demands only applied at the Orange Lake parcel.

Modeling results for each scenario are provided in Appendix B, Table B-36 through Table B-44. these results indicate all residual pressure requirements are met. During this scenario the existing

16-inch piping along Flamingo Crossings Blvd. adequately supplies the required fire flow demand to FC-1, FC-2, and Orange Lake for construction activities. The intent is to allow vertical construction during this interim construction period. Certificates of occupancy would be contingent on certified completion of the booster pump station and all other site work permit requirements.

Figure 2-3



FLAMINGO CROSSINGS BOULEVARD
WESTERN WAY
STATE ROAD 429 ON RAMP S
STATE ROAD 429
STATE ROAD 429 OFF RAMP N
Point of Connection
Floridas Turnpike
State Road 408
State Road 429
LAKE
ORANGE
I-4
State Road 417
POLK
OSCEOLA

2.4.2. Peak Hour Analysis

A hydraulic analysis was performed to assure pressures and velocities are within acceptable ranges according to the standards mentioned previously during the peak hour scenario. In both the short- and long-term scenarios, the potable water system adequately supplies peak demands at each parcel per the design criteria presented in Section 2.2. The peak hour analysis for the short- and long-term scenarios are presented in Appendix B.

Peak hour analysis is not applicable during the short-term interim construction scenario.

2.5. System Summary

During the short-term scenario and short-term interim construction scenario, RCID will provide potable water for parcels FC, FC-1, FC-2, and Orange Lake. In the long-term scenario, ownership of the potable water system will be divided between RCID and OCU. RCID will own and maintain all potable water system infrastructure providing service to the FC parcel; while OCU will assume ownership of the utilities serving the FC-1, FC-2, and Orange Lake parcels. All water service connection shall be metered in accordance with the 2011 OCU Standards and Construction Specifications Manual (with revisions issued in 2014) Standards.

2.5.1. Fire Flow Analysis

2.5.1.1. Short Term Scenario

Parcels FC-1, FC-2. and Orange Lake are capable of achieving the required 35 psi residual pressure with a fire booster pump station. Figure 2-1 illustrates the preliminary location for the fire booster pump station to accommodate fire flow demands and residual pressure requirements. The proposed booster pump stations will be owned and operated by RCID.

2.5.1.2. Long-Term Scenario

During the long-term scenario fire flow analysis, Piping is adequately sized for OCU to deliver the required residual pressure of 45 psi at the Orange Lake development per the amended Letter Agreement, dated January 19th, 2018.

2.5.1.3. Short-Term Interim Construction Scenario

During this scenario, existing piping is adequately sized to provide the fire flow needed for construction activities.

2.5.2. Peak Hour Analysis

In both the short- and long-term scenarios, the potable water system adequately supplies peak demands at each parcel per the design criteria presented in Section 2.2.

Peak hour analysis is not applicable to the short-term interim construction scenario.

3. Wastewater System

3.1. Introduction

As discussed previously, the WDW West District is east of County Road 545 and west of State Road 429. In the short-term scenario wastewater for the District will be served by RCID from the east. In the long-term scenario, once OCU infrastructure is available along County Road 545, wastewater for parcels located in the District (FC-1, FC-2, BI-N, BI-S, and Orange Lake) will be served by OCU from the west. Parcels FC-1, FC-2, BI-N, BI-S, and Orange Lake will be OCU customers. **Figure 3-1** presents the wastewater system infrastructure by owner in the short-term scenario and **Figure 3-2** presents the wastewater system infrastructure by owner in the long-term scenario. The section below outlines which municipality will own what parts of the wastewater system and the criteria that were used in the MUP design. BI will not come online in the short-term scenario, however, the ultimate (long-term) scenario includes BI flows for adequate infrastructure sizing of the wastewater collection system

There are currently two existing RCID wastewater force mains in the vicinity of WDW West District project area a 12-inch force main running along Western Way, east of State Road 429 ending at the western edge of the FC parcel (the existing Flamingo Crossings lift station or LS-91); and a 12-inch force main along Flamingo Crossings Blvd. south of Western Way. There are also two existing gravity mains in the project area: a 10-inch main along Flamingo Crossings Blvd. south of Western Way; and an 8-inch/12-inch/15-inch gravity system within the FC parcel. The existing wastewater customers are currently connected to the RCID collection system.

A hydraulic model of the force main system was developed using Innovyze InfoWater. Two scenarios were created, one for the short-term in which all wastewater flow for FC, FC-1, FC-2, and Orange Lake is delivered to the RCID wastewater treatment facility (WWTF), and one for the long-term scenario in which the wastewater flow is divided between RCID and OCU The RCID tie-in pressure provided by RCES is 10 pounds per square inch (psi) and the OCU tie-in pressure along County Road 545 provided by OCU is 27 psi at an elevation of 120 feet (see **Appendix A** for OCU tie-in pressure). The long-term force main was sized based on OCU design criteria to provide a maximum velocity of 5 feet per second (fps).

The short-term scenario consists of FC, FC-1, FC-2, and Orange Lake parcels. In this scenario these parcels will be served by RCID. Flow from the Orange Lake and FC-1 developments will be directed through the existing 12-inch Flamingo Crossings Blvd. force main and the proposed 12-inch force main along Western Way, flows will be discharged in the proposed manhole near LS-91. The 12-inch force main along Flamingo Crossings Blvd. will be disconnected to separate ownership of the utility infrastructure between RCID and OCU (See **Figure 3-1**). FC-2 will discharge into the proposed 12-inch force main along Western Way and flows will be directed to the proposed manhole near the LS-91 lift station, which will then flow by gravity to the LS-91 lift station. The wastewater from all parcels will then be pumped east to the RCID WWTF.

The long-term scenario will include FC, FC-1, FC-2, BI-N, BI-S, and Orange Lake. Similar to the short-term scenario, the existing LS-91 lift station will receive flows by gravity from parcel FC and will direct flows east to the RCID WWTF. The valve will be closed as shown in Figure 3-2 to direct wastewater flows west to the tie-in location along County Road 545. A 16-inch force main is proposed from FC-2 to BI and a 20-inch force main from BI to the tie-in location along County Road 545. Under this scenario, OCU will treat flows from parcels FC-1, FC-2, Orange Lake, and BI.

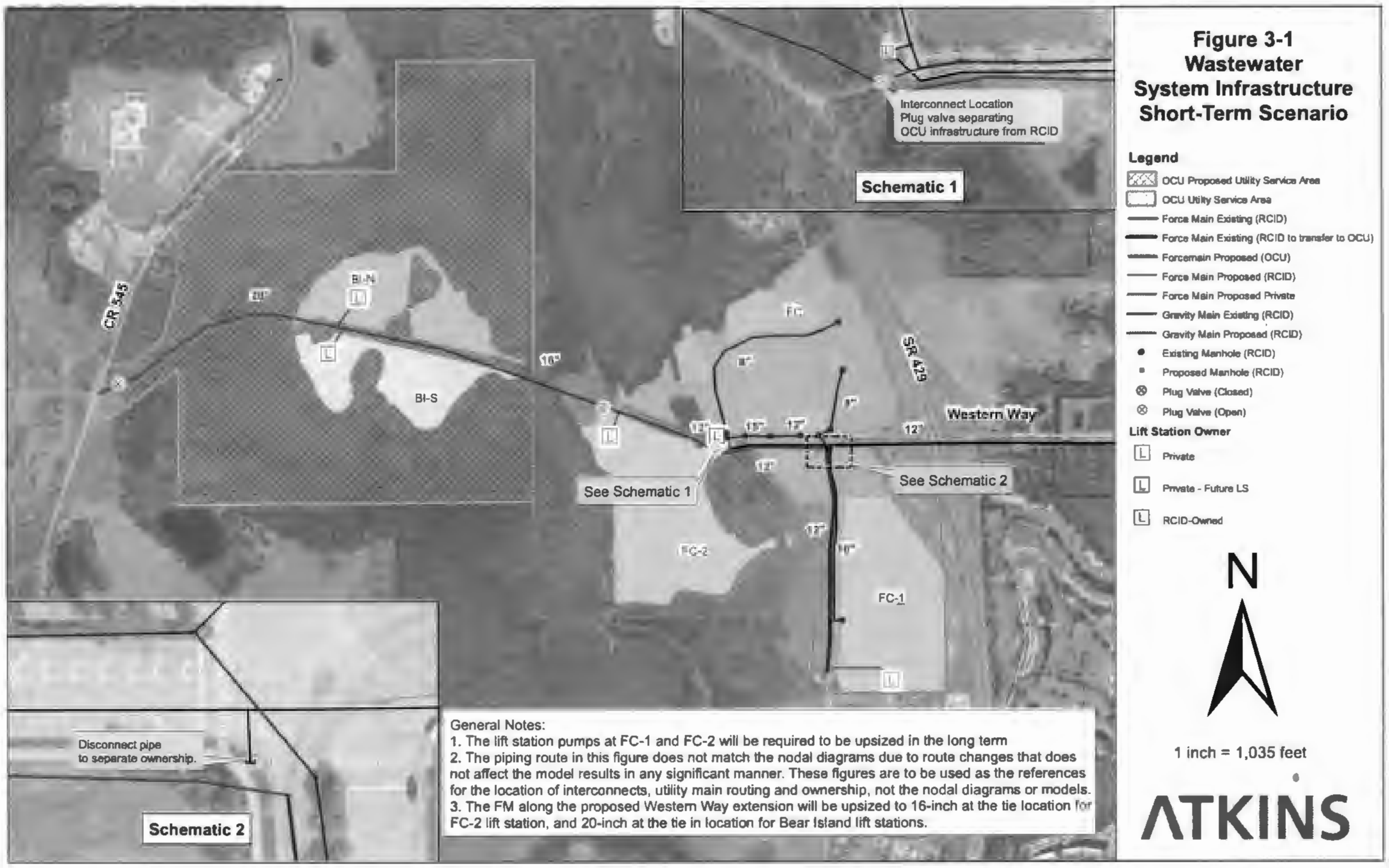


Figure 3-1
Wastewater
System Infrastructure
Short-Term Scenario
Legend
OCU Proposed Utility Service Area
OCU Utility Service Area
Force Main Existing (RCID)
Force Main Existing (RCID to transfer to OCU)
Forcemain Proposed (OCU)
Force Main Proposed (RCID)
Force Main Proposed Private
Gravity Main Existing (RCID)
Gravity Main Proposed (RCID)
Existing Manhole (RCID)
Proposed Manhole (RCID)
Plug Valve (Closed)
Plug Valve (Open)
Lift Station Owner
Private
Private - Future LS
RCID-Owned
N
1 inch = 1,035 feet
ATKINS
Interconnect Location
Plug valve separating
OCU infrastructure from RCID
Schematic 1
CR 545
SR 429
Western Way
BI-N
BI-S
FC
FC-2
FC-1
20"
16"
12"
8"
See Schematic 1
See Schematic 2
Disconnect pipe
to separate ownership.
Schematic 2
General Notes:
1. The lift station pumps at FC-1 and FC-2 will be required to be upsized in the long term
2. The piping route in this figure does not match the nodal diagrams due to route changes that does not affect the model results in any significant manner. These figures are to be used as the references for the location of interconnects, utility main routing and ownership, not the nodal diagrams or models.
3. The FM along the proposed Western Way extension will be upsized to 16-inch at the tie location for FC-2 lift station, and 20-inch at the tie in location for Bear Island lift stations.

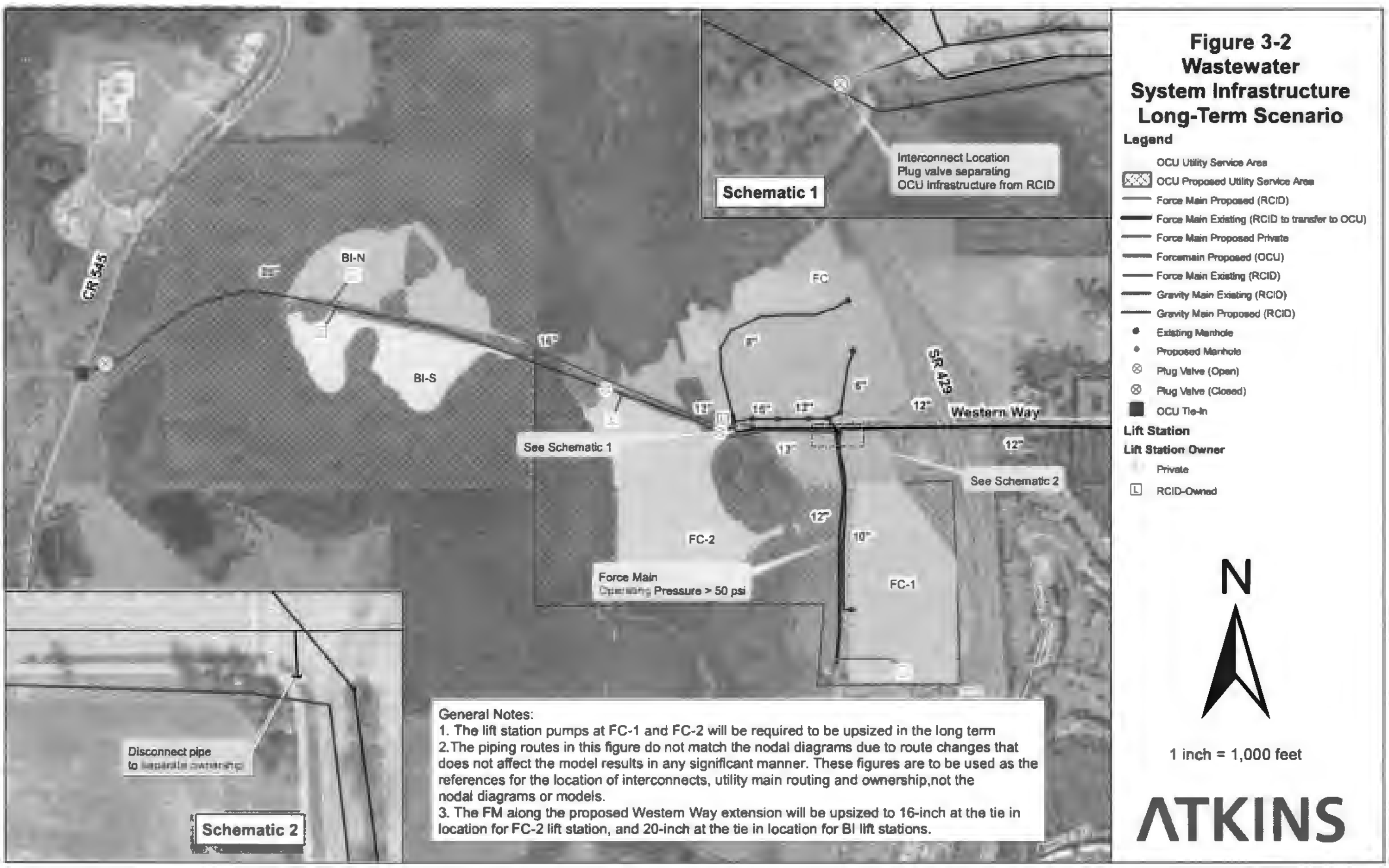


Figure 3-2 Wastewater System Infrastructure Long-Term Scenario

3.2. Gravity Collection System

Detailed wastewater flow development is outlined in Section 3.5. The OCU standard wastewater flow rate of 300 gpd/ERU was used for equivalent residential connections.

In the short-term and long-term scenario, all existing gravity sewer west of State Road 429 will be owned and maintained by RCID and have been designed to their standards. The 10-inch gravity main on the FC and FC-1 parcels will be plugged where the FC and FC-1 parcel boundaries meet. The remaining 10-inch gravity main on the FC-1 parcel will be abandoned in place. All gravity sewer and the existing lift station within parcel FC will remain under the ownership of RCID.

3.2.1. RCID Gravity Collection System

The RCID gravity collection system will include all gravity sewer mains serving parcels east of State Road 429 and FC. Applicable RCID design criteria is outlined in **Table 3-1**.

Table 3-1 RCID Gravity Main Design Criteria

Item	Recommended Criteria
Minimum slope, 8-inch	0.40%
Minimum slope, 10-inch	0.28%
Minimum slope, 12-inch	0.22%
Minimum slope, 15-inch	0.15%

3.3. Lift Stations

In the short-term scenario there will be four (4) lift stations: FC-1, FC-2, LS-91 and Orange Lake. FC-1, FC-2 will be privately owned and operated. LS-91 will receive wastewater flows from all parcels during the short-term scenario. In this scenario the LS-91 lift station will pump east to the RCID WWTF and will be owned and maintained by RCID.

In the long-term scenario there will be six (6) lift stations: FC-1, FC-2, LS-91, Orange Lake, BI-N and BI-S. The 12-inch force main will be plugged prior to the proposed manhole that flows to LS-91 lift station and south of Western Way and Flagler Avenue. All wastewater flows will be directed west from the FC-1, FC-2, BI-N, BI-S, and Orange Lake parcels to the County Road 545 tie-in location. LS-91 lift station will continue to direct flows from Parcel FC east to the RCID WWTF.

3.3.1. RCID Lift Stations

During the short-term scenario, parcels FC-1, FC-2 and Orange Lake will each have their own lift stations that will receive wastewater flows by gravity for each parcel respectively. The FC-1, FC-2 will be privately owned. The pumps included for each parcel lift station have been evaluated to confirm if they are capable of pumping under the short-term head conditions as well as the long-term head conditions. In conclusion, FC-1 and FC-2 lift station will require separate pumps for each the short-term and long-term head conditions. The pumps for each the short-term and long term are shown in the lift station calculations and pump curves included in **Appendix E**.

LS-91 was designed based on a peak hourly flow (PHF) from all contributing parcels and will pump east to the RCID WWTF. All gravity wastewater mains and the existing lift station within parcel FC will remain under the ownership of RCID. Appendix H includes the LS-91 Lift Station pump curve.

3.3.2. OCU Lift Stations

OCU lift station design criteria is contingent upon the number of pumps required. Peak design flows less than 1,000 gpm require two pumps while peak design flows between 1,000 and 2,500 gpm require three pumps. Applicable OCU lift station design criteria is outlined in Table 3-2.

Table 3-2 OCU Lift Station Design Criteria

Item	Recommended Criteria	
	2 pumps	3 pumps
Number of wet wells	1	1
Wet well structure type	Precast	Precast
Piping (below or above ground)	Below	Above
SCADA	Yes	Yes
Biofilter	No	Yes
Generator	FDEP	Yes
Level control	Float ball	Float ball
SCADA panel	Type 2	Type 3

3.4. Force Mains

3.4.1. RCID Force Mains

In the short-term scenario the existing force main alignments can be seen in **Figure 3-1.** Applicable RCID design criteria is outlined in **Table 3-3**.

Table 3-3 RCID Force Main Design Criteria

Item	Recommended Criteria
Maximum headloss	5 feet/1,000 feet of pipe
Maximum velocity in force mains > 10-inch	7 fps
Maximum velocity in force mains ≤ 10-inch	5 fps
Hazen-Williams coefficient, ductile iron pipe	120
Hazen-Williams coefficient, PVC pipe	130

* All force mains that will be transferred to OCU will be designed per the OCU 2011 Design Criteria.

3.4.2. OCU Force Mains

A 12-inch force main is proposed along Western Way will direct flows from the FC-1, FC-2, Orange Lake lift stations to a manhole that will flow by gravity to the LS-91 lift station during the short-term. The 12-inch force main was sized based on the ultimate build-out flows during the long-term scenario, which will be used in the long-term scenario to direct flows to the tie-in location at County Road 545 along with a 16-inch force main from the FC-2 parcel to the BI parcels, and 20-inch force main form BI parcels to the tie-in location. Refer to **Figure 3-2** for the force main schematic.

Table 3-4 includes the recommended OCU criteria for the design of force mains. It must be noted that all OCU maintained force mains must flow at a minimum velocity of 2.5 fps and a maximum velocity of 5 fps.

Table 3-4 OCU Force Main Design Criteria

Item	Recommended Criteria
Minimum Pipe Diameter	4 inches
Minimum Velocity	2.5 fps
Maximum Velocity	5.0 fps at peak flow rate

3.5. Wastewater Flow Generation Development

Wastewater flow generation for parcels in the WDW West District for the short- and long-term scenarios are presented in and **Table 3-5**.

Table 3-5 OCU Wastewater Flow Development

Parcel	Description	Unit Type	# of Units Proposed	ERC Factor	Wastewater ERC	No. of ERC's	Flow per Unit (gpd)	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Peak Hour Flow (gpm)
FC-1	Restaurant over 100 seats	Seats	2,000	0.1	300	200	30	60,000	42		125
	Multifamily - 2+ Bedrooms	Apartment	1,328	0.833	300	1,106	250	331,867	230		691
Total Flow from FC-1						1,306	280	391,867	272	3.0	816
FC-2	Restaurant over 100 seats	Seats	2,000	0.1	300	200	30	60,000	42		125
	Multifamily - 2+ Bedrooms	Apartment	1,360	0.833	300	1,133	250	339,864	236		708
Total Flow from FC-2						1,333	280	399,864	278	3.0	833
BI – North*	Restaurant over 100 seats	Seats	1,000	0.1	300	100	30	30,000	21		73
	Hotel - 1 Bedroom	Room	128	0.5	300	64	150	19,200	13		47
	Hotel – Suite	Room	328	0.83	300	272	249	81,672	57		199
Total Flow from BI – North						436	429	130,872	91	3.6	318
BI – South*	Restaurant over 100 seats	Seats	1,000	0.1	300	100	30	30,000	21		73
	Hotel - 1 Bedroom	Room	192	0.5	300	96	150	28,800	20		70
	Hotel – Suite	Room	328	0.83	300	272	249	81,672	57		199
Total Flow from BI – South						468	429	140,472	98	3.6	341
Orange Lake**								436,000	302	3.0	906
Grand Total						3,543	1,418	1,499,075	1,038		3,208

*Bear island parcel demands are not included in the short-term scenario
**Per the agreement, 436,000 gpd ADF and 900 gpm PHF of wastewater flows are to be provided for Orange Lake

NOTE: The lift station pumps at FC-1 and FC-2 will be required to be upsized in the long term.

3.6. System Summary

3.6.1. Short-Term Scenario

As shown in **Figure 3-1**, the RCID portion of the wastewater collection and transmission system in the short-term scenario will consist of:

- The existing gravity sewer serving parcel FC;
- The existing LS-91 lift station;
- The proposed 16-inch force main discharging flows to the proposed manhole outside of LS-91; and
- The existing 12-inch force main from the LS-91 lift station along Western Way to the RCID WWTF.

The portion of the collection system that OCU will own and maintain during the short term includes:

- The existing 12-inch force main along Flamingo Crossings Blvd.
- The proposed 12-inch force main from the disconnected force main along Flaming Crossings Blvd and continues on Western Way to the FC-2 parcel (Note: BI will be constructed and served during the long-term scenario) and the 16-inch force main from FC-2 to the BI parcels, and the 20-inch from BI to the tie-in location on County Road 545;

The following infrastructure will be privately owned and maintained:

- The proposed gravity sewer and lift station serving the FC-1 parcel; and
- The proposed gravity sewer and lift station serving the FC-2 parcel

3.6.1.1. Short-Term Scenario Hydraulic Model Results

The modeling analysis concluded that the long-term pumps for FC-1 and FC-2 cannot perform under the low head conditions during the short-term scenario. In conclusion, specific pumps have been selected for this scenario that included the required lower head. They are included in Appendix E. During the long term scenario these pumps will need to be replaced with higher head pumps

3.6.2. Long-Term Scenario

As shown in **Figure 3-2,** the RCID portion of the wastewater collection and transmission system in the long-term scenario will consist of:

- The existing gravity sewer serving parcel FC;
- The existing LS-91 lift station;
- The existing 12-inch force mains from the LS-91 lift station along Western Way to the RCID WWTF: and
- The proposed 16-inch FM discharging flow to the proposed MH outside of LS-91 lift station

The portion of the collection system that OCU will own and maintain during the long term includes:

- The existing 12-inch force main along Flamingo Crossings Blvd.
- The proposed 12-inch and 16-inch/20-inch force main along Western Way to the tie-in location on County Road 545;

The following infrastructure will be privately owned and maintained:

- The proposed gravity sewer and lift station serving the FC-1 parcel;
- The proposed gravity sewer and lift station serving the FC-2 parcel; and
- The proposed gravity sewer and lift stations serving the BI-N and BI-S parcel.

3.6.2.1. Long-Term Scenario Hydraulic Model Results

The maximum velocity in the proposed force mains flowing towards the OCU tie-in location at County Road 545 is 5.0 fps.

A summary of each proposed lift stations design points and downstream junctions can be seen below in **Table 3-6**.

Table 3-6 Wastewater Model Lift Station Summary

Parcel	Junction ID	Pump ID	PHF (gpm)	Pump Operating Point	Phase
FC-1	J98	FC_1_PMP1	816	846 gpm @ 31 ft	Short Term
		FC_1_PMP2		891 gpm @ 142 ft	Long Term
FC-2	J106	FC_2_PMP1	833	856 gpm @ 14 ft	Short Term
		FC_2_PMP2		907 gpm @ 111 ft	Long Term
BI-N	J116	BI_N_PMP1	318	395 gpm @ 107 ft	Long Term
		BI_N_PMP2			
BI-S	J108	BI_S_PMP1	341	343 gpm @ 94 ft	Long Term
		BI_S_PMP2			
Orange Lake	J34	-	900	-	Short/Long

NOTE: Minor losses were not accounted for in the hydraulic models. These losses shall be accounted for in the lift station calculations at the time of the construction plan submittal.

4. Reclaimed Water System

4.1. Introduction

As previously discussed, the WDW West District is located along Western Way, east of County Road 545 and west of State Road 429. In the short-term scenario, reclaimed water for the District will be served by RCID from the east. In the long-term scenario, reclaimed water will be provided by OCU from the west **Figure 4-1** presents the reclaimed water infrastructure by owner in the short-term scenario and **Figure 4-2** presents the reclaimed water infrastructure by owner in the long-term scenario. The section below outlines which municipality will own what parts of the reclaimed water system and the criteria that were used in the MUP design.

There are currently four existing reclaimed water mains near the project: a 12-inch reclaimed water main along Western Way east of Flamingo Crossings Blvd.; an 8-inch reclaimed water main west of Flamingo Crossings Blvd. that ends at the western edge of the FC parcel; an 8 inch reclaimed water main along Flamingo Crossings Blvd. south of Western Way; and an 8-inch / 6-inch reclaimed water main system on the FC parcel.

A hydraulic model was developed using Innovyze InfoWater. Two scenarios were created: one for the short-term in which all reclaimed water is served by RCID and one for the long-term scenario in which the reclaimed water service is divided between RCID and OCU. The tie-in pressure assumed for the RCID reclaimed distribution system is 83 psi (provided by RCES) and 56 psi for OCU tie-in pressure along County Road 545 (see **Appendix A** for OCU tie-in pressure). The pipes were sized to provide a minimum pressure of 35 psi at the points of delivery, per OCU Manual Section 2510, Part 6B. Topographic elevations were imported into the model through available shapefiles and utilized in the hydraulic calculations.

The short-term scenario consists of FC, FC-1, FC-2, and Orange Lake Parcels. BI-N and BI-S will are not included in the short term scenario BI-N and BI-S will be constructed during the long-term scenario In this scenario, all parcels will be served by RCID. A booster pump station will be required to increase the pressure at the Orange Lake Development per the amended 2018 Letter Agreement (Appendix F).

The western boundary of the 20-inch reclaimed main will be valved closed during the short-term scenario after serving the FC-2 parcels from the east. RCID and OCU mains will be connected near Flamingo Crossings Boulevard and a wholesale reclaimed water meter and interconnect will be installed (See **Figure 4-1**). The existing 8-inch reclaimed water main along Flamingo Crossings Blvd will remain in place during the short-term scenario OCU will own and maintain the 8-inch main along the FC-1 parcel, RCID will own and maintain the portion along the FC parcel.

The reclaimed water system will have valves in the following locations: 1.) Western Way and County Road 545, and 2.) Western Way and FC-2 parcel. (see **Figure 4-1**).

The long-term scenario will include parcels FC-1, FC-2, Orange Lake, BI-N, and BI-S. In this scenario, when OCU infrastructure becomes available, the gate valves located on Western Way at County Road 545 and FC-2 will be opened and the 20-inch proposed reclaimed water main will tie-in to the OCU reclaimed main along County Road 545. Under this scenario, OCU will serve all parcels FC-1, FC-2 Orange Lake, BI-N, and BI-S, while RCID will serve FC

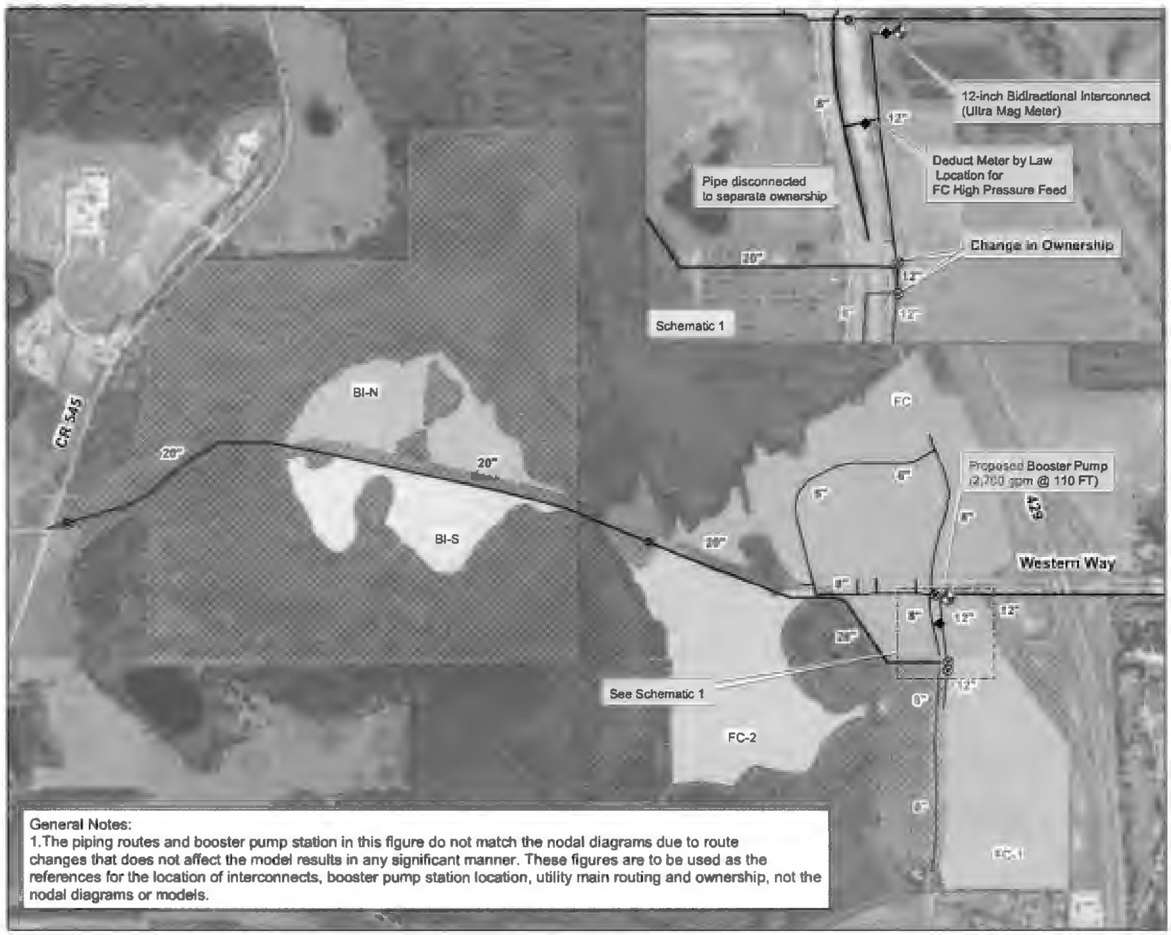


Figure 4-1
Reclaimed Water System Infrastructure Short-Term Scenario

Legend

- RCID-Owned Booster Pump Location
- Interconnect Assembly/Meters (Open)

Reclaimed Valves

- Gate Valve (Closed)
- Gate Valve (Open)
- Reclaimed Existing (RCID)
- Reclaimed Existing (RCID to transfer to OCU)
- Reclaimed Proposed (RCID)
- Reclaimed Proposed (OCU)
- Reclaimed Proposed (Private)
- OCU Service Area
- OCU Proposed Utility Service Area

N

1 inch = 926 feet

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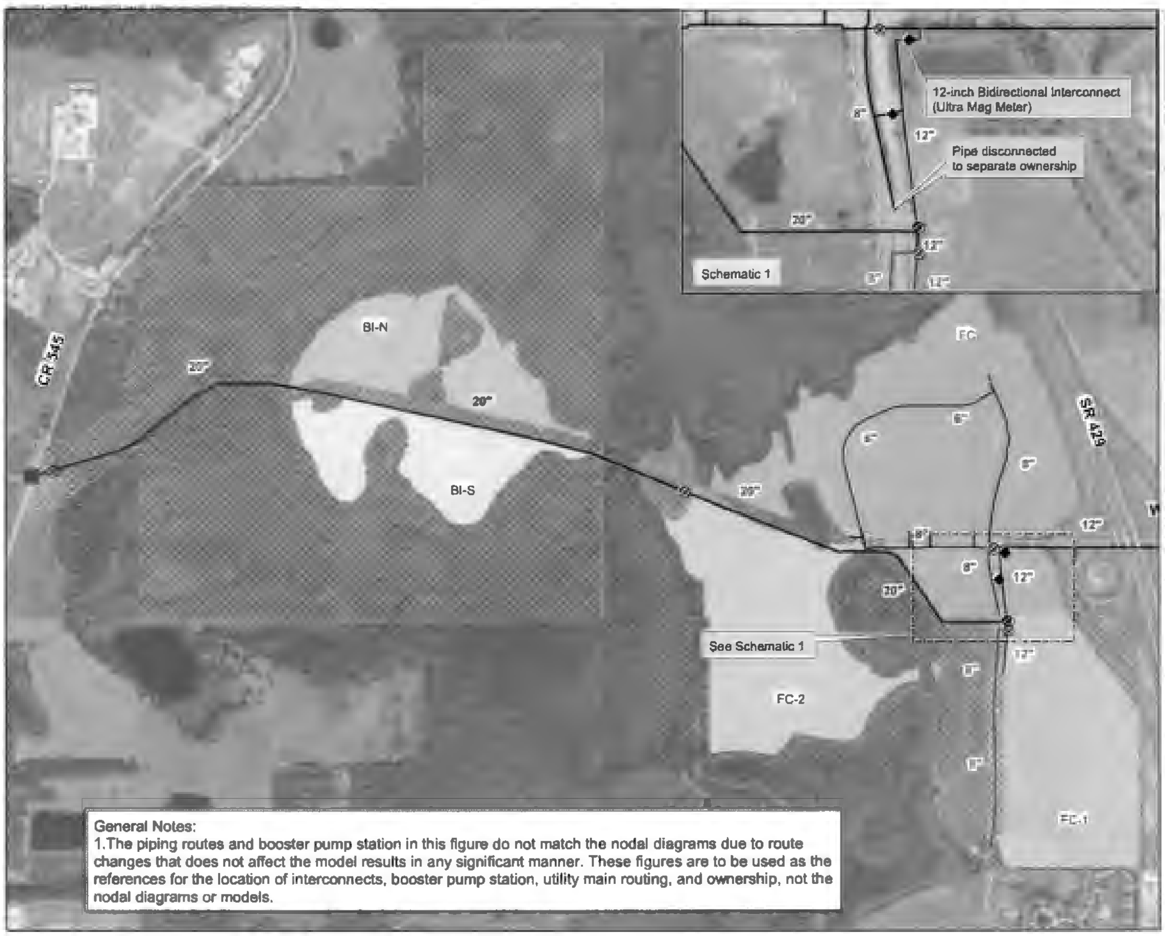

Figure 4-2
Reclaimed Water System Infrastructure Long-Term Scenario

Legend

- Interconnect Assembly/Meters (Closed)
- Gate Valve (Closed)
- Gate Valve (Open)
- OCU Service Area
- OCU Proposed Utility Service Area
- Reclaimed Proposed (OCU)
- Reclaimed Existing (RCID)
- Reclaimed Existing (RCID to transfer to OCU)
- Reclaimed Proposed (RCID)
- Reclaimed Proposed (Private)
- OCU Tie-In

N

1 inch = 854 feet

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4.2. Design Criteria

Please refer to Figure 4-1 and Figure 4-2 for pipe ownership. Applicable RCID design criteria is presented in **Table 4-1**. Detailed reclaimed water demands per parcel are outlined in **Section 4.3**.

Table 4-1 RCID Reclaimed Water Design Criteria

Item	Recommended Criteria
Maximum velocity	8 fps
Peaking Factor	3
Hazen-Williams coefficient for ductile iron	120
Hazen-Williams coefficient for PVC	130

Please refer to **Figure 4-1** and **Figure 4-2 for all public** reclaimed water mains in the short-term and long-term scenarios that are to be owned and maintained by OCU and will be designed to the 2011 OCU Standards and Construction Specifications Manual (with revisions issued in 2014) Standards.

Applicable OCU design criteria is presented in **Table 4-2**.

Table 4-2 OCU Service Area Reclaimed Water Design Criteria

Item	Recommended Criteria
Maximum velocity, ductile iron pipe	8 fps
Maximum velocity, PVC pipe	5 fps
Peaking Factor	6
Hazen-Williams coefficient for ductile iron	120
Hazen-Williams coefficient for PVC	130

4.3. Reclaimed Water Demand Development

The long-term demands for the system were developed using the 2011 OCU Standards and Construction Specifications Manual (with revisions issued in 2014). The actual irrigable acres for the FC-1 and FC-2 parcels were taken from the design plans for the development on those parcels. For all other parcels it was assumed that 20% of each parcel was irrigable. The irrigation rate for all parcels utilized was 1-inch per week, two days of irrigation per week for commercial parcels are listed below in **Table 4-3.**

Table 4-3 OCU Reclaimed Water Demand Development

Parcel	Junction ID	Land Use	Jurisdiction	Gross Area (acres)	Irrigable Area (%)	Irrigable Acres	Irrigation Rate (in/week)	Gallons / Week	Reclaimed Water Average Annual Daily Demand		Peaking Factor	Reclaimed Water Peak Hourly Demand (gpm)
									GPD	GPM		
FC-1[1]	J98	Multi-Family/Retail	OCU	60.8	-	13	1	351,895	175,948	122.0	6	733
FC-2[1]	J24	Multi-Family/Retail	OCU	60.7	-	15	1	408,101	204,050	142.0	6	850
BI-N[2]	J22	Tourist Commercial	OCU	49.6	20%	-	1	269,352	134,676	93.5	6	561
BI-S[2]	J20	Tourist Commercial	OCU	49.6	20%	-	1	269,352	134,676	93.5	6	561
Orange Lake[3] (J76)								-	144,000	100.0	6	**600**
Grand Total								**1,298,699**	**793,350**	**551**		**3,305**

*Bear Island parcel demands are not included in the short-term scenario

1 The actual irrigable acres for the FC-1 and FC-2 parcels were taken from the design plans for the development of those parcels. Reclaimed water demands were calculated based on the irrigable acres

2 The irrigable area was estimated based on recommended 20% area per OCU, demand estimates should be confirmed when the conceptual layouts for each parcel are finalized.
3 Per 2017 Amended Letter Agreement between RCID and OCU.

4.4. System Summary

During the short-term scenario RCID will provide reclaimed water for all parcels in the WDW West District. In order for RCID to supply 600 gpm at 50 psi to the Orange Lake development per the 2012 Letter Agreement (amended in 2018), a booster pump station is required. A preliminary design point for the pump was determined to be 2,500 gpm @ 75 feet of head. This design point was based on the peak hour flows presented in Table 4-3. The booster pump will be located East of 429 on RCID property, near the potable water booster pump station presented in Section 2. The interconnect assembly was sized using an 8-inch dual bidirectional backflow preventers, to decrease the amount of losses through this assembly a 12-inch may be used.

In the long-term scenario, ownership of the reclaimed water system will be divided between RCID and OCU. OCU will serve parcels FC-1, FC-2, Orange Lake, BI-N, and BI-S. RCID will serve the FC parcel. All peak system pressure requirements are met in the long term scenario with proposed infrastructure.

See Appendix D for detailed model results, for the short and long term scenarios.

Appendix A. Tie-in Pressure Data

ORANGE COUNTY GOVERNMENT
FLORIDA

UTILITIES ENGINEERING DIVISION
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February 2. 2018

Mr Kunal Nayee E I
Atkins Group
482 south Keller Road
Orlando. Florida 32810

E-mail: Kunal.Nayee@atkinsglobal.com

Subject: **Hydraulic Analysis for Connection to Collection/Transmission System**
Southern Service Area
Flamingo Crossings – Reclaimed – Revised Build Out

Dear Mr Nayee

We are responding to your request for hydraulic information for the above-mentioned project. located in the southwest corner of Section 21 Township 24 South. Range 27 East This analysis is based on a development having the following flows Please note that a review of the proposed development flows was not evaluated as part of this response. and that water and wastewater capacity is not reserved until capital charges are paid pursuant to Orange County Code This letter includes boundary conditions to be used to perform preliminary designs for water and/or wastewater networks Please note that the connection elevations were assumed and that all utility elevations should be field verified

Table 1. Estimated Flows – Buildout Conditions

Description	Reclaimed Water		Wastewater	
	Flow (gpm)	Peaking Factor	Flow (gpm)	Peaking Factor
Average Daily Flow				
Max Day Flow				
Peak Flow	*3,097			
Fire Flow				
Fire Flow + MDF				

* Denotes flow provided by customer.

With respect to our reclaimed water system. assume a connection to a future reclaimed main along Avalon Road approximately 1 5 miles north of the intersection with Hartzog Road For design purposes assume a minimum working hydraulic grade of 250 feet will be maintained in the future reclaimed water main for flows up to the above referenced estimated flows This HGL is composed of 120 feet of elevation and 130 feet (56 psi) of pressure head

Please note that the hydraulic conditions presented above will be available after improvements to the reclaimed system are operational Note that these projects are outside of our 5 year CIP window

Please call me at 407-254-9917 if you have additional questions

Sincerely,

Paul E Partlow. P E
Senior Engineer

ORANGE COUNTY GOVERNMENT FLORIDA

UTILITIES ENGINEERING DIVISION
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February 2, 2018

Mr Kunal Nayee, E I
Atkins Group
482 south Keller Road
Orlando, Florida 32810

E-mail: **Kunal.Nayee@atkinsglobal.com**

Subject: **Hydraulic Analysis for Connection to Collection/Transmission System**
Southern Service Area
Flamingo Crossings – Water – Revised Build Out

Dear Mr Nayee

We are responding to your request for hydraulic information for the above-mentioned project, located in and around Section 21 Township 24 South, Range 27 East. This analysis is based on a development having the following flows Please note that a review of the proposed development flows was not evaluated as part of this response, and that water and wastewater capacity is not reserved until capital charges are paid pursuant to Orange County Code This letter includes boundary conditions to be used to perform preliminary designs for water and/or wastewater networks

Table 1. Estimated Flows – Buildout Conditions

Description	Water		Wastewater	
	Flow (gpm)	Peaking Factor	Flow (gpm)	Peaking Factor
Average Daily Flow	*1,216	1.0		
Max Day Flow	2,432	2.0		
Peak Flow	4,864	4.0		
Fire Flow	*2,000			
Fire Flow + MDF	4,432			

* Denotes flow provided by customer.

With respect to our water system, we assumed a connection to the existing 24-inch water main along Avalon Road approximately 1 5 miles north of the intersection with Hartzog Road According to our model, for design purposes assume a minimum working hydraulic grade of 250 feet will be maintained in the existing water main for flows up to the above referenced Estimated Flows This HGL is composed of 120 feet of elevation and 130 feet (56 psi) of pressure head Please note that the connection elevation was assumed and that all water main elevations should be field verified

Please note that these pressure and demand conditions assume that the planned Malcolm Road WSF is operational, all major loops within the Horizons West Developments are in service, and that a future storage re-pump facility in the vicinity of Avalon and Seidel Roads is in operation These flows will NOT be available until this condition is met

Sincerely,

Paul E Partlow, P E
Senior Engineer

ORANGE COUNTY GOVERNMENT
FLORIDA

UTILITIES ENGINEERING DIVISION
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February 5, 2018

Mr Kunal Nayee, E I
Atkins Group
482 south Keller Road
Orlando, Florida 32810

E-mail: **Kunal.Nayee@atkinsglobal.com**

Subject: **Hydraulic Analysis for Connection to Collection/Transmission System**
Southern Service Area
Flamingo Crossings – Wastewater – Revised Build Out

Dear Mr Nayee

We are responding to your request for hydraulic information for the above-mentioned project, located in the southwest corner of Section 21 Township 24 South, Range 27 East. This analysis is based on a development having the following flows. Please note that a review of the proposed development flows was not evaluated as part of this response, and that water and wastewater capacity is not reserved until capital charges are paid pursuant to Orange County Code. This letter includes boundary conditions to be used to perform preliminary designs for water and/or wastewater networks. Please note that the connection elevations were assumed and that all utility elevations should be field verified

Table 1. Estimated Flows – Buildout Conditions

Description	Water		Wastewater	
	Flow (gpm)	Peaking Factor	Flow (gpm)	Peaking Factor
Average Daily Flow			*1,041	1.0
Max Day Flow				
Peak Flow			2,603	2.5
Fire Flow				
Fire Flow + MDF				

* Denotes flow provided by customer

With respect to our wastewater system, we assumed a connection to a proposed 20 inch force main along Avalon Road approximately 1 5 miles north of the intersection with Hartzog Road. This force main will flow to a future Avalon Road master pumping station located in the general vicinity of N28 24.9, W81 38 0 with an assumed outfall based on ground elevation of 130 feet. According to our model, the hydraulic grade line at your point of connection for flows up to the above referenced estimated flows is 182 feet, which is composed of 120 feet of elevation and 62 feet (27 psi) of pressure head

Please note that the hydraulic conditions presented above will be available after the new water reclamation facility and proposed Avalon Road master pump station is operational. Note that these projects are outside of our 5 year CIP window.

Please call me at 407-254-9917 if you have additional questions

Sincerely,

Paul E Partlow, P E
Senior Engineer

Appendix B. Potable Water

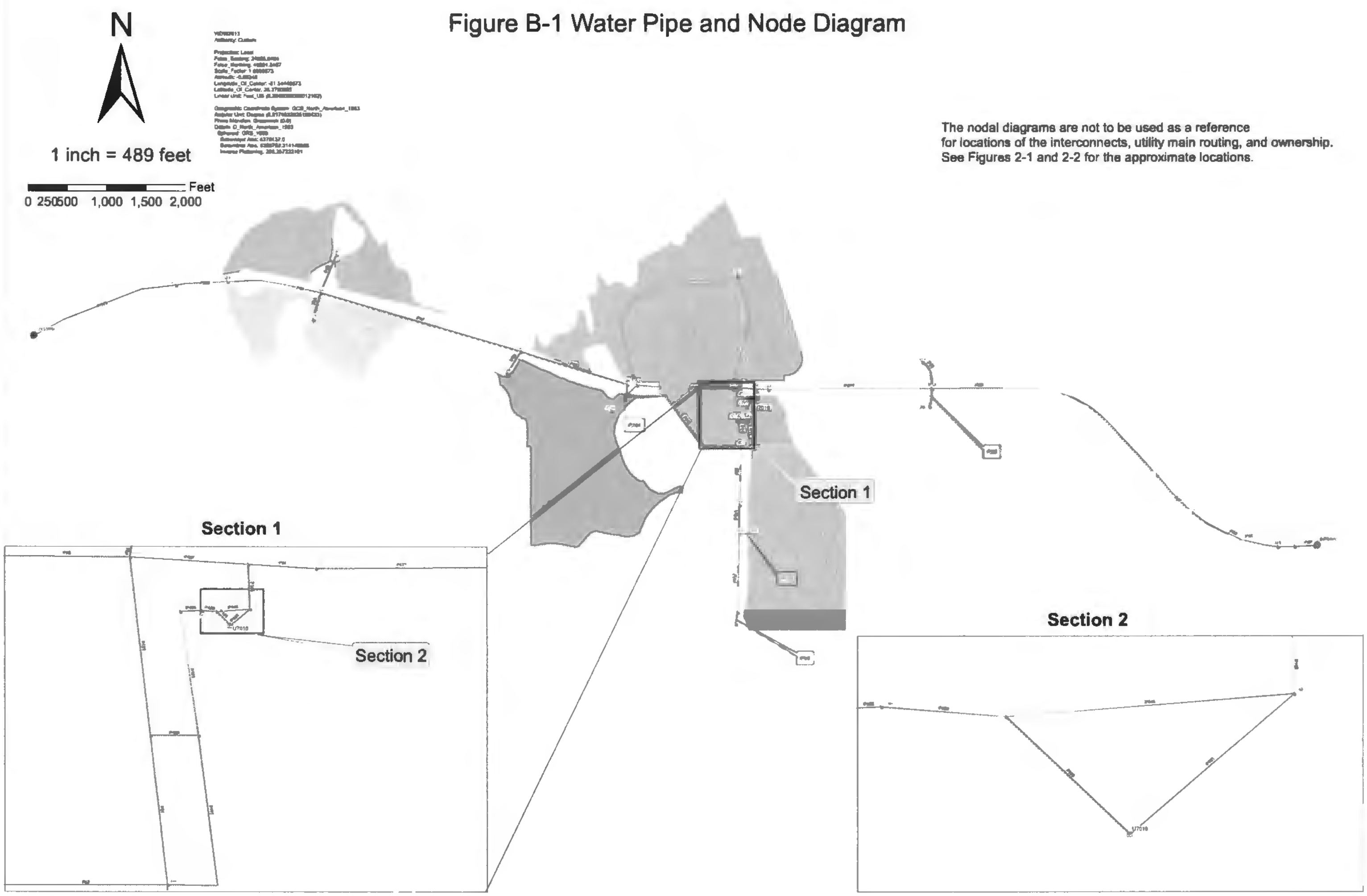


Figure B-1 Water Pipe and Node Diagram

Table B-1 Short-Term Scenario Orange Lake Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J98	0	111	201	39.0a
J96	0	111	202	39.5
J32	0	111	204	40.3
J94	634	120	215	41.3
J78	0	113	211	42.5
J86	0	116	216	43.1
J88	0	114	218	45.1
J66	2,710	106	210	45.2
J64	0	114	223	47.2
J18	0	114	227	49.0
J118	0	114	227	49.1
J120	0	114	227	49.1
J56	0	107	223	50.2
J54	432	109	227	51.0
J22	0	105	223	51.1
J34	648	104	223	51.4
J116	0	111	231	51.8
J100	0	111	231	52.0
J20	0	102	223	52.4
J110	0	111	234	53.4
J52	0	102	227	54.2
J16	392	98	227	56.1
J114	0	98	227	56.1
J38	94	96	227	56.9
J46	0	95	272	76.8
J50	0	95	281	80.7
J10	0	105	300	84.6
J40	0	97	297	86.8
J30	-	-	-	-
J36	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. **Denotes critical node during fire flow simulation**

Table B-2 Short-Term Scenario Orange Lake Fire Flow Results - Reservoir Report

ID	Flow (gpm)	Head (ft)	Description
RES9002	-4,910	304	HGL provided by RCID

Table B-3 Short-Term Scenario Orange Lake Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	4,910	7.8	2.9
P117	OCU	J86	J78	990	16	120	2,710	4.3	4.5
P121	OCU	J88	J86	367	16	120	3,344	5.3	2.5
P13	Private	J114	J16	376	16	120	392	0.6	0.1
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	0	0.0	0.0
P149	RCID	J96	J98	102	16	120	4,424	7.1	1.2
P15	RCID	J18	J52	1225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	4,424	7.1	0.6
P159	RCID	J110	J100	33	16	120	4,424	7.1	3.1
P17	OCU	J20	J22	2631	24	120	0	0.0	0.0
P177	RCID	J114	J32	2071	16	120	4,424	7.1	23.5
P189	RCID	J116	J120	285	16	120	4,424	7.1	3.2
P191	RCID	J98	U7014	57	16	120	4,424	7.1	0.7
P193	RCID	U7014	J110	45	16	120	4,424	7.1	0.5
P195	RCID	J118	J18	408	16	120	432	0.7	0.1
P197	RCID	J120	J64	459	16	120	3,992	6.4	4.3
P199	RCID	J120	J118	109	12	120	432	1.2	0.1
P23	RCID	J18	J54	1461	12	120	270	0.8	0.4
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P35	Private	J114	J38	231	12	120	93.6	0.3	0.0
P37	RCID	RES9002	J10	291	16	120	4,910	7.8	4.0
P39	RCID	J40	J50	1171	16	120	4,910	7.8	16.2
P43	RCID	J46	J114	3242	16	120	4,910	7.8	44.7
P47	RCID	J50	J46	662	16	120	4,910	7.8	9.1
P51	RCID	J32	J96	155	16	120	4,424	7.1	1.8
P57	RCID	J52	J54	2515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1408	24	120	648	0.5	0.1
P63	OCU	J56	J64	1903	24	120	-648	0.5	0.1
P67	OCU	J64	J88	735	16	120	3,344	5.3	5.0
P69	OCU	J78	J66	151	16	120	2,710	4.3	0.7
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P61	-	-	-	-	-	-	-	-	-
P143	-	-	-	-	-	-	-	-	-

Table B-4 Short-Term Fire Flow analysis

ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Available Flow at Hydrant (gpm)	Available Flow Pressure (psi)	Critical Pipe ID	Critical Pipe Velocity (ft/s)
J34	648	86.9	304.5	2,000	50	3,268	35.0	P29	5.2
J66	710	85.3	302.9	2,000	45	3,099	35.0	P69	4.9
J94	634	79.4	303.2	2,000	40	2,820	35.3	P133	8.0

Table B-5 Short-Term Scenario FC-1 Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J98	0	111	201	39.0a
J96	0	111	202	39.5
J94	2,634	120	212	40.0
J32	0	111	204	40.3
J86	0	116	216	43.1
J78	0	113	215	44.3
J88	0	114	218	45.1
J64	0	114	223	47.2
J66	710	106	215	47.3
J18	0	114	227	49.0
J118	0	114	227	49.1
J120	0	114	227	49.1
J56	0	107	223	50.2
J54	432	109	227	51.0
J22	0	105	223	51.1
J34	648	104	223	51.4
J116	0	111	231	51.8
J100	0	111	231	52.0
J20	0	102	223	52.4
J110	0	111	234	53.4
J52	0	102	227	54.2
J16	392	98	227	56.1
J114	0	98	227	56.1
J38	94	96	227	56.9
J46	0	95	272	76.8
J50	0	95	281	80.7
J10	0	105	300	84.6
J40	0	97	297	86.8
J30	-	-	-	-
J36	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-6 Short-Term Scenario FC-1 Fire Flow Results - Reservoir Report

ID	Description	Flow (gpm)	Head (ft)
RES9002	HGL provided by RCID	-4,910	304

Table B-7 Short-Term Scenario FC-1 Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	4,910	7.8	2.9
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	3,344	5.3	2.5
P13	Private	J114	J16	376	16	120	392	0.6	0.1
P133	Private	J86	J94	184	12	120	2,634	7.5	3.3
P137	RCID	J96	J18	271	16	120	0	0.0	0.0
P149	RCID	J96	J98	102	16	120	4,424	7.1	1.2
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	4,424	7.1	0.6
P159	RCID	J110	J100	33	16	120	4,424	7.1	3.1
P17	OCU	J20	J22	2,631	24	120	0	0.0	0.0
P177	RCID	J114	J32	2,071	16	120	4,424	7.1	23.5
P189	RCID	J116	J120	285	16	120	4,424	7.1	3.2
P191	RCID	J98	U7014	57	16	120	4,424	7.1	0.7
P193	RCID	U7014	J110	45	16	120	4,424	7.1	0.5
P195	RCID	J118	J18	408	16	120	432	0.7	0.1
P197	RCID	J120	J64	459	16	120	3,992	6.4	4.3
P199	RCID	J120	J118	109	12	120	432	1.2	0.1
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P35	Private	J114	J38	231	12	120	94	0.3	0.0
P37	RCID	RES9002	J10	291	16	120	4,910	7.8	4.0
P39	RCID	J40	J50	1,171	16	120	4,910	7.8	16.2
P43	RCID	J46	J114	3,242	16	120	4,910	7.8	44.7
P47	RCID	J50	J46	662	16	120	4,910	7.8	9.1
P51	RCID	J32	J96	155	16	120	4,424	7.1	1.8
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	648	0.5	0.1
P63	OCU	J56	J64	1,903	24	120	-648	0.5	0.1
P67	OCU	J64	J88	735	16	120	3,344	5.3	5.0
P69	OCU	J78	J66	151	16	120	710	1.1	0.1
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P61	-	-	-	-	-	-	-	-	-

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P143	-	-	-	-	-	-	-	-	-

Table B-8 Short-Term Scenario FC-2 Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J98	0	111	201	**39.0a**
J96	0	111	202	39.5
J32	0	111	204	40.3
J94	634	120	221	43.9
J86	0	116	222	45.8
J88	0	114	222	46.8
J78	0	113	221	46.9
J64	0	114	223	47.2
J18	0	114	227	49.0
J118	0	114	227	49.1
J120	0	114	227	49.1
J56	0	107	222	49.8
J66	710	106	221	49.9
J34	2,648	104	220	50.1
J22	0	105	221	50.3
J54	432	109	227	51.0
J20	0	102	221	51.6
J116	0	111	231	51.8
J100	0	111	231	52.0
J110	0	111	234	53.4
J52	0	102	227	54.2
J16	392	98	227	56.1
J114	0	98	227	56.1
J38	94	96	227	56.9
J46	0	95	272	76.8
J50	0	95	281	80.7
J10	0	105	300	84.6
J40	0	97	297	86.8
J30	-	-	-	-
J36	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-9 Short-Term Scenario FC-2 Fire Flow Results - Reservoir Report

ID	Description	Flow (gpm)	Head (ft)
RES9002	HGL provided by RCID	-4,910	304

Table B-10 Short-Term Scenario FC-2 Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	4,910	7.8	2.9
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	1,344	2.1	0.5
P13	Private	J114	J16	376	16	120	392	0.6	0.1
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	0	0.0	0.0
P149	RCID	J96	J98	102	16	120	4,424	7.1	1.2
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	4,424	7.1	0.6
P159	RCID	J110	J100	33	16	120	4,424	7.1	3.1
P17	OCU	J20	J22	2,631	24	120	0	0.0	0.0
P177	RCID	J114	J32	2,071	16	120	4,424	7.1	23.5
P189	RCID	J116	J120	285	16	120	4,424	7.1	3.2
P191	RCID	J98	U7014	57	16	120	4,424	7.1	0.7
P193	RCID	U7014	J110	45	16	120	4,424	7.1	0.5
P195	RCID	J118	J18	408	16	120	432	0.7	0.1
P197	RCID	J120	J64	459	16	120	3,992	6.4	4.3
P199	RCID	J120	J118	109	12	120	432	1.2	0.1
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P29	Private	J20	J34	329	16	120	2,648	4.2	1.5
P35	Private	J114	J38	231	12	120	94	0.3	0.0
P37	RCID	RES9002	J10	291	16	120	4,910	7.8	4.0
P39	RCID	J40	J50	1,171	16	120	4,910	7.8	16.2
P43	RCID	J46	J114	3,242	16	120	4,910	7.8	44.7
P47	RCID	J50	J46	662	16	120	4,910	7.8	9.1
P51	RCID	J32	J96	155	16	120	4,424	7.1	1.8
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	2,648	1.9	0.9
P63	OCU	J56	J64	1,903	24	120	-2,648	1.9	1.2
P67	OCU	J64	J88	735	16	120	1,344	2.1	0.9
P69	OCU	J78	J66	151	16	120	710	1.1	0.1
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P143	-	-	-	-	-	-	-	-	-
P61	-	-	-	-	-	-	-	-	-

Table B-11 Long-Term Scenario Orange Lake Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	634	120	230	47.6a
J78	0	113	225	48.7
J86	0	116	230	49.4
J88	0	114	233	51.4
J66	2,710	106	225	51.5
J64	0	114	237	53.5
J56	0	107	239	57.3
J34	648	104	240	59.1
J20	0	102	241	60.1
J30	212	105	244	60.2
J36	228	105	244	60.2
J22	0	105	244	60.2
J24	0	102	246	62.4
J112	0	103	247	62.4
J118	0	114	302	81.4
J120	0	114	302	81.4
J18	0	114	302	81.4
J116	0	111	302	82.7
J110	0	111	302	82.7
J100	0	111	302	82.7
J98	0	111	302	82.7
J96	0	111	302	82.7
J32	0	111	302	82.7
J54	432	109	302	83.4
J10	0	105	304	86.3
J52	0	102	302	86.6
J16	191	98	302	88.5
J114	0	98	302	88.5
J38	76	96	302	89.4
J40	0	97	304	89.8
J46	0	95	303	90.3
J50	0	95	304	90.4

a. Denotes critical node during fire flow simulation

Table B-12 Long-Term Scenario Orange Lake Fire Flow Results - Reservoir Report

ID	Flow (gpm)	Head (ft)	Comment
RES9002	-698	304	Source: RCID 108' Elevation and pressure 85 psi
RES9004	-4,432	250	Source: OCU 120' elevation and 56 psi

Table B-13 Long-Term Scenario Orange Lake Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	698	1.1	0.1
P117	OCU	J86	J78	990	16	120	2,710	4.3	4.5
P121	OCU	J88	J86	367	16	120	3,344	5.3	2.5
P13	Private	J114	J16	376	16	120	191	0.3	0.0
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	432	0.7	0.0
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2,631	24	120	-3,992	2.8	3.4
P173	OCU	J112	RES9004	1,922	24	120	-4,432	3.14	3.04
P177	RCID	J114	J32	2,071	16	120	432	0.7	0.3
P183	OCU	J24	J112	655	24	120	-4,432	3.1	1.0
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1,193	24	120	-4,432	3.1	1.9
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P25	Private	J22	J30	524	16	120	212	0.3	0.0
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P31	Private	J22	J36	344	16	120	228	0.4	0.0
P35	Private	J114	J38	231	12	120	76	0.2	0.0
P37	RCID	RES9002	J10	291	16	120	698	1.1	0.1
P39	RCID	J40	J50	1,171	16	120	698	1.1	0.4
P43	RCID	J46	J114	3,242	16	120	698	1.1	1.2
P47	RCID	J50	J46	662	16	120	698	1.1	0.3
P51	RCID	J32	J96	155	16	120	432	0.7	0.0

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	-3,344	2.4	1.3
P63	OCU	J56	J64	1,903	24	120	3,344	2.4	1.8
P67	OCU	J64	J88	735	16	120	3,344	5.3	5.0
P69	OCU	J78	J66	151	16	120	2,710	4.3	0.7

Table B-14 Long-Term Scenario FC-1 Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	2,634	120	227	46.3a
J86	0	116	230	49.4
J78	0	113	230	50.6
J88	0	114	233	51.4
J64	0	114	237	53.5
J66	710	106	230	53.6
J56	0	107	239	57.3
J34	648	104	240	59.1
J20	0	102	241	60.1
J30	212	105	244	60.2
J36	228	105	244	60.2
J22	0	105	244	60.2
J24	0	102	246	62.4
J112	0	103	247	62.4
J118	0	114	302	81.4
J120	0	114	302	81.4
J18	0	114	302	81.4
J116	0	111	302	82.7
J110	0	111	302	82.7
J100	0	111	302	82.7
J98	0	111	302	82.7
J96	0	111	302	82.7
J32	0	111	302	82.7
J54	432	109	302	83.4
J10	0	105	304	86.3
J52	0	102	302	86.6
J16	191	98	302	88.5
J114	0	98	302	88.5
J38	76	96	302	89.4
J40	0	97	304	89.8

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J46	0	95	303	90.3
J50	0	95	304	90.4

a. Denotes critical node during fire flow simulation

Table B-15 Long-Term Scenario FC-1 Fire Flow Results - Reservoir Report

ID		Flow (gpm)	Head (ft)
RES9002	108' Elevation and pressure 85 psi	-698	304
RES9004	120' elevation and 56 psi	-4,432	250

Table B-16 Long-Term Scenario FC-1 Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	698	1.1	0.1
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	3,344	5.3	2.5
P13	Private	J114	J16	376	16	120	191	0.3	0.0
P133	Private	J86	J94	184	12	120	2,634	7.5	3.3
P137	RCID	J96	J18	271	16	120	432	0.7	0.0
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2,631	24	120	-3,992	2.8	3.4
P173	OCU	J112	RES9004	1,922	24	120	-4,432	3.1	3.0
P177	RCID	J114	J32	2,071	16	120	432	0.7	0.3
P183	OCU	J24	J112	655	24	120	-4,432	3.1	1.0
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1,193	24	120	-4,432	3.1	1.9
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P25	Private	J22	J30	524	16	120	212	0.3	0.0
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P31	Private	J22	J36	344	16	120	228	0.4	0.0
P35	Private	J114	J38	231	12	120	76	0.2	0.0

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P37	RCID	RES9002	J10	291	16	120	698	1.1	0.1
P39	RCID	J40	J50	1,171	16	120	698	1.1	0.4
P43	RCID	J46	J114	3,242	16	120	698	1.1	1.2
P47	RCID	J50	J46	662	16	120	698	1.1	0.3
P51	RCID	J32	J96	155	16	120	432	0.7	0.0
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	-3,344	2.4	1.3
P63	OCU	J56	J64	1,903	24	120	3,344	2.4	1.8
P67	OCU	J64	J88	735	16	120	3,344	5.3	5.0
P69	OCU	J78	J66	151	16	120	710	1.1	0.1

Table B-17 Long-Term Scenario FC-2 Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	634	120	238	51.3a
J86	0	116	239	53.1
J88	0	114	239	54.2
J78	0	113	238	54.3
J64	0	114	240	54.6
J66	710	106	238	57.3
J56	0	107	240	57.8
J34	2,648	104	239	58.6
J20	0	102	241	60.1
J30	212	105	244	60.2
J36	228	105	244	60.2
J22	0	105	244	60.2
J24	0	102	246	62.4
J112	0	103	247	62.4
J118	0	114	302	81.4
J120	0	114	302	81.4
J18	0	114	302	81.4
J116	0	111	302	82.7
J110	0	111	302	82.7
J100	0	111	302	82.7
J98	0	111	302	82.7
J96	0	111	302	82.7
J32	0	111	302	82.7
J54	432	109	302	83.4
J10	0	105	304	86.3
J52	0	102	302	86.6

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J16	191	98	302	88.5
J114	0	98	302	88.5
J38	76	96	302	89.4
J40	0	97	304	89.8
J46	0	95	303	90.3
J50	0	95	304	90.4

a. Denotes critical node during fire flow simulation

Table B-18 Long-Term Scenario FC-2 Fire Flow Results - Reservoir Report

ID		Flow (gpm)	Head (ft)
RES9002	108' Elevation and pressure 85 psi	-698	304
RES9004	120' elevation and 56 psi	-4,432	250

Table B-19 Long-Term Scenario FC-2 Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	698	1.1	0.1
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	1,344	2.1	0.5
P13	Private	J114	J16	376	16	120	191	0.3	0.0
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	432	0.7	0.0
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2,631	24	120	-3,992	2.8	3.4
P173	OCU	J112	RES9004	1,922	24	120	-4,432	3.1	3.0
P177	RCID	J114	J32	2,071	16	120	432	0.7	0.3
P183	OCU	J24	J112	655	24	120	-4,432	3.1	1.0
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1,193	24	120	-4,432	3.1	1.9
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P25	Private	J22	J30	524	16	120	212	0.3	0.0
P29	Private	J20	J34	329	16	120	2,648	4.2	1.5
P31	Private	J22	J36	344	16	120	228	0.4	0.0
P35	Private	J114	J38	231	12	120	76	0.2	0.0
P37	RCID	RES9002	J10	291	16	120	698	1.1	0.1
P39	RCID	J40	J50	1,171	16	120	698	1.1	0.4
P43	RCID	J46	J114	3,242	16	120	698	1.1	1.2
P47	RCID	J50	J46	662	16	120	698	1.1	0.3
P51	RCID	J32	J96	155	16	120	432	0.7	0.0
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	-1,344	1.0	0.2
P63	OCU	J56	J64	1,903	24	120	1,344	1.0	0.3
P67	OCU	J64	J88	735	16	120	1,344	2.1	0.9
P69	OCU	J78	J66	151.17	16	120	710	1.13	0.1

Table B-20 Long-Term Scenario BI-N Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	634	120	241	52.4a
J86	0	116	241	54.2
J88	0	114	242	55.3
J78	0	113	241	55.4
J64	0	114	243	55.7
J66	710	106	241	58.4
J56	0	107	243	58.9
J30	2,212	105	242	59.5
J34	648	104	243	60.2
J36	228	105	244	60.2
J22	0	105	244	60.2
J20	0	102	243	61.1
J24	0	102	246	62.4
J112	0	103	247	62.4
J118	0	114	302	81.4
J120	0	114	302	81.4
J18	0	114	302	81.4
J116	0	111	302	82.7
J110	0	111	302	82.7
J100	0	111	302	82.7
J96	0	111	302	82.7
J98	0	111	302	82.7
J32	0	111	302	82.7
J54	432	109	302	83.4
J10	0	105	304	86.3
J52	0	102	302	86.6
J16	191	98	302	88.5
J114	0	98	302	88.5
J38	76	96	302	89.4
J40	0	97	304	89.8
J46	0	95	303	90.3
J50	0	95	304	90.4

a. Denotes critical node during fire flow simulation

Table B-21 Long-Term Scenario BI-N Fire Flow Results - Reservoir Report

ID		Flow (gpm)	Head (ft)
RES9002	108' Elevation and pressure 85 psi	-698	304
RES9004	120' elevation and 56 psi	-4,432	250

Table B-22 Long-Term Scenario BI-N Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	698	1.1	0.1
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	1,344	2.1	0.5
P13	Private	J114	J16	376	16	120	191	0.3	0.0
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	432	0.7	0.0
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2,631	24	120	-1,992	1.4	1.0
P173	OCU	J112	RES9004	1,922	24	120	-4,432	3.1	3.0
P177	RCID	J114	J32	2,071	16	120	432	0.7	0.3
P183	OCU	J24	J112	655	24	120	-4,432	3.1	1.0
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1,193	24	120	-4,432	3.1	1.9
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P25	Private	J22	J30	524	16	120	2,212	3.5	1.7
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P31	Private	J22	J36	344	16	120	228	0.4	0.0
P35	Private	J114	J38	231	12	120	76	0.2	0.0
P37	RCID	RES9002	J10	291	16	120	698	1.1	0.1
P39	RCID	J40	J50	1,171	16	120	698	1.1	0.4
P43	RCID	J46	J114	3,242	16	120	698	1.1	1.2
P47	RCID	J50	J46	662	16	120	698	1.1	0.3

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P51	RCID	J32	J96	155	16	120	432	0.7	0.0
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	-1,344	1.0	0.2
P63	OCU	J56	J64	1,903	24	120	1,344	1.0	0.3
P67	OCU	J64	J88	735	16	120	1,344	2.1	0.9
P69	OCU	J78	J66	151.17	16	120	710	1.13	0.06

Table B-23 Long-Term Scenario BI-S Fire Flow Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	634	120	241	52.4a
J86	0	116	241	54.2
J88	0	114	242	55.3
J78	0	113	241	55.4
J64	0	114	243	55.7
J66	710	106	241	58.4
J56	0	107	243	58.9
J36	2,228	105	243	59.8
J34	648	104	243	60.2
J30	212	105	244	60.2
J22	0	105	244	60.2
J20	0	102	243	61.1
J24	0	102	246	62.4
J112	0	103	247	62.4
J118	0	114	302	81.4
J120	0	114	302	81.4
J18	0	114	302	81.4
J116	0	111	302	82.7
J100	0	111	302	82.7
J110	0	111	302	82.7
J98	0	111	302	82.7
J96	0	111	302	82.7
J32	0	111	302	82.7
J54	432	109	302	83.4
J10	0	105	304	86.3
J52	0	102	302	86.6
J16	191	98	302	88.5
J114	0	98	302	88.5
J38	76	96	302	89.4
J40	0	97	304	89.8

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J46	0	95	303	90.3
J50	0	95	304	90.4

a. Denotes critical node during fire flow simulation

Table B-24 Long-Term Scenario BI-S Fire Flow Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	698	1.1	0.1
P117	OCU	J86	J78	990	16	120	710	1.1	0.4
P121	OCU	J88	J86	367	16	120	1,344	2.1	0.5
P13	Private	J114	J16	376	16	120	191	0.3	0.0
P133	Private	J86	J94	184	12	120	634	1.8	0.2
P137	RCID	J96	J18	271	16	120	432	0.7	0.0
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1,225	12	120	162	0.5	0.1
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2,631	24	120	-1,992	1.4	1.0
P173	OCU	J112	RES9004	1,922	24	120	-4,432	3.1	3.0
P177	RCID	J114	J32	2,071	16	120	432	0.7	0.3
P183	OCU	J24	J112	655	24	120	-4,432	3.1	1.0
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1,193	24	120	-4,432	3.1	1.9
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1,461	12	120	270	0.8	0.4
P25	Private	J22	J30	524	16	120	212	0.3	0.0
P29	Private	J20	J34	329	16	120	648	1.0	0.1
P31	Private	J22	J36	344	16	120	2,228	3.6	1.1
P35	Private	J114	J38	231	12	120	76	0.2	0.0
P37	RCID	RES9002	J10	291	16	120	698	1.1	0.1
P39	RCID	J40	J50	1,171	16	120	698	1.1	0.4
P43	RCID	J46	J114	3,242	16	120	698	1.1	1.2
P47	RCID	J50	J46	662	16	120	698	1.1	0.3
P51	RCID	J32	J96	155	16	120	432	0.7	0.0
P57	RCID	J52	J54	2,515	12	120	162	0.5	0.3
P59	OCU	J56	J20	1,408	24	120	-1,344	1.0	0.2

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P63	OCU	J56	J64	1,903	24	120	1,344	1.0	0.3
P67	OCU	J64	J88	735	16	120	1,344	2.1	0.9
P69	OCU	J78	J66	151.17	16	120	710.0	1.1	0.1

Table B-25 Long-Term Scenario BI-S Fire Flow Results - Reservoir Report

ID		Flow (gpm)	Head (ft)
RES9002	108' Elevation and pressure 85 psi	-698	304
RES9004	120' elevation and 56 psi	-4,432	250

Table B-26 Long-Term Fire Flow analysis

ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Available Flow at Hydrant (gpm)	Available Flow Pressure (psi)	Critical Pipe ID	Critical Pipe Velocity (ft/s)
J30	212	62.0	248	2,000	59.5	5013	53.2	P25	8.0
J34	648	62.0	247	2,000	58.6	5013	52.0	P29	8.0
J36	228	62.0	248	2,000	59.8	5013	54.3	P31	8.0
J66	710	60.1	245	2,000	51.5	4,920	35.0	P69	7.9
J94	634	54.1	245	2,000	46.3	2,820	45.3	P133	8.0

Table B-27 Short-Term Scenario Peak Hour Flow Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J98	0	111	191	**34.6a**
J96	0	111	192	35.1
J32	0	111	194	36.0
J94	1268	120	205	36.6
J86	0	116	205	38.7
J78	0	113	204	39.4
J88	0	114	207	40.3
J64	0	114	210	41.7
J66	1420	106	204	42.4
J18	0	114	214	43.5
J118	0	114	214	43.5
J120	0	114	215	43.6
J56	0	107	210	44.6
J54	720	109	213	45.2
J22	0	105	210	45.4
J34	1296	104	209	45.7
J116	0	111	218	46.5
J20	0	102	210	46.7
J100	0	111	219	46.8
J110	0	111	222	48.3
J52	0	102	214	48.5
J16	318	98	220	53.0
J114	0	98	220	53.0
J38	126	96	220	53.9
J46	0	95	269	75.5
J50	0	95	279	79.8
J10	0	105	300	84.5
J40	0	97	297	86.6
J30	-	-	-	-
J36	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-28 Short-Term Peak Hour Reservoir Report

ID	Flow (gpm)	Head (ft)	Description
RES9002	-5,148	304	HGL Provided by RCID

Table B-29 Short-Term Scenario Peak Hour Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	5148	8.2	3.2
P117	OCU	J86	J78	990	16	120	1420	2.3	1.4
P121	OCU	J88	J86	367	16	120	2688	4.3	1.7
P13	Private	J114	J16	376	16	120	318	0.5	0.0
P133	Private	J86	J94	184	12	120	1268	3.6	0.8
P137	RCID	J96	J18	271	16	120	0	0.0	0.0
P149	RCID	J96	J98	102	16	120	4704	7.5	1.3
P15	RCID	J18	J52	1,225	12	120	271	0.8	0.3
P155	RCID	J100	J116	50	16	120	4704	7.5	0.6
P159	RCID	J110	J100	33	16	120	4704	7.5	3.5
P17	OCU	J20	J22	2,631	24	120	0	0.0	0.0
P177	RCID	J114	J32	2,071	16	120	4704	7.5	26.4
P189	RCID	J116	J120	285	16	120	4704	7.5	3.6
P191	RCD	J98	U7014	57	16	120	4704	7.5	0.7
P193	RCID	U7014	J110	45	16	120	4704	7.5	0.6
P195	RCID	J118	J18	408	16	120	720	1.2	0.2
P197	RCID	J120	J64	459	16	120	3984	6.4	4.3
P199	RCID	J120	J118	109	12	120	720	2.0	0.2
P23	RCID	J18	J54	1,461	12	120	449	1.3	1.0
P29	Private	J20	J34	329	16	120	1296	2.1	0.4
P35	Private	J114	J38	231	12	120	126	0.4	0.0
P37	RCID	RES9002	J10	291	16	120	5148	8.2	4.4
P39	RCID	J40	J50	1,171	16	120	5148	8.2	17.6
P43	RCID	J46	J114	3,242	16	120	5148	8.2	48.8
P47	RCID	J50	J46	662	16	120	5148	8.2	10.0
P51	RCID	J32	J96	155	16	120	4704	7.5	2.0
P57	RCID	J52	J54	2,515	12	120	271	0.8	0.7
P59	OCU	J56	J20	1,408	24	120	1296	0.9	0.2
P63	OCU	J56	J64	1,903	24	120	-1296	0.9	0.3
P67	OCU	J64	J88	735	16	120	2688	4.3	3.3
P69	OCU	J78	J66	151	16	120	1420	2.3	0.2
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P61	-	-	-	-	-	-	-	-	-

Table B-30 Long-Term Scenario Peak Hour Flow Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	1,268	120	232	**48.4a**
J86	0	116	232	50.5
J78	0	113	231	51.2
J88	0	114	234	52.0
J64	0	114	237	53.5
J66	1,420	106	231	54.1
J56	0	107	239	57.0
J34	1,296	104	239	58.5
J20	0	102	239	59.6
J30	424	105	243	59.7
J36	456	105	243	59.7
J22	0	105	243	59.8
J24	0	102	245	62.0
J112	0	103	246	62.1
J118	0	114	298	79.7
J120	0	114	298	79.7
J18	0	114	298	79.7
J116	0	111	298	81.0
J100	0	111	298	81.0
J110	0	111	298	81.0
J98	0	111	298	81.1
J96	0	111	298	81.1
J32	0	111	298	81.1
J54	720	109	297	81.5
J52	0	102	298	84.8
J10	0	105	304	86.3
J16	318	98	299	87.1
J114	0	98	299	87.1
J38	126	96	299	88.0
J40	0	97	304	89.6
J46	0	95	302	89.7
J50	0	95	303	90.0

a. Denotes critical node during fire flow simulation

Table B-31 Long-Term Peak Hour Reservoir Report

ID	Flow (gpm)	Head (ft)	Comment
RES9002	-1,164	304	Source: RCID 108' Elevation and pressure 85 psi
RES9004	-4,864	250	Source: OCU 120' elevation and 56 psi

Table B-32 Long-Term Scenario Peak Hour Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	1164	1.9	0.2
P117	OCU	J86	J78	990	16	120	1420	2.3	1.4
P121	OCU	J88	J86	367	16	120	2688	4.3	1.7
P13	Private	J114	J16	376	16	120	318	0.5	0.0
P133	Private	J86	J94	184	12	120	1268	3.6	0.8
P137	RCID	J96	J18	271	16	120	720	1.2	0.1
P149	RCID	J96	J98	102	16	120	0	0.0	0.0
P15	RCID	J18	J52	1225	12	120	271	0.8	0.3
P155	RCID	J100	J116	50	16	120	0	0.0	0.0
P159	RCID	J110	J100	33	16	120	0	0.0	0.0
P17	OCU	J20	J22	2631	24	120	-3984	2.8	3.4
P173	OCU	J112	RES9004	1922	24	120	-4864	3.45	3.61
P177	RCID	J114	J32	2071	16	120	720	1.2	0.8
P183	OCU	J24	J112	655	24	120	-4864	3.5	1.2
P189	RCID	J116	J120	285	16	120	0	0.0	0.0
P19	OCU	J22	J24	1193	24	120	-4864	3.5	2.2
P191	RCD	J98	U7014	57	16	120	0	0.0	0.0
P193	RCID	U7014	J110	45	16	120	0	0.0	0.0
P195	RCID	J118	J18	408	16	120	0	0.0	0.0
P197	RCID	J120	J64	459	16	120	0	0.0	0.0
P199	RCID	J120	J118	109	12	120	0	0.0	0.0
P23	RCID	J18	J54	1461	12	120	449	1.3	1.0
P25	Private	J22	J30	524	16	120	424	0.7	0.1
P29	Private	J20	J34	329	16	120	1296	2.1	0.4
P31	Private	J22	J36	344	16	120	456	0.7	0.1
P35	Private	J114	J38	231	12	120	126	0.4	0.0
P37	RCID	RES9002	J10	291	16	120	1164	1.9	0.3
P39	RCID	J40	J50	1171	16	120	1164	1.9	1.1
P43	RCID	J46	J114	3242	16	120	1164	1.9	3.1
P47	RCID	J50	J46	662	16	120	1164	1.9	0.6
P51	RCID	J32	J96	155	16	120	720	1.2	0.1

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P57	RCID	J52	J54	2515	12	120	271	0.8	0.7
P59	OCU	J56	J20	1408	24	120	-2688	1.91	0.88
P63	OCU	J56	J64	1903	24	120	2688	1.91	1.19
P67	OCU	J64	J88	735	16	120	2688	4.29	3.32
P69	OCU	J78	J66	151.17	16	120	1,420	2.27	0.21

Table B-33 Short-Term Orange Lake Fire Flow Interim Construction Scenario – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	0	120	237	50.6a
J78	0	113	232	51.7
J86	0	116	237	52.4
J88	0	114	239	54.0
J66	2710	106	232	54.4
J64	0	114	242	55.4
J118	0	114	243	56.1
J18	0	114	245	56.9
J54	432	109	245	58.9
J96	0	111	247	58.9
J32	0	111	248	59.3
J122	0	107	245	59.9
J52	0	102	245	62.1
J16	392	98	260	70.4
J114	0	98	260	70.4
J38	94	96	260	71.2
J46	0	95	286	82.7
J50	0	95	291	85.0
J10	0	105	302	85.4
J40	0	97	300	88.1
J34	-	-	-	-
J20	-	-	-	-
J56	-	-	-	-
J120	-	-	-	-
J116	-	-	-	-
J100	-	-	-	-
J110	-	-	-	-

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J98	-	-	-	-
J36	-	-	-	-
J30	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-34 Short Term Orange Lake Fire Flow Interim Construction Scenario- Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	3628	5.8	1.7
P117	OCU	J86	J78	990	16	120	2710	4.3	4.5
P121	OCU	J88	J86	367	16	120	2710	4.3	1.7
P13	Private	J114	J16	376	16	120	392	0.6	0.1
P133	Private	J86	J94	184	12	120	0	0.0	0.0
P137	RCID	J96	J18	271	16	120	3142	5.0	1.6
P15	RCID	J18	J52	1225	12	120	162	0.5	0.1
P177	RCID	J114	J32	2071	16	120	3142	5.0	12.5
P195	RCID	J118	J18	408	16	120	-2710	4.3	1.9
P201	RCID	J52	J122	462	12	100	0	0.0	0.0
P23	RCID	J18	J54	1461	12	120	270	0.8	0.4
P35	Private	J114	J38	231	12	120	94	0.3	0.0
P37	RCID	RES9002	J10	291	16	120	3628	5.8	2.3
P39	RCID	J40	J50	1171	16	120	3628	5.8	9.2
P43	RCID	J46	J114	3242	16	120	3628	5.8	25.5
P47	RCID	J50	J46	662	16	120	3628	5.8	5.2
P51	RCID	J32	J96	155	16	120	3142	5.0	0.9
P57	RCID	J52	J54	2515	12	120	162	0.5	0.3
P61	RCID	J64	J118	341	16	120	-2710	4.3	1.6
P67	OCU	J64	J88	735	16	120	2710	4.3	3.4
P69	OCU	J78	J66	151	16	120	2710	4.3	0.7
P63	-	-	-	-	-	-	-	-	-
P59	-	-	-	-	-	-	-	-	-
P29	-	-	-	-	-	-	-	-	-
P143	-	-	-	-	-	-	-	-	-
P149	-	-	-	-	-	-	-	-	-
P155	-	-	-	-	-	-	-	-	-
P159	-	-	-	-	-	-	-	-	-
P189	-	-	-	-	-	-	-	-	-

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P191	-	-	-	-	-	-	-	-	-
P193	-	-	-	-	-	-	-	-	-
P197	-	-	-	-	-	-	-	-	-
P199	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-

Table B-35 Short Term Orange Lake Fire Flow Interim Construction scenario- Reservoir Report

ID	Flow (gpm)	Head (ft)	Comment
RES9002	--3,628	304	Source: RCID 108' Elevation and pressure 85 psi

Table B-36 Short Term FC-1 Fire Flow Interim Construction Scenario- Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J94	2000	120	235	49.8a
J86	0	116	237	52.4
J78	0	113	236	53.5
J88	0	114	239	54.0
J64	0	114	242	55.4
J118	0	114	243	56.1
J66	710	106	236	56.5
J18	0	114	245	56.9
J54	432	109	245	58.9
J96	0	111	247	58.9
J32	0	111	248	59.3
J122	0	107	245	59.9
J52	0	102	245	62.1
J16	392	98	260	70.4
J114	0	98	260	70.4
J38	94	96	260	71.2
J46	0	95	286	82.7
J50	0	95	291	85.0

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J10	0	105	302	85.4
J40	0	97	300	88.1
J34	-	-	-	-
J20	-	-	-	-
J56	-	-	-	-
J120	-	-	-	-
J116	-	-	-	-
J100	-	-	-	-
J110	-	-	-	-
J98	-	-	-	-
J36	-	-	-	-
J30	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-37 Short Term FC-1 Fire Flow Interim Construction Scenario- pipe report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	211.62	16	120	3628	6	1.7
P117	OCU	J86	J78	990.15	16	120	710	1	0.4
P121	OCU	J88	J86	366.9	16	120	2710	4	1.7
P13	Private	J114	J16	376.06	16	120	392	1	0.1
P133	Private	J86	J94	184	12	120	2000	6	2.0
P137	RCID	J96	J18	270.9	16	120	3142	5	1.6
P15	RCID	J18	J52	1,224.91	12	120	162	0	0.1
P177	RCID	J114	J32	2,070.59	16	120	3142	5	12.5
P195	RCID	J118	J18	408.38	16	120	-2710	4	1.9
P201	RCID	J52	J122	461.98	12	100	0	0	0.0
P23	RCID	J18	J54	1,461.08	12	120	270	1	0.4
P35	Private	J114	J38	231.49	12	120	94	0	0.0
P37	RCID	RES9002	J10	290.9	16	120	3628	6	2.3
P39	RCID	J40	J50	1,171.48	16	120	3628	6	9.2
P43	RCID	J46	J114	3,242.25	16	120	3628	6	25.5
P47	RCID	J50	J46	661.55	16	120	3628	6	5.2

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P51	RCID	J32	J96	155.03	16	120	3142	5	0.9
P57	RCID	J52	J54	2,514.68	12	120	162	0	0.3
P61	RCID	J64	J118	341.28	16	120	-2710	4	1.6
P67	OCU	J64	J88	734.64	16	120	2710	4	3.4
P69	OCU	J78	J66	151.17	16	120	710	1	0.1
P63	-	-	-	-	-	-	-	-	-
P59	-	-	-	-	-	-	-	-	-
P29	-	-	-	-	-	-	-	-	-
P143	-	-	-	-	-	-	-	-	-
P149	-	-	-	-	-	-	-	-	-
P155	-	-	-	-	-	-	-	-	-
P159	-	-	-	-	-	-	-	-	-
P189	-	-	-	-	-	-	-	-	-
P191	-	-	-	-	-	-	-	-	-
P193	-	-	-	-	-	-	-	-	-
P197	-	-	-	-	-	-	-	-	-
P199	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-

Table B-38 Short Term FC-1 Fire Flow Interim Construction Scenario- Reservoir report

ID	Description	Flow (gpm)	Head (ft)
RES9002	HGL provided by RCID	-3,628	304

Table B-39 Short term FC-2 Fire Flow Interim Construction Scenario- Junction report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J122	2000	107	232	54.0a
J94	0	120	245	54.0
J86	0	116	245	55.8
J88	0	114	245	56.7
J64	0	114	245	56.8
J118	0	114	245	56.9
J78	0	113	244	56.9

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J18	0	114	245	56.9
J54	432	109	241	57.2
J96	0	111	247	58.9
J52	0	102	238	59.1
J32	0	111	248	59.3
J66	710	106	244	59.9
J16	392	98	260	70.4
J114	0	98	260	70.4
J38	94	96	260	71.2
J46	0	95	286	82.7
J50	0	95	291	85.0
J10	0	105	302	85.4
J40	0	97	300	88.1
J34	-	-	-	-
J20	-	-	-	-
J56	-	-	-	-
J120	-	-	-	-
J116	-	-	-	-
J100	-	-	-	-
J110	-	-	-	-
J98	-	-	-	-
J36	-	-	-	-
J30	-	-	-	-
J24	-	-	-	-
J112	-	-	-	-

a. Denotes critical node during fire flow simulation

Table B-40 Short term FC-2 Fire Flow Interim Construction Scenario- Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	J10	J40	212	16	120	3628	6	1.7
P117	OCU	J86	J78	990	16	120	710	1	0.4
P121	OCU	J88	J86	367	16	120	710	1	0.1
P13	Private	J114	J16	376	16	120	392	1	0.1
P133	Private	J86	J94	184	12	120	0	0	0.0
P137	RCID	J96	J18	271	16	120	3142	5	1.6
P15	RCID	J18	J52	1225	12	120	1428	4	7.0
P177	RCID	J114	J32	2071	16	120	3142	5	12.5
P195	RCID	J118	J18	408	16	120	-710	1	0.2

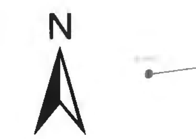
ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P201	RCID	J52	J122	462	12	100	2000	6	6.9
P23	RCID	J18	J54	1461	12	120	1004	3	4.3
P35	Private	J114	J38	231	12	120	94	0	0.0
P37	RCID	RES9002	J10	291	16	120	3628	6	2.3
P39	RCID	J40	J50	1171	16	120	3628	6	9.2
P43	RCID	J46	J114	3242	16	120	3628	6	25.5
P47	RCID	J50	J46	662	16	120	3628	6	5.2
P51	RCID	J32	J96	155	16	120	3142	5	0.9
P57	RCID	J52	J54	2515	12	120	-572	2	2.6
P61	RCID	J64	J118	341	16	120	-710	1	0.1
P67	OCU	J64	J88	735	16	120	710	1	0.3
P69	OCU	J78	J66	151	16	120	710	1	0.1
P63	-	-	-	-	-	-	-	-	-
P59	-	-	-	-	-	-	-	-	-
P29	-	-	-	-	-	-	-	-	-
P143	-	-	-	-	-	-	-	-	-
P149	-	-	-	-	-	-	-	-	-
P155	-	-	-	-	-	-	-	-	-
P159	-	-	-	-	-	-	-	-	-
P189	-	-	-	-	-	-	-	-	-
P191	-	-	-	-	-	-	-	-	-
P193	-	-	-	-	-	-	-	-	-
P197	-	-	-	-	-	-	-	-	-
P199	-	-	-	-	-	-	-	-	-
P173	-	-	-	-	-	-	-	-	-
P183	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P31	-	-	-	-	-	-	-	-	-
P25	-	-	-	-	-	-	-	-	-

Table B-41 Short term FC-2 Fire Flow Interim Construction Scenario - Reservoir Report

ID	Description	Flow (gpm)	Head (ft)
RES9002	HGL provided by RCID	-3,628	304

Appendix C. Wastewater

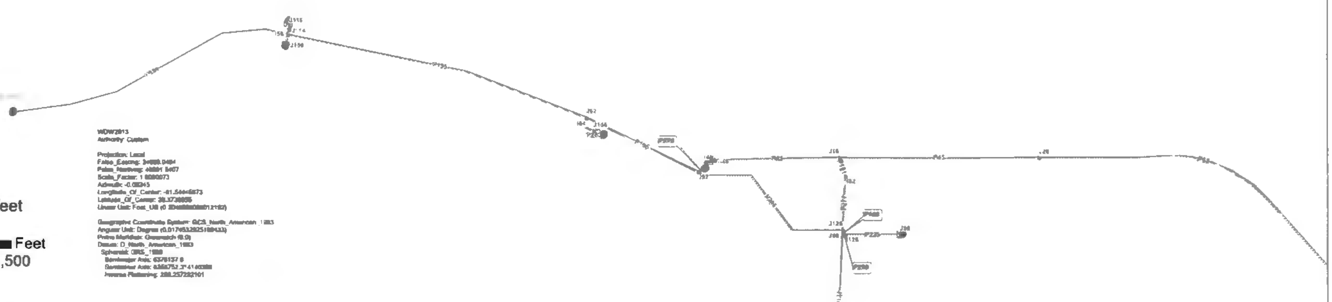
Figure C-1 Wastewater Pipe and Node Diagram



N

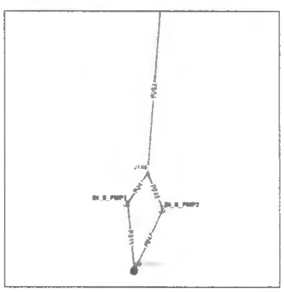
1 inch = 500 feet

Feet
0 250500 1,000 1,500

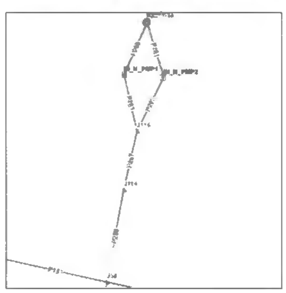


The nodal diagrams are not to be used as a reference
for locations of the interconnects, utility main routing, and ownership.
See Figures 3-1 and 3-2 for the approximate locations.

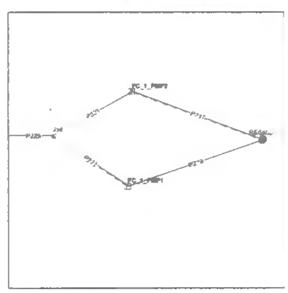
BI-S Pipe and Node



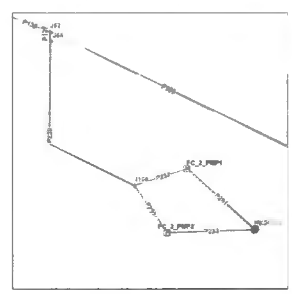
BI-N Pipe and Node



FC-1 Pipe and Node



FC-2 Pipe and Node



NOTE: Minor losses were not accounted for in the hydraulic models. These losses shall be accounted for in the lift station calculations at the time of the construction plan submittal.

Table C-1 Short-Term Scenario Peak Hour Flow Results High Head – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J106	0	105	106	0.6
J126	0	114	117	1.2
J128	0	114	117	1.4
J34	-900	106	128	9.4
J62	0	103	106	1.3
J64	0	105	106	0.4
J72	0	116	122	2.5
J76	0	114	120	2.6
J82	0	101	117	6.8
J86	0	114	117	1.3
J92	0	102	103	0.6
J98	0	114	126	5.3
J116	-	-	-	-
J114	-	-	-	-
J58	-	-	-	-
J108	-	-	-	-

Table C-2 Short-Term Scenario Peak Hour Flow Results High Head – Reservoir Report

ID	HGL Information	Flow (gpm)	Head (ft)
RES9032	Source: LS Calcs FC-2 Pumps Off Water Elevation	-856	93
RES9028	Source: Proposed MH invert Elevation	2,602	103
RES9030	Source: LS Calcs FC-1 Pumps Off Water Elevation	-846	96

Table C-3 Short-Term Scenario Peak Hour Flow Results High Head – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P137	OCU	J64	J62	10	12	130	856	2.4	0.0
P143	OCU	J72	J76	867	12	130	900	2.6	1.8
P147	OCU	J76	J86	1391	12	130	900	2.6	2.9
P185	OCU	J62	J92	1351	12	130	856	2.4	2.6
P199	OCU	J86	J126	49	12	130	1746	5.0	0.4
P205	OCU	J92	J126	1878	12	130	-1746	5.0	13.4
P273	RCID	J92	RES9028	87	16	120	2602	4.2	0.4
P279	OCU	J128	J86	23	12	130	846	2.4	0.0
P91	OCU	J34	J72	2777	12	130	900	2.6	5.8
P217	Private	RES9030	FC_1_PMP2	1	6	120	846	9.6	0.1
P219	Private	RES9030	FC_1_PMP1	1	6	120	0	0.0	0.0
P221	Private	FC_1_PMP2	J98	16	6	120	846	9.6	1.0
P223	Private	FC_1_PMP1	J98	16	6	120	0	0.0	0.0
P225	Private	J98	J128	678	8	130	846	5.4	9.1
P231	Private	RES9032	FC_2_PMP1	1	6	120	856	9.7	0.1
P233	Private	RES9032	FC_2_PMP2	1	6	120	0	0.0	0.0
P235	Private	FC_2_PMP2	J106	14	6	120	0	0.0	0.0
P237	Private	FC_2_PMP1	J106	14	6	120	856	9.7	0.9
P239	Private	J106	J64	188	12	130	856	2.4	0.4
P151	RCID	J82	J16	225	12	130	0	0.0	0.0
P277	RCID	J126	J82	600	12	130	0	0.0	0.0
61	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-
119	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-
121	-	-	-	-	-	-	-	-	-
124	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-
127	-	-	-	-	-	-	-	-	-
128	-	-	-	-	-	-	-	-	-
129	-	-	-	-	-	-	-	-	-
130	-	-	-	-	-	-	-	-	-
131	-	-	-	-	-	-	-	-	-

Table C-4 Short-Term Scenario Peak Hour Flow Results High Head – Pump Report

ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)	Status
FC_2_PMP1	92.82	0.6	6.9	856	14	Open
FC_2_PMP2	92.82	0.7	6.5	0	0	Closed
FC_1_PMP1	95.96	0.7	13.8	0	0	Closed
FC_1_PMP2	95.96	0.6	14.2	846	31	Open
BI_N_PMP1	-	-	-	-	-	-
BI_N_PMP2	-	-	-	-	-	-
BI_S_PMP1	-	-	-	-	-	-
BI_S_PMP2	-	-	-	-	-	-

NOTE: the pumps for FC-1 and FC-2 are required to be changed prior to connecting to OCU om the long term scenario.

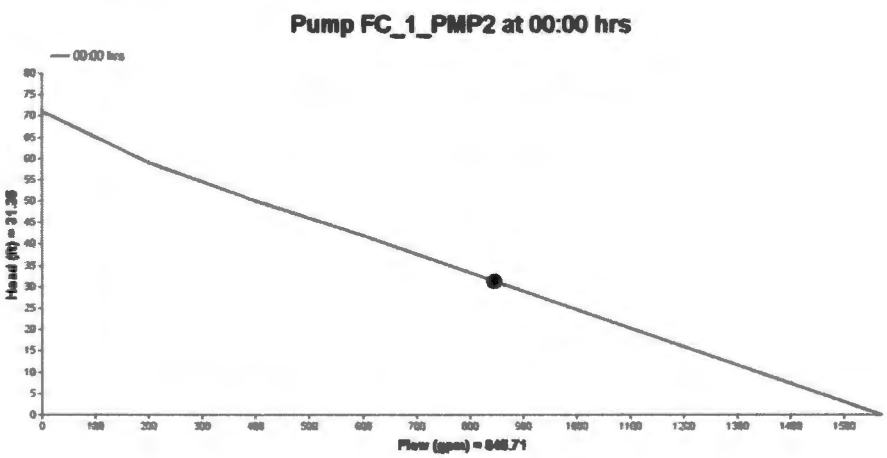


Figure C-2 FC-1 High Head Pump Curve

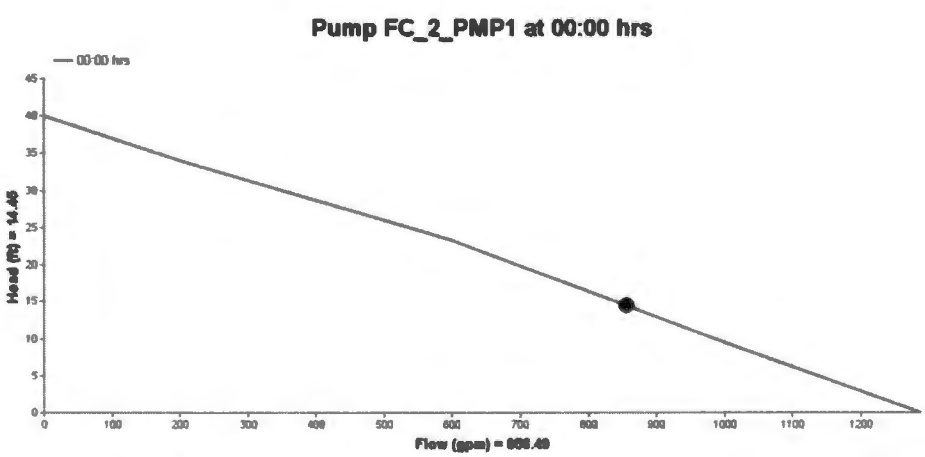


Figure C-3 FC-2 High Head Pump Curve

Table C-5 Long-Term Scenario Peak Hour Flow Results High Head – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J58	0	101	189	38.0
J108	0	94	190	41.3
J114	0	91	189	42.7
J116	0	91	190	42.9
J62	0	103	202	42.8
J64	0	105	202	42.0
J92	0	102	212	47.6
J106	0	105	202	42.2
J82	0	101	226	54.1
J86	0	114	226	48.7
J98	0	114	236	53.0
J126	0	114	226	48.5
J128	0	114	226	48.7
J34	-900	106	237	56.7
J72	0	116	231	49.8
J76	0	114	229	49.9

Table C-6 Long-Term Scenario Peak Hour Flow Results High Head– Reservoir Report

ID	HGL Information	Flow (gpm)	Head (ft)
RES9010	Source: OCU Elevation 120' and 27 psi pressure	3436	182
RES9030	Source: LS Calcs FC-1 Pumps Off Water Elevation	-891	96
RES9032	Source: LS Calcs FC-2 Pumps Off Water Elevation	-907	93
RES9034	Source: LS Calcs BI-N Pumps Off Water Elevation	-395	84
RES9036	Source: LS Calcs BI-S Pumps Off Water Elevation	-343	97

Table C-7 Long-Term Scenario Peak Hour Flow Results High Head – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P131	OCU	J58	RES9010	3,179	20	130	3436	3.5	6.6
P135	OCU	J62	J58	3,381	16	130	2698	4.3	13.3
P137	OCU	J64	J62	10	12	130	907	2.6	0.0
P143	OCU	J72	J76	867	12	130	900	2.6	1.8
P147	OCU	J76	J86	1,391	12	130	900	2.6	2.9
P185	OCU	J62	J92	1,351	12	130	-1791	5.0	10.1
P199	OCU	J86	J126	49	12	130	1791	5.0	0.4
P205	OCU	J92	J126	1,878	12	130	-1791	5.0	14.0
P279	OCU	J128	J86	23	12	130	891	2.5	0.1
P91	OCU	J34	J72	2,777	12	130	900	2.6	5.8
P217	Private	RES9030	FC_1_PMP2	1	6	120	891	10.1	0.1
P219	Private	RES9030	FC_1_PMP1	1	6	120	0	0.0	0.0
P221	Private	FC_1_PMP2	J98	16	6	120	891	10.1	1.1
P223	Private	FC_1_PMP1	J98	16	6	120	0	0.0	0.0
P225	Private	J98	J128	678	8	130	891	5.7	10.0
P231	Private	RES9032	FC_2_PMP1	1	6	120	907	10.3	0.1
P233	Private	RES9032	FC_2_PMP2	1	6	120	0	0.0	0.0
P235	Private	FC_2_PMP2	J106	14	6	120	0	0.0	0.0
P237	Private	FC_2_PMP1	J106	14	6	120	907	10.3	1.0
P239	Private	J106	J64	188	12	130	907	2.6	0.4
P241	Private	BI_S_PMP1	J108	8	4	120	0	0.0	0.0
P243	Private	BI_S_PMP2	J108	8	4	120	343	8.8	0.7
P245	Private	RES9036	BI_S_PMP1	1	6	100	0	0.0	0.0
P247	Private	RES9036	BI_S_PMP2	1	8	120	343	2.2	0.0
P253	Private	J108	J58	104	6	130	343	3.9	1.1
P255	Private	J114	J58	53	6	130	395	4.5	0.7
P259	Private	RES9034	BI_N_PMP1	1	4	120	0	0.0	0.0
P261	Private	RES9034	BI_N_PMP2	1	4	120	395	4.5	0.0
P263	Private	BI_N_PMP1	J116	9	4	120	0	0.0	0.0
P265	Private	BI_N_PMP2	J116	9	4	120	395	10.1	1.0
P267	Private	J116	J114	34	6	130	395	4.5	0.5
P277	RCID	J126	J82	600	12	130	0.00	0	0.0

Table C-8 Long-Term Scenario Peak Hour Flow Results High Head – Pump Report

ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)	Status	Setting	Available NPSH (ft)	Cavitation Index
BI_N_PMP1	83.85	1.1	47.0	0	0	Closed	0	0	0
BI_N_PMP2	83.85	1.1	47.4	395	107	Open	1	36	0
BI_S_PMP1	96.56	0.9	41.2	0	0	Closed	0	0	0
BI_S_PMP2	96.56	0.9	41.5	343	94	Open	1	35	0
FC_1_PMP1	95.96	0.7	61.5	0	0	Closed	0	0	0
FC_1_PMP2	95.96	0.6	62.0	891	142	Open	1	35	0
FC_2_PMP1	92.82	0.6	48.5	907	111	Open	1	35	0
FC_2_PMP2	92.82	0.7	48.1	0	0	Closed	0	0	0

NOTE: the pumps for FC-1 and FC-2 are required to be changed prior to connecting to OCU in the long term scenario.

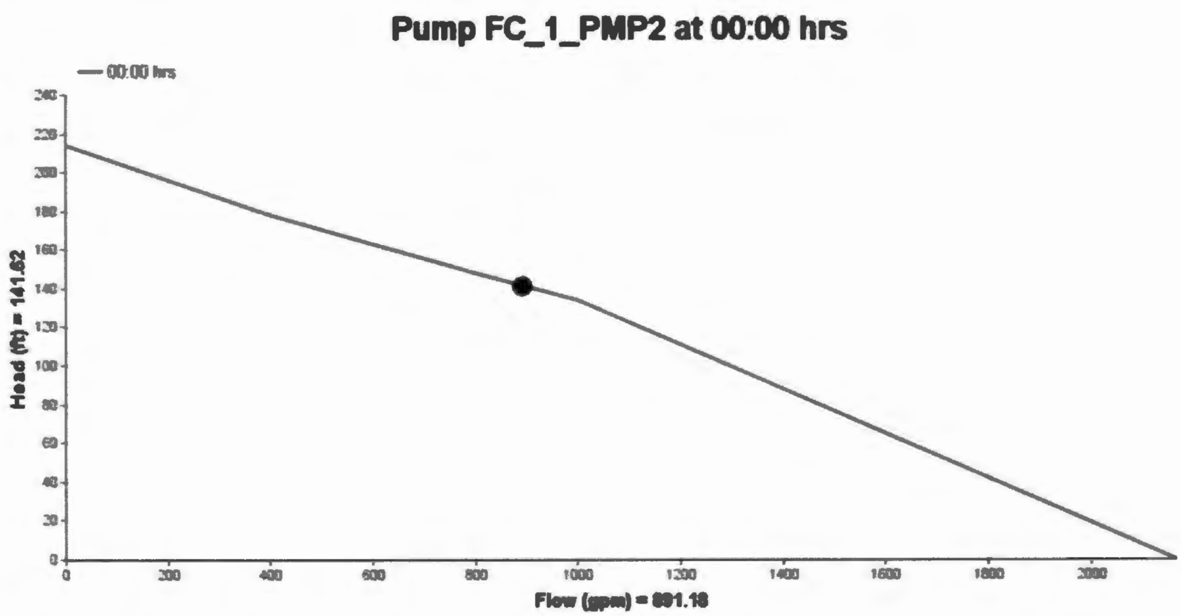


Figure C-4 Long Term Scenario FC-1 High Head Pump Curve

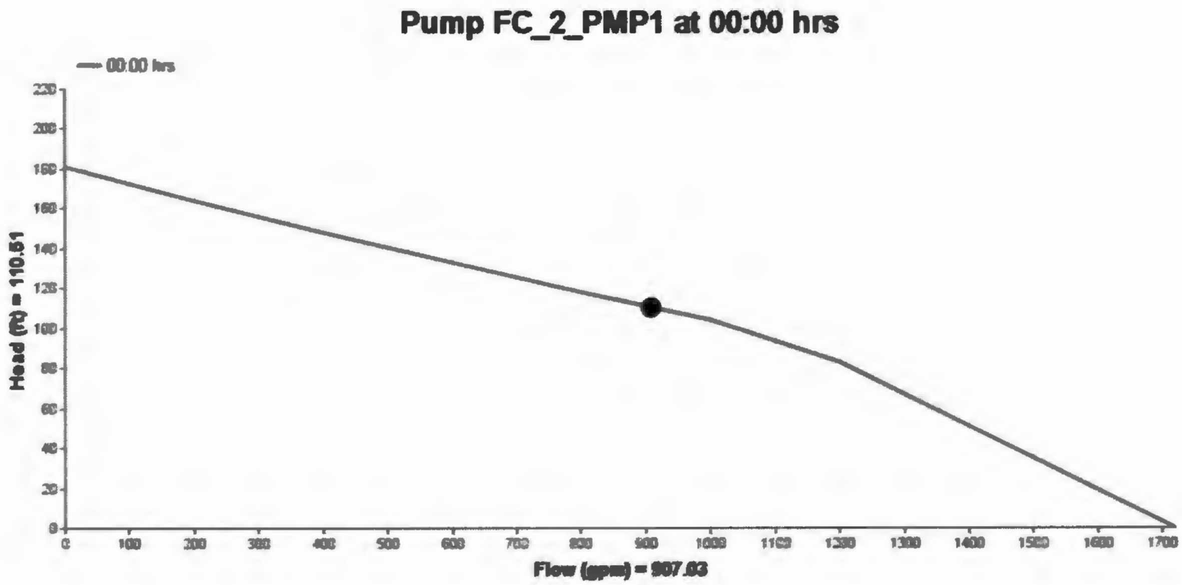


Figure C-5 Long Term Scenario FC-2 High Head Pump Curve

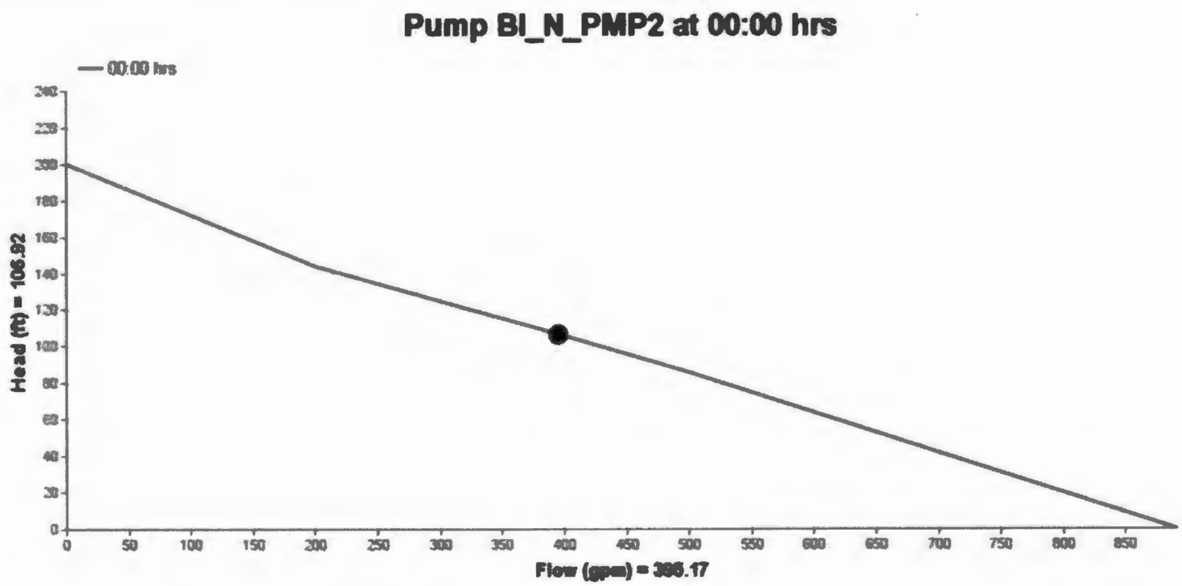


Figure C-6 Long Term Scenario BI-N High Head Pump Curve

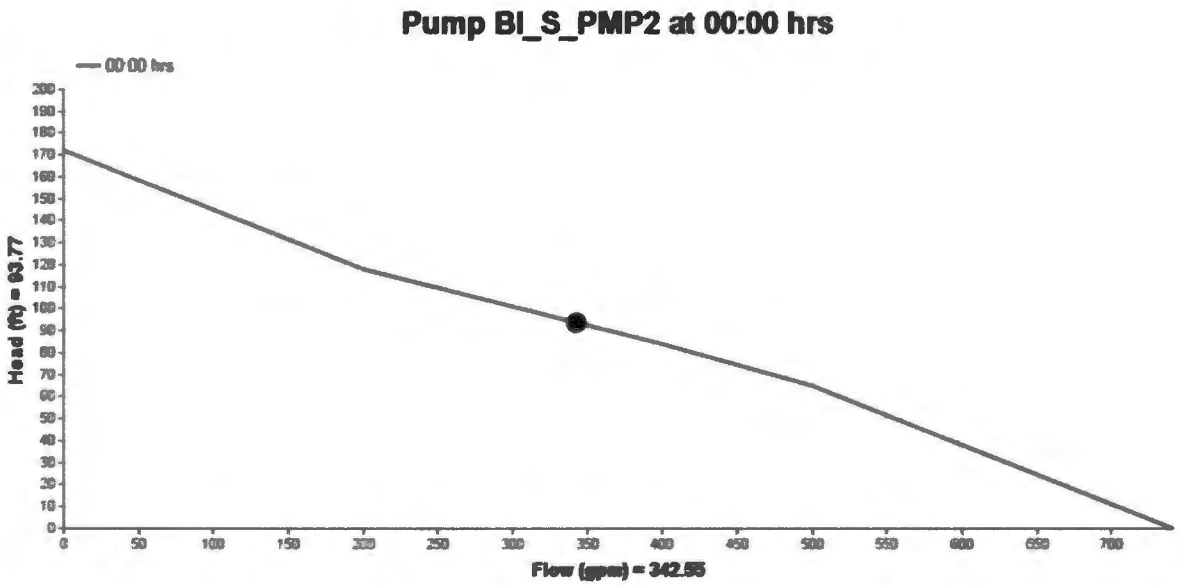


Figure C-7 Long Term Scenario BI-S High Head Pump Curve

Appendix D. Reclaimed Water

WDW2013
Authority: Custom

Projection: Local
False_Easting: 24886.0484
False_Northing: 46891.5407
Scale_Factor: 1.0000073
Azimuth: -0.08245
Longitude_Of_Center: -81.54445873
Latitude_Of_Center: 28.3730865
Linear Unit: Foot_US (0.3048006096012192)

Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

Figure D-1 Reclaim Pipe and Node Diagram

The nodal diagrams are not to be used as a reference
for locations of the interconnects, utility main routing, and ownership.
See Figures 4-1 and 4-2 for the approximate locations.

N

1 inch = 511 feet

2,600 1,300 0 2,600 Feet

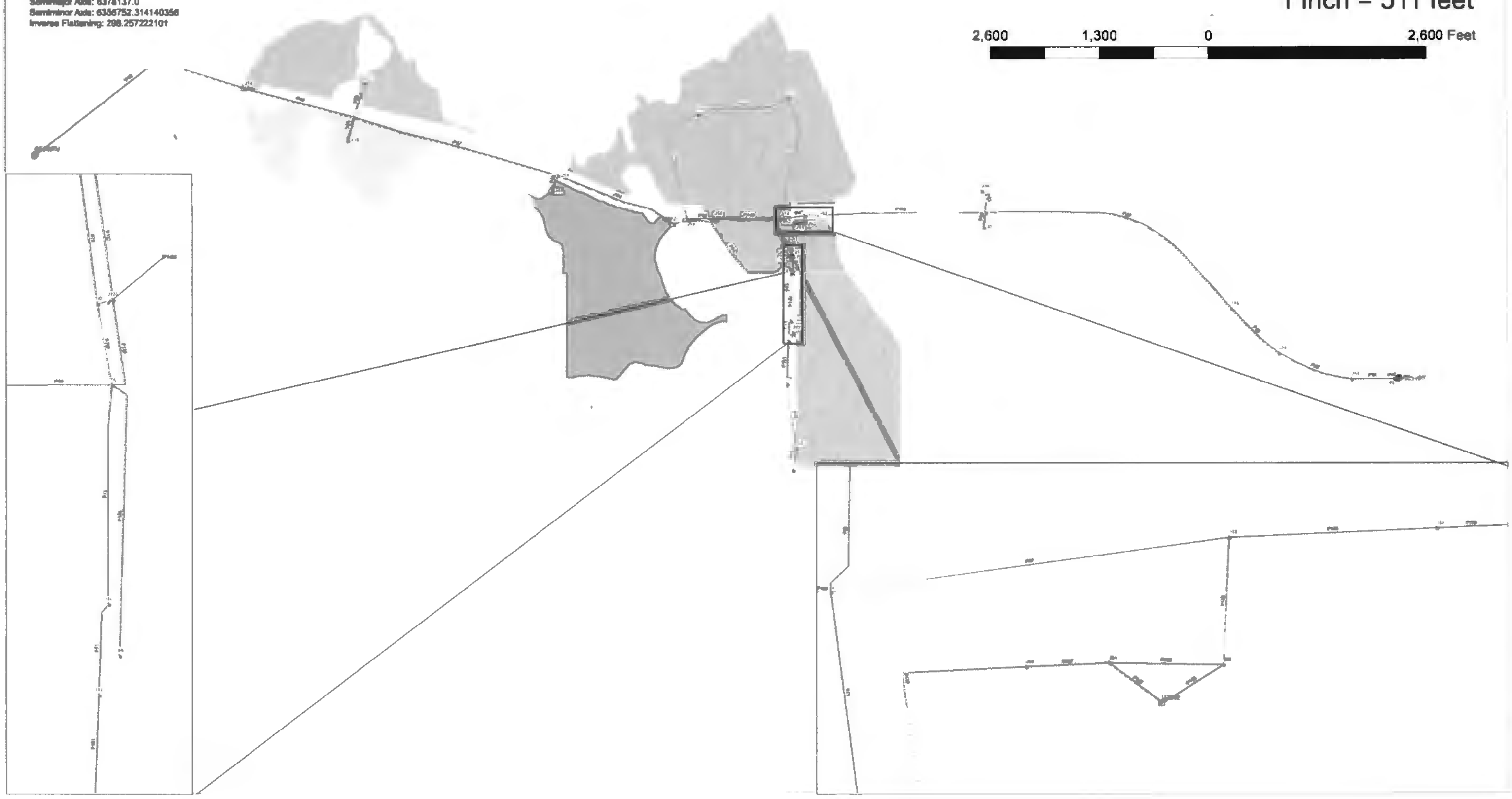


Table D-1 Short-Term Scenario Peak Hour Demand Results – Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J10	0	111	145	15
J100	0	114	241	55
J102	0	114	240	55
J12	0	115	238	53
J14	0	103	237	58
J16	0	105	237	57
J24	850	105	234	56
J28	488	109	233	54
J36	149	98	184	37
J38	19	96	185	38
J40	0	105	298	84
J42	0	100	287	81
J48	0	99	253	67
J52	0	98	269	74
J54	0	106	237	57
J56	0	112	235	53
J58	0	110	237	55
J60	0	113	223	47
J62	0	114	234	52
J66	0	116	228	49
J72	0	107	237	56
J74	0	114	238	54
J76	600	106	221	50
J80	0	101	185	36
J82	0	111	249	60
J84	0	111	253	62
J90	0	111	144	14
J92	0	111	148	16
J94	0	114	232	51
J98	733	114	236	53

Table D-2 Short-Term Scenario Peak Hour Demand Results – Reservoir Report

ID	Flow (gpm)	Head (ft)	Comment
RES9000	Elevation 108' and pressure of 83 psi	-2,839	299

Table D-3 Short-Term Scenario Peak Hour Demand Results – Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	RES9000	J40	53	12	120	2839	8.1	1.1
P119	RCID	J80	J92	2022	12	120	2671	7.6	36.7
P127	RCID	J84	J82	54	12	120	2671	7.6	4.1
P135	RCID	J10	J90	83	12	120	2671	7.6	1.5
P137	RCID	J82	J100	450	12	120	2671	7.6	8.2
P139	RCID	J12	J58	819	8	130	122	0.8	0.3
P143	RCID	J92	J10	135	12	120	2671	7.6	2.4
P145	RCID	J90	U7002	47	12	120	2671	7.6	0.8
P147	RCID	U7002	J84	43	12	120	2671	7.6	0.8
P149	Private	J74	J98	733	12	120	733	2.1	1.2
P151	OCU	J94	J66	508	8	130	600	3.8	3.6
P157	RCID	J100	J74	261	12	120	2183	6.2	3.3
P161	OCU	J100	J102	43	8	130	488	3.1	1.0
P17	OCU	J14	J16	2532	20	120	0	0.0	0.0
P25	Private	J24	J14	193	8	130	-850	5.4	2.6
P29	RCID	J28	J12	1522	8	130	-366	2.3	4.3
P37	Private	J80	J36	277	6	130	149	1.7	0.6
P39	Private	J80	J38	175	6	130	19	0.2	0.0
P43	RCID	J42	J52	928	12	120	2839	8.1	18.9
P49	RCID	J48	J80	3359	12	120	2839	8.1	68.2
P53	RCID	J52	J48	783	12	120	2839	8.1	15.9
P59	RCID	J54	J56	1448	6	130	122	1.4	2.2
P61	RCID	J56	J28	1116	6	130	122	1.4	1.7
P63	RCID	J58	J54	326	8	130	122	0.8	0.1
P71	OCU	J62	J94	245	8	130	600	3.8	1.7
P73	OCU	J62	J74	577	8	130	-600	3.8	4.1
P75	OCU	J66	J60	784	8	130	600	3.8	5.6
P79	RCID	J12	J102	433	8	130	-488	3.1	2.1
P81	OCU	J72	J14	1509	20	120	850	0.9	0.3
P83	OCU	J72	J74	1718	20	120	-850	0.9	0.3
P87	OCU	J60	J76	267	8	130	600	3.8	1.9
P91	RCID	J40	J42	515	12	120	2839	8.1	10.5
P125	-	-	-	-	-	-	-	-	-
P13	-	-	-	-	-	-	-	-	-
P19	-	-	-	-	-	-	-	-	-
P21	-	-	-	-	-	-	-	-	-
P23	-	-	-	-	-	-	-	-	-
P47	-	-	-	-	-	-	-	-	-

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P159	-	-	-	-	-	-	-	-	-

Table D-4 Long-Term Scenario Peak Hour Demand Results - Junction Report

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J60	0	113	222	47
J66	0	116	227	48
J76	600	106	220	49
J94	0	114	231	51
J62	0	114	232	51
J98	733	114	235	53
J74	0	114	237	53
J72	0	107	237	56
J24	850	105	235	56
J20	561	108	239	57
J22	561	106	238	57
J14	0	103	238	58
J16	0	105	241	59
J18	0	105	244	60
J12	0	115	290	76
J56	0	112	287	76
J102	0	114	290	76
J28	488	109	285	76
J10	0	111	290	77
J90	0	111	290	77
J92	0	111	290	77
J58	0	110	289	78
J54	0	106	289	79
J80	0	101	291	83
J36	149	98	291	84
J40	0	105	299	84
J38	19	96	291	85
J48	0	99	296	85
J42	0	100	298	86
J52	0	98	297	86
J84	0	111	436	141
J82	0	111	436	141

Table D-5 Long-Term Scenario Peak Hour Demand Results - Reservoir Report

ID	Flow (gpm)	Head (ft)	Comment
RES9000	-656	299	Source: RCID Elevation 108' and pressure of 83 psi
RES9002	-3305	250	Source: OCU Elevation 120' and pressure of 56 psi

Table D-6 Long-Term Scenario Peak Hour Demand Results - Pipe Report

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P11	RCID	RES9000	J40	53	12	120	656	2	0
P119	RCID	J80	J92	2,022	12	120	488	1	2
P127	RCID	J84	J82	54	12	120	0	0	0
P13	OCU	J18	RES9002	2,897	20	120	-3,305	3	6
P135	RCID	J10	J90	83	12	120	0	0	0
P139	RCID	J12	J58	819	8	130	122	1	0
P143	RCID	J92	J10	135	12	120	488	1	0
P145	RCID	J90	U7002	47	12	120	0	0	0
P147	RCID	U7002	J84	43	12	120	0	0	0
P149	Private	J74	J98	733	12	120	733	2	1
P151	OCU	J94	J66	508	8	130	600	4	4
P159	RCID	J102	J74	215	8	130	0	0	0
P17	OCU	J14	J16	2,532	20	120	-2,183	2	3
P19	OCU	J16	J18	1,350	20	120	-3,305	3	3
P21	Private	J16	J20	281	8	130	561	4	2
P23	Private	J16	J22	426	8	130	561	4	3
P25	Private	J24	J14	193	8	130	-850	5	3
P29	RCID	J28	J12	1,522	8	130	-366	2	4
P37	Private	J80	J36	277	6	130	149	2	1
P39	Private	J80	J38	175	6	130	19	0	0
P43	RCID	J42	J52	928	12	120	656	2	1
P47	RCID	J12	J10	261	12	130	-488	1	0
P49	RCID	J48	J80	3,359	12	120	656	2	5
P53	RCID	J52	J48	783	12	120	656	2	1
P59	RCID	J54	J56	1,448	6	130	122	1	2
P61	RCID	J56	J28	1,116	6	130	122	1	2
P63	RCID	J58	J54	326	8	130	122	1	0
P71	OCU	J62	J94	245	8	130	600	4	2
P73	OCU	J62	J74	577	8	130	-600	4	4
P75	OCU	J66	J60	784	8	130	600	4	6
P79	RCID	J12	J102	433	8	130	0	0	0

ID	Owner	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P81	OCU	J72	J14	1,509	20	120	-1,333	1	1
P83	OCU	J72	J74	1,718	20	120	1,333	1	1
P87	OCU	J60	J76	267	8	130	600	4	2
P91	RCID	J40	J42	515	12	120	656	2	1
P157	-	-	-	-	-	-	-	-	-
P137	-	-	-	-	-	-	-	-	-
P161	-	-	-	-	-	-	-	-	-
P125	-	-	-	-	-	-	-	-	-

Appendix E. Lift Station Calculations

FC-1 Short-Term Lift Station Calculations

Wet Well Design Worksheet

Short-Term Flamingo East Parcel - FC1

Diameter =	8	ft
Area =	50.27	Sq ft
Vol./ft =	376.0	gal/ft
Peak Flow In=	816	gpm
Actual Pump Rate =	846	gpm

V=(QT)/4
where,

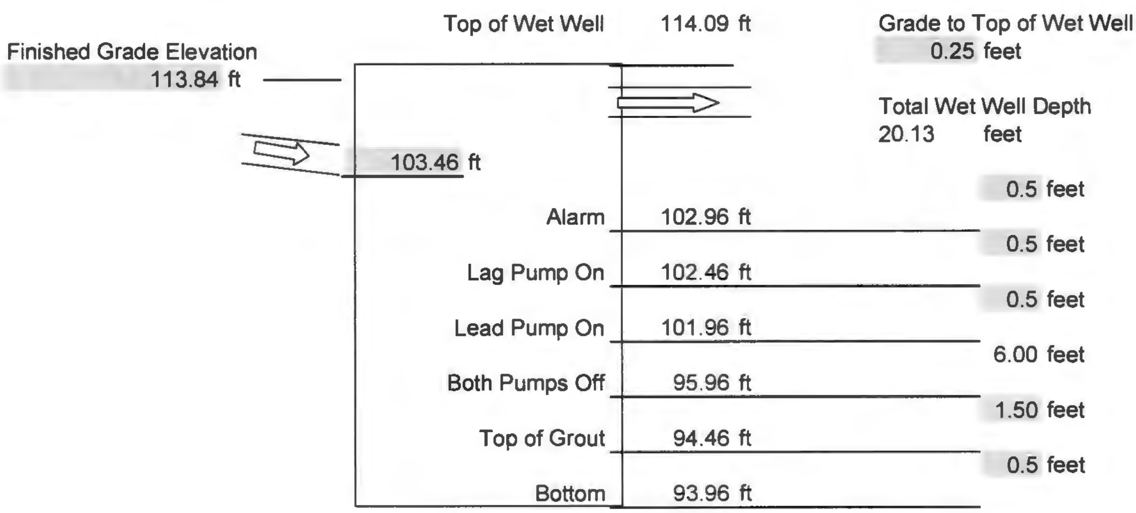
Q = Design Flow Rate =	846	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	2115.0	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	5.63	feet
Use an actual height of:	6.00	feet

Check Pump Run-Time

Actual Pump Flow Rate =	846	gpm
Run-time = Volume/ flow rate =	2.50	minutes



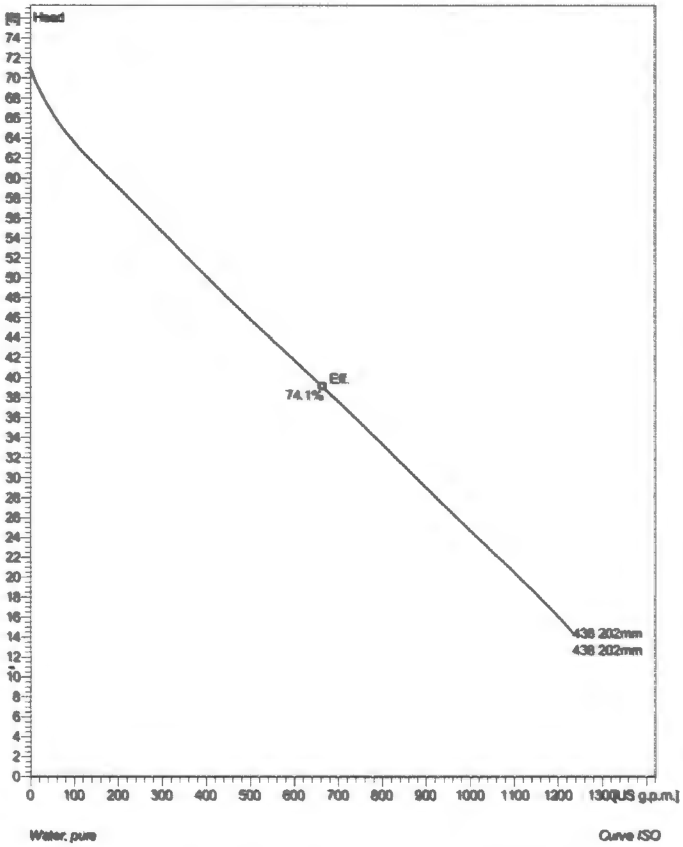
xylem

Different pumps are used for FC-1 in the short-term and long-term scenarios

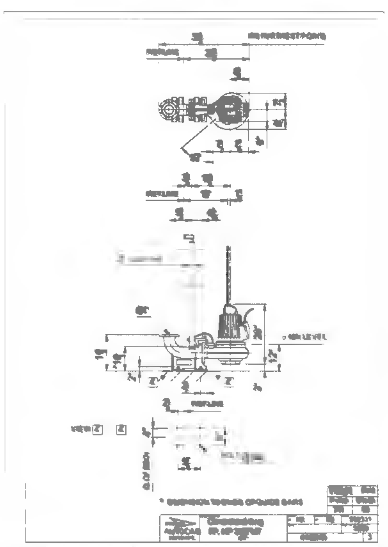
NP 3127 MT 3~ Adaptive 438

Technical specification

FLYGT



Installation: P - Semi permanent, Wet



Note: Picture might not correspond to the current configuration.

General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	5 7/8 inch
Impeller diameter	202 mm
Number of blades	2

Motor

Motor #	N3127.060 21-12-4AL-W 10hp Standard
Stator variant	38
Frequency	60 Hz
Rated voltage	460 V
Number of poles	4
Phases	3~
Rated power	10 hp
Rated current	13 A
Starting current	79.9 A
Rated speed	1735 rpm
Power factor	
1/1 Load	0.85
3/4 Load	0.81
1/2 Load	0.73
Motor efficiency	
1/1 Load	83.4 %
3/4 Load	83.9 %
1/2 Load	82.2 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/23/2018	

xylem

Different pumps are used for FC-1 in the short-term and long-term scenarios

FLYGT

NP 3127 MT 3~ Adaptive 438

Performance curve

Pump

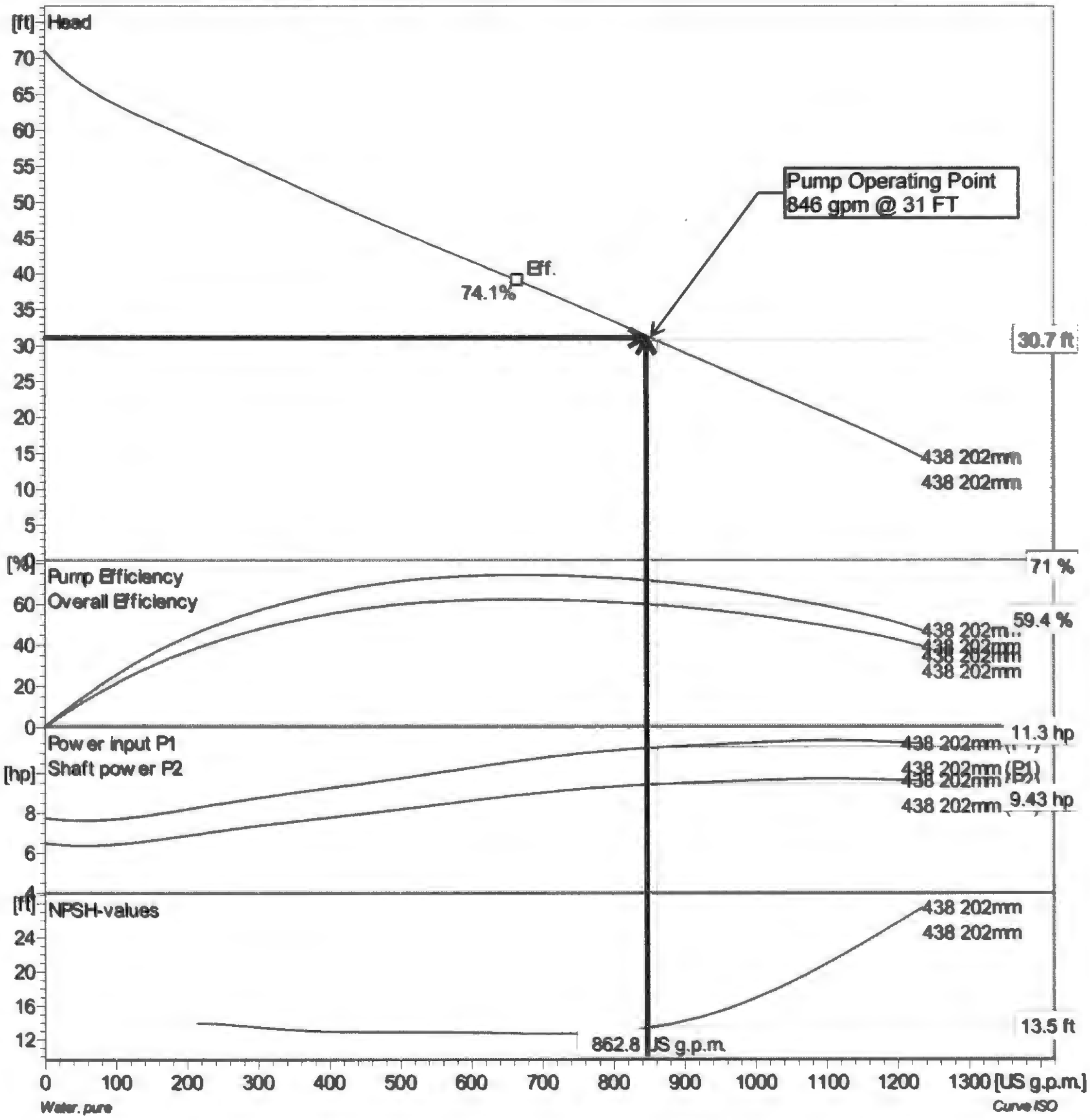
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	150 mm
Impeller diameter	7 15/16"
Number of blades	2

Motor

Motor #	N3127.060 21-12-4AL-W 10hp
Stator variant	38
Frequency	60 Hz
Rated voltage	460 V
Number of poles	4
Phases	3~
Rated power	10 hp
Rated current	13 A
Starting current	79.9 A
Rated speed	1735 rpm

Power factor	
1/1 Load	0.85
3/4 Load	0.81
1/2 Load	0.73

Motor efficiency	
1/1 Load	83.4 %
3/4 Load	83.9 %
1/2 Load	82.2 %



Duty point		Guarantee
Flow	Head	
813 US g.p.m.	27.2 ft	No

Project	Project ID	Created by	Created on	Last update
			2/23/2018	

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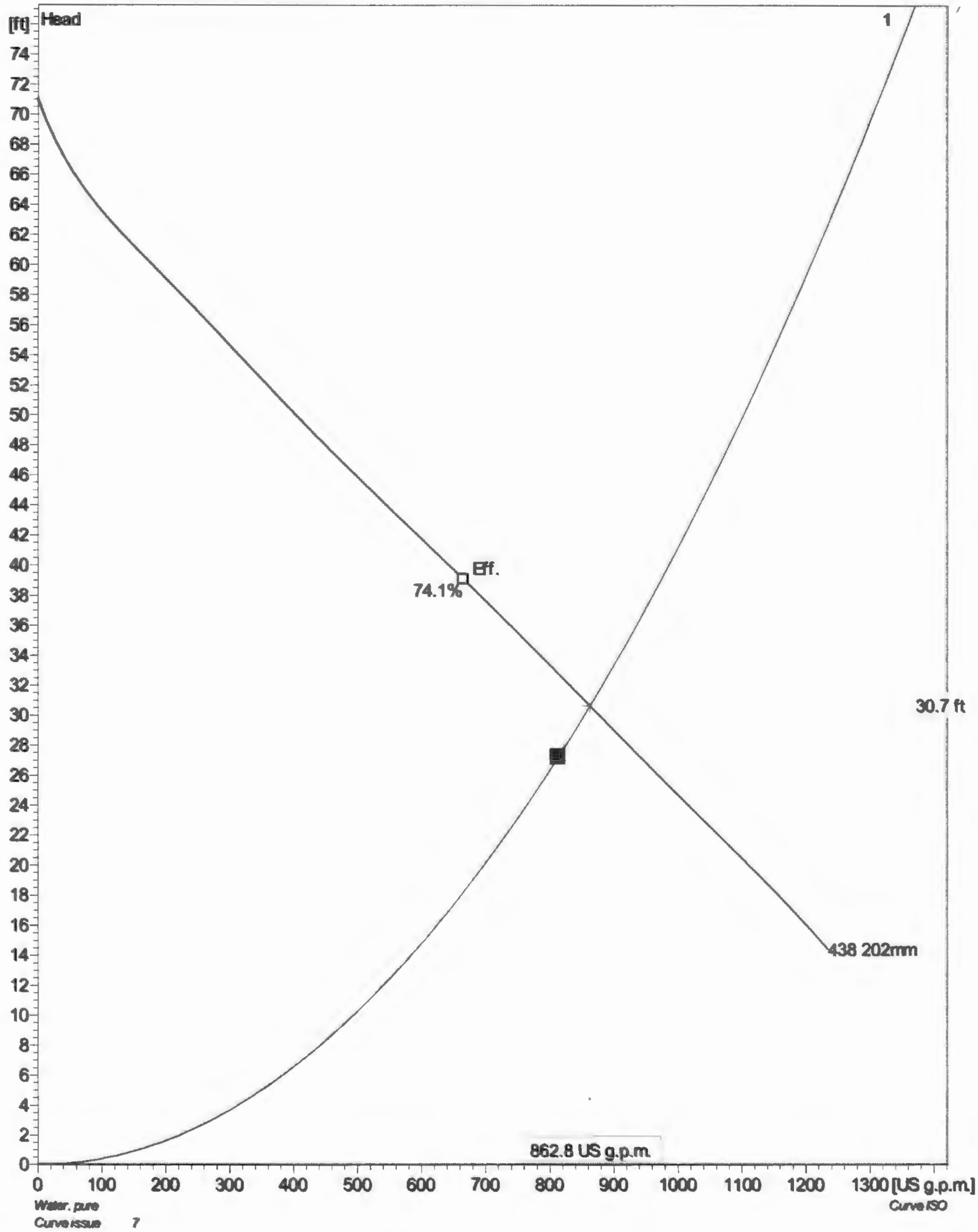
NP 3127 MT 3~ Adaptive 438
Duty Analysis

FLYGT



	Individual pump			Total					
Pumps running /System	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	863 US g.p.m.	30.7 ft	9.43 hp	863 US g.p.m.	30.7 ft	9.43 hp	71 %	162 kWh/US MG	13.5 ft

Project	Project ID	Created by	Created on	Last update
			2/23/2018	

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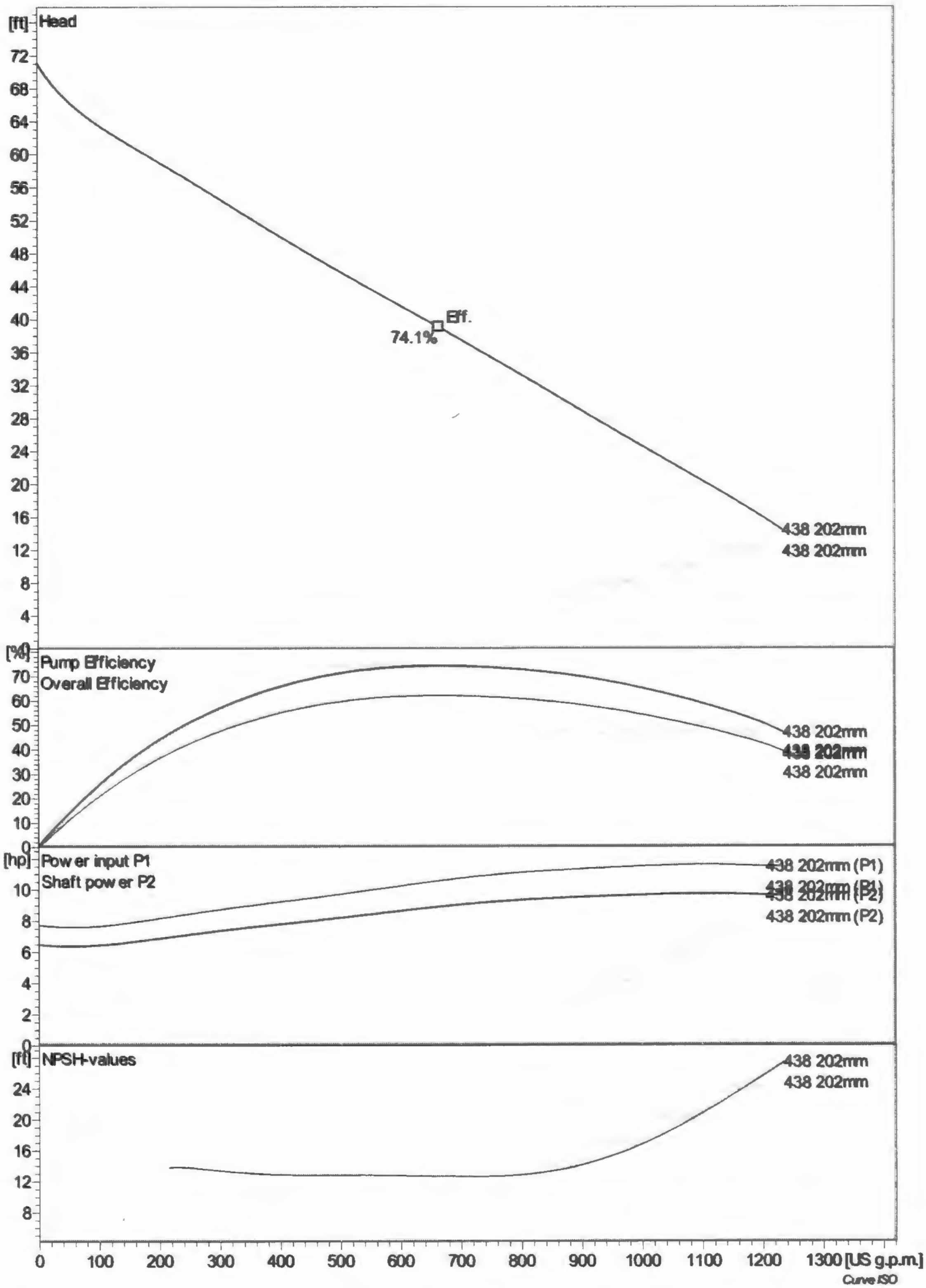
NP 3127 MT 3~ Adaptive 438

VFD Curve



Project	Project ID	Created by	Created on	Last update
			2/23/2018	

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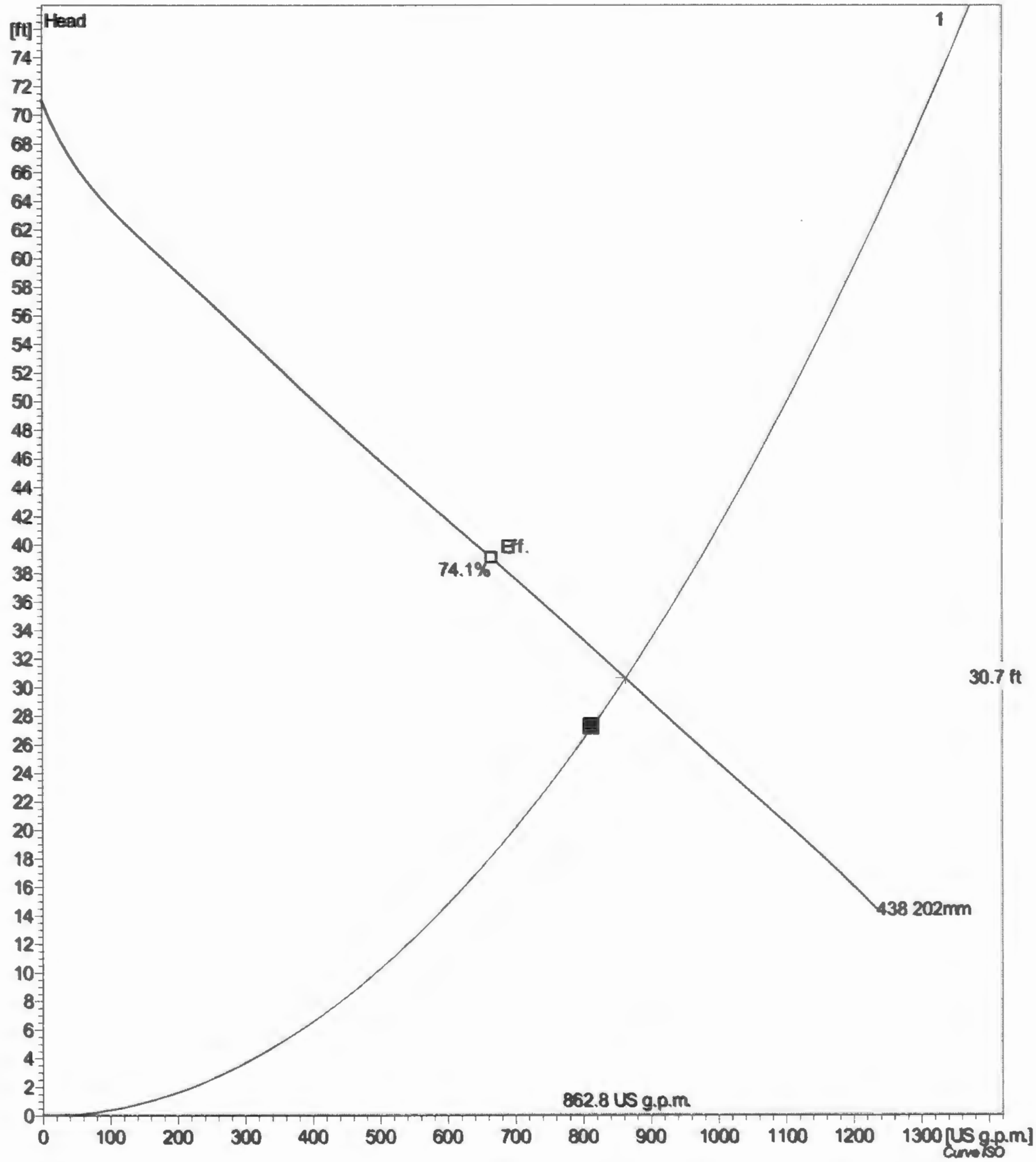
NP 3127 MT 3~ Adaptive 438

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	863 US g.p.m.	30.7 ft	9.43 hp	863 US g.p.m.	30.7 ft	9.43 hp	71 %	162 kWh/US MG	13.5 ft
1	55 Hz	791 US g.p.m.	25.8 ft	7.26 hp	791 US g.p.m.	25.8 ft	7.26 hp	71 %	136 kWh/US MG	11.8 ft
1	50 Hz	719 US g.p.m.	21.3 ft	5.46 hp	719 US g.p.m.	21.3 ft	5.46 hp	71 %	114 kWh/US MG	10.1 ft
1	45 Hz	647 US g.p.m.	17.3 ft	3.98 hp	647 US g.p.m.	17.3 ft	3.98 hp	71 %	95.2 kWh/US MG	8.54 ft
1	40 Hz	575 US g.p.m.	13.6 ft	2.79 hp	575 US g.p.m.	13.6 ft	2.79 hp	71 %	79.6 kWh/US MG	7.07 ft

Project	Project ID	Created by	Created on	Last update
			2/23/2018	

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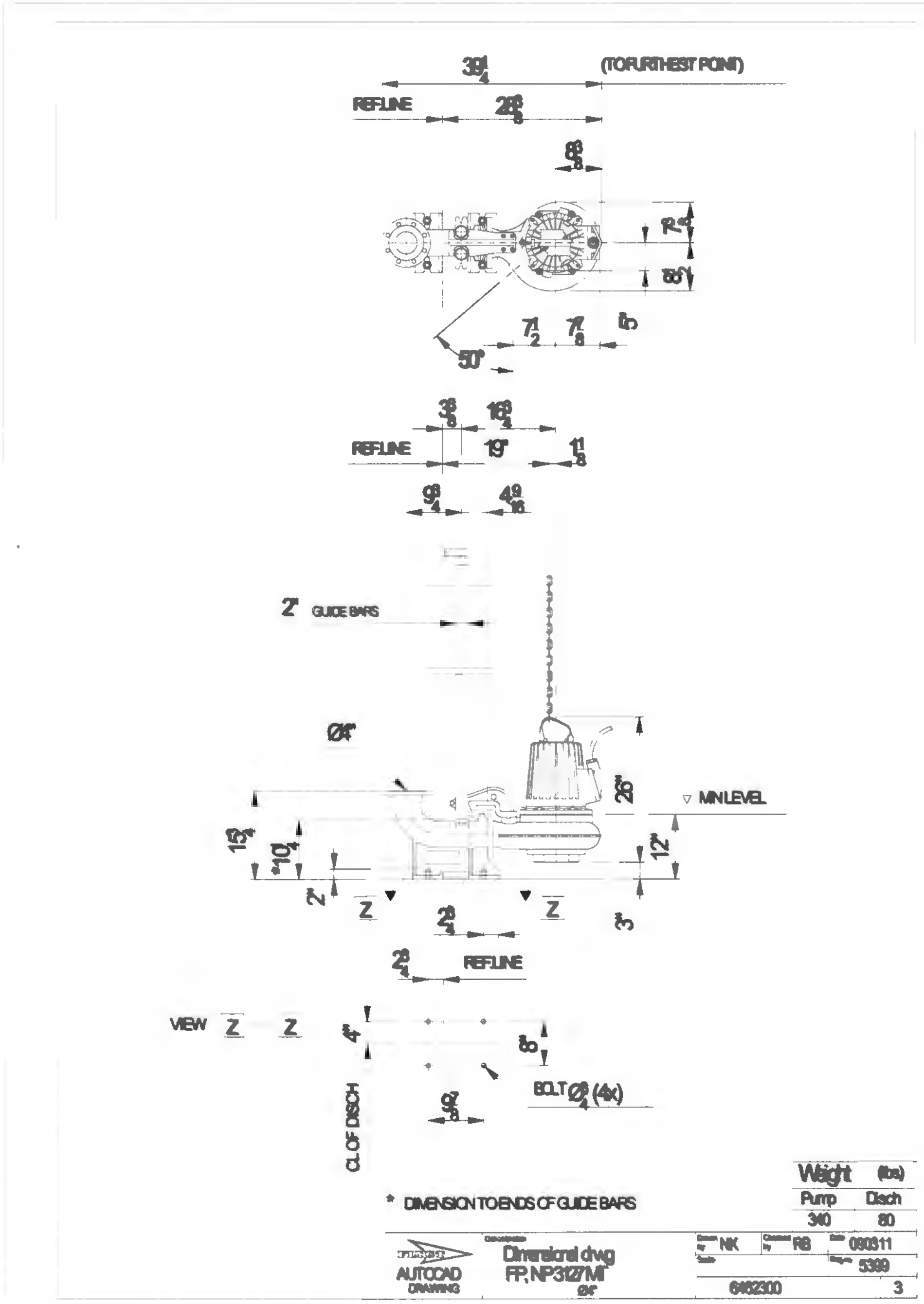
NP 3127 MT 3~ Adaptive 438

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			2/23/2018	

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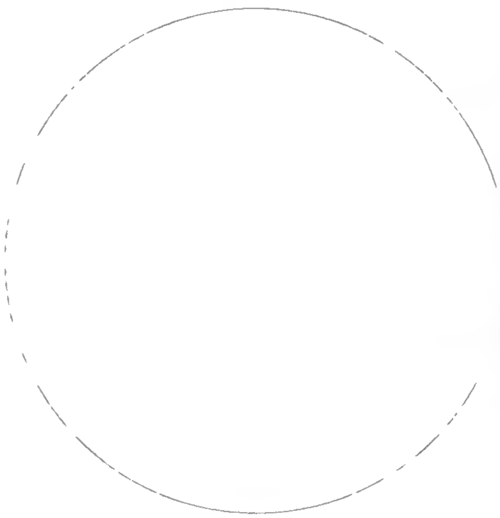
Version 10

NP 3127 MT 3~ Adaptive 438

Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

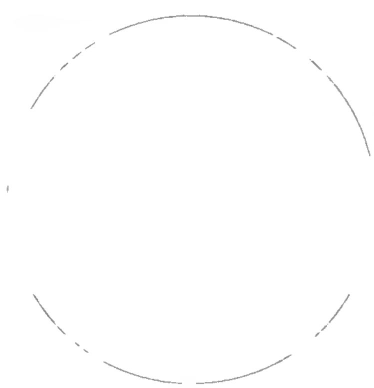
Total costs



- 0.00 USD Energy
- 0.00 USD Investment costs
- 0.00 USD Installation & commissioning
- 0.00 USD Operating cost
- 0.00 USD Maintenance & repair
- 0.00 USD Downtime
- 0.00 USD Environmental
- 0% 0.00 USD Decommissioning

0.00
USD

First year costs



- 0.00 USD Energy (1st year)
- 0.00 USD Investment costs (1st year)
- 0.00 USD Installation & commissioning (1st year)
- 0.00 USD Operating cost (1st year)
- 0.00 USD Maintenance & repair (1st year)
- 0.00 USD Downtime (1st year)
- 0.00 USD Environmental (1st year)
- 0% 0.00 USD Decommissioning (1st year)

0.00
USD

Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.

Project	Project ID	Created by	Created on	Last update
			2/23/2018	

FC-1 Long-Term Lift Station Calculations

Wet Well Design Worksheet

Long-Term Flamingo East Parcel - FC1

Diameter =	8 ft
Area =	50.27 Sq ft
Vol./ft =	376.0 gal/ft
Peak Flow In=	816 gpm
Actual Pump Rate =	891 gpm

V=(QT)/4
where,

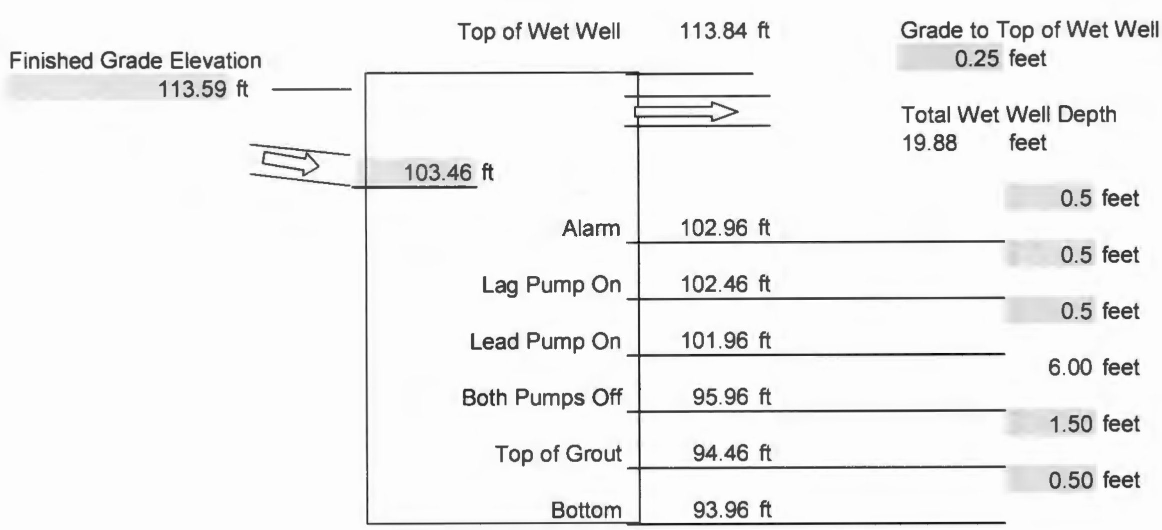
Q = Design Flow Rate =	891	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	2227.5	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	5.92	feet
Use an actual height of:	6.00	feet

Check Pump Run-Time

Actual Pump Flow Rate =	891	gpm
Run-time = Volume/ flow rate =	2.50	minutes



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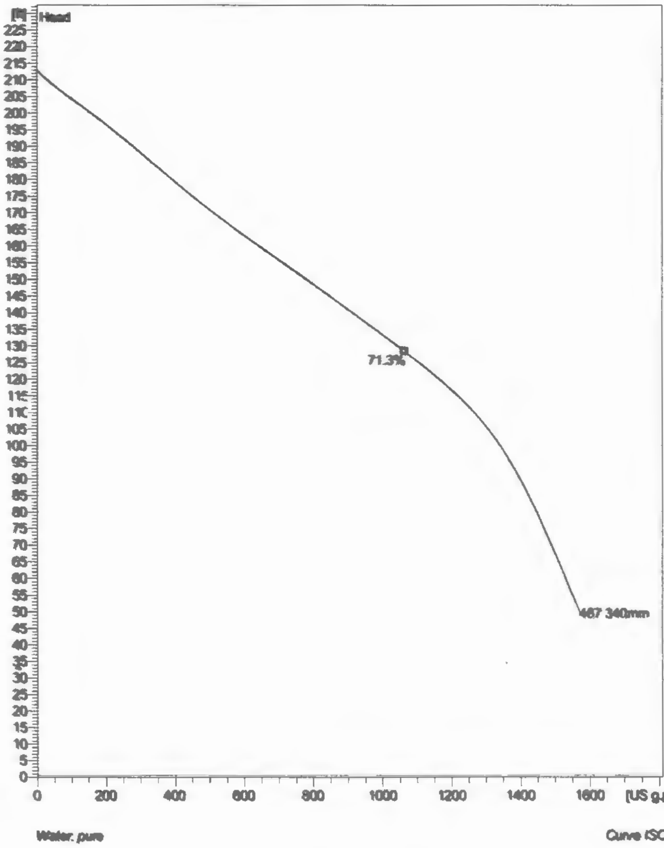
NP 3202 HT 3~ 467

Technical specification

Different pumps are used for FC-1 in the short-term and long-term scenarios



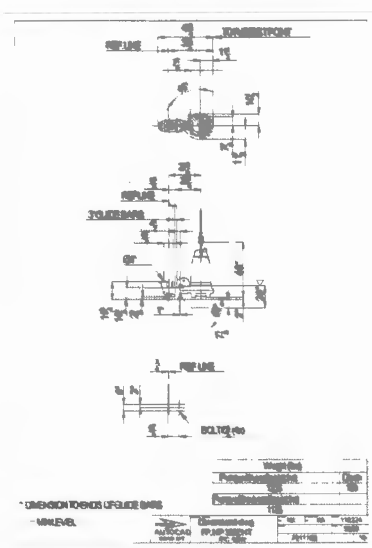
Note: Picture might not correspond to the current configuration.

General
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	7 7/8 inch
Impeller diameter	340 mm
Number of blades	2

Installation: P - Semi permanent, Wet



Motor

Motor #	N3202.185 30-24-4AA-W 60hp Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	4
Phases	3~
Rated power	60 hp
Rated current	68 A
Starting current	425 A
Rated speed	1770 rpm
Power factor	
1/1 Load	0.91
3/4 Load	0.88
1/2 Load	0.82
Motor efficiency	
1/1 Load	91.5 %
3/4 Load	92.0 %
1/2 Load	92.5 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

xylem

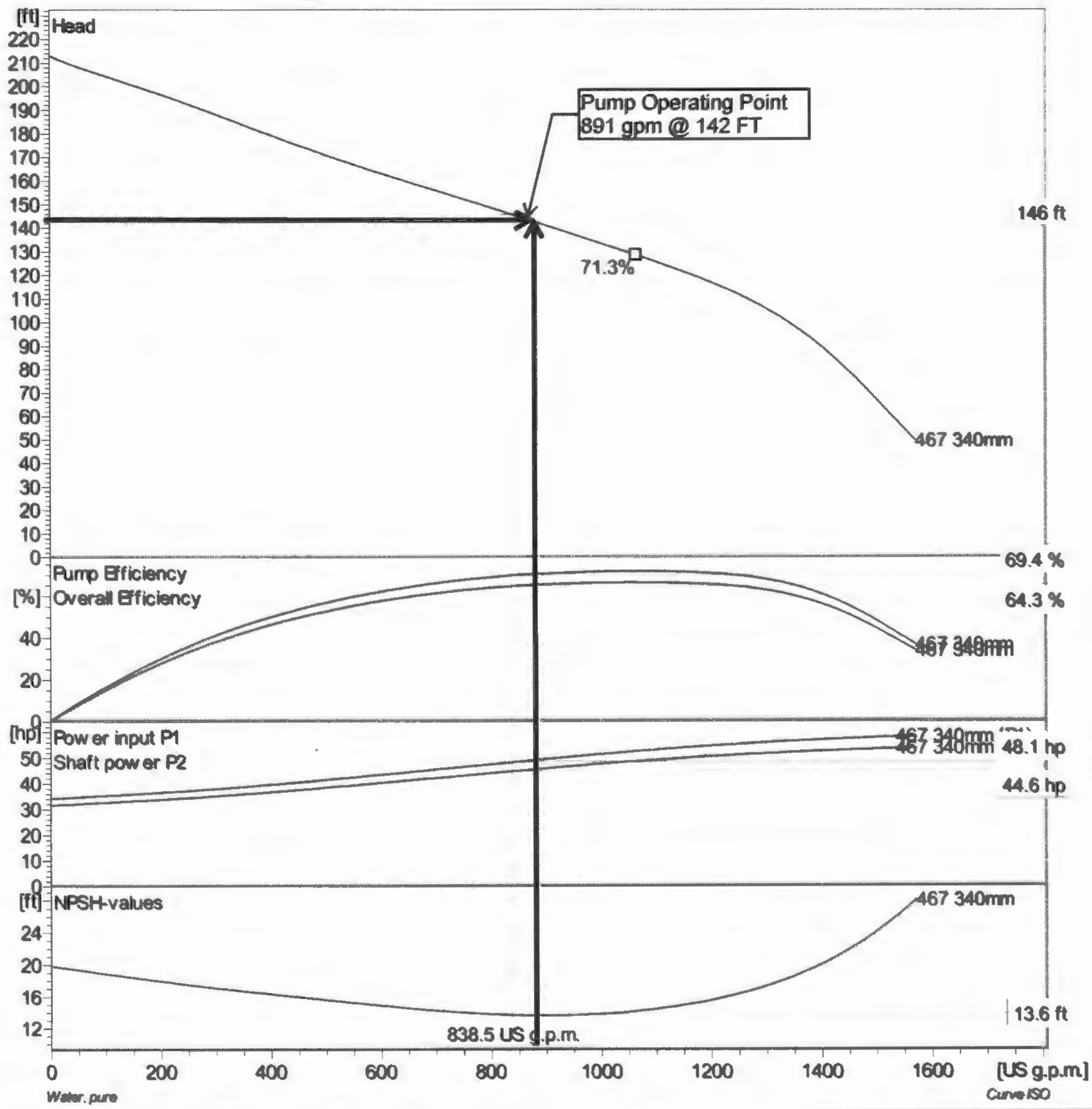
Different pumps are used for FC-1 in the short-term and long-term scenarios

FLYGT

NP 3202 HT 3~ 467

Performance curve

Pump		Motor			
Discharge Flange Diameter	3 15/16 inch	Motor #	N3202.185 30-24-4AA-W 60hp	Power factor	
Suction Flange Diameter	200 mm			1/1 Load	0.91
Impeller diameter	13⅜"	Stator variant	1	3/4 Load	0.88
Number of blades	2	Frequency	60 Hz	1/2 Load	0.82
		Rated voltage	460 V		
		Number of poles	4	Motor efficiency	
		Phases	3~	1/1 Load	91.5 %
		Rated power	60 hp	3/4 Load	92.0 %
		Rated current	68 A	1/2 Load	92.5 %
		Starting current	425 A		
		Rated speed	1770 rpm		



Duty point		Guarantee
Flow	Head	
816 US g.p.m.	138 ft	No

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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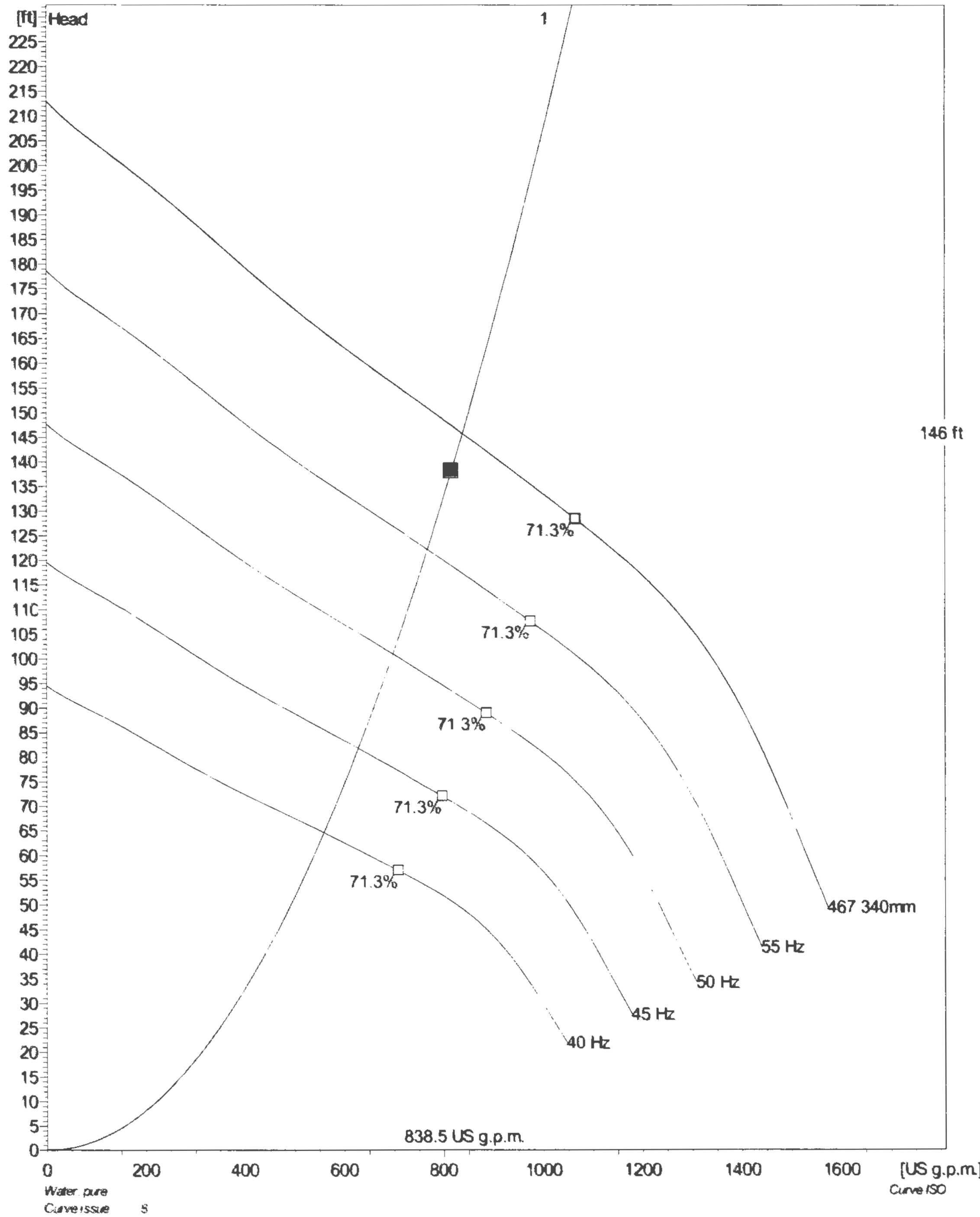
NP 3202 HT 3~ 467

FLYGT

Duty Analysis



	Individual pump			Total					
Pumps running /System	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	838 US g.p.m.	146 ft	44.6 hp	838 US g.p.m.	146 ft	44.6 hp	69.4 %	713 kWh/US MG	13.6 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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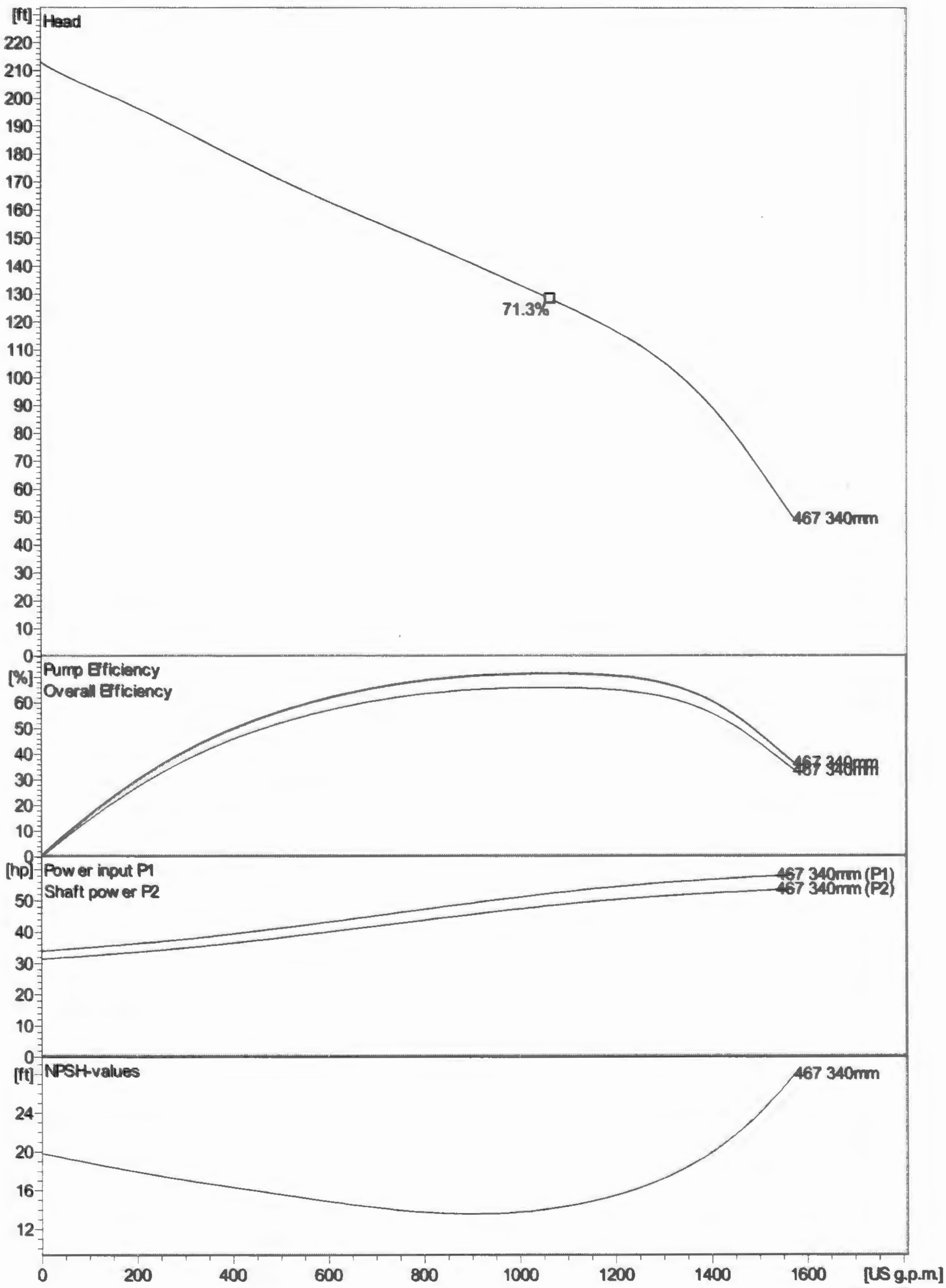
NP 3202 HT 3~ 467
VFD Curve



Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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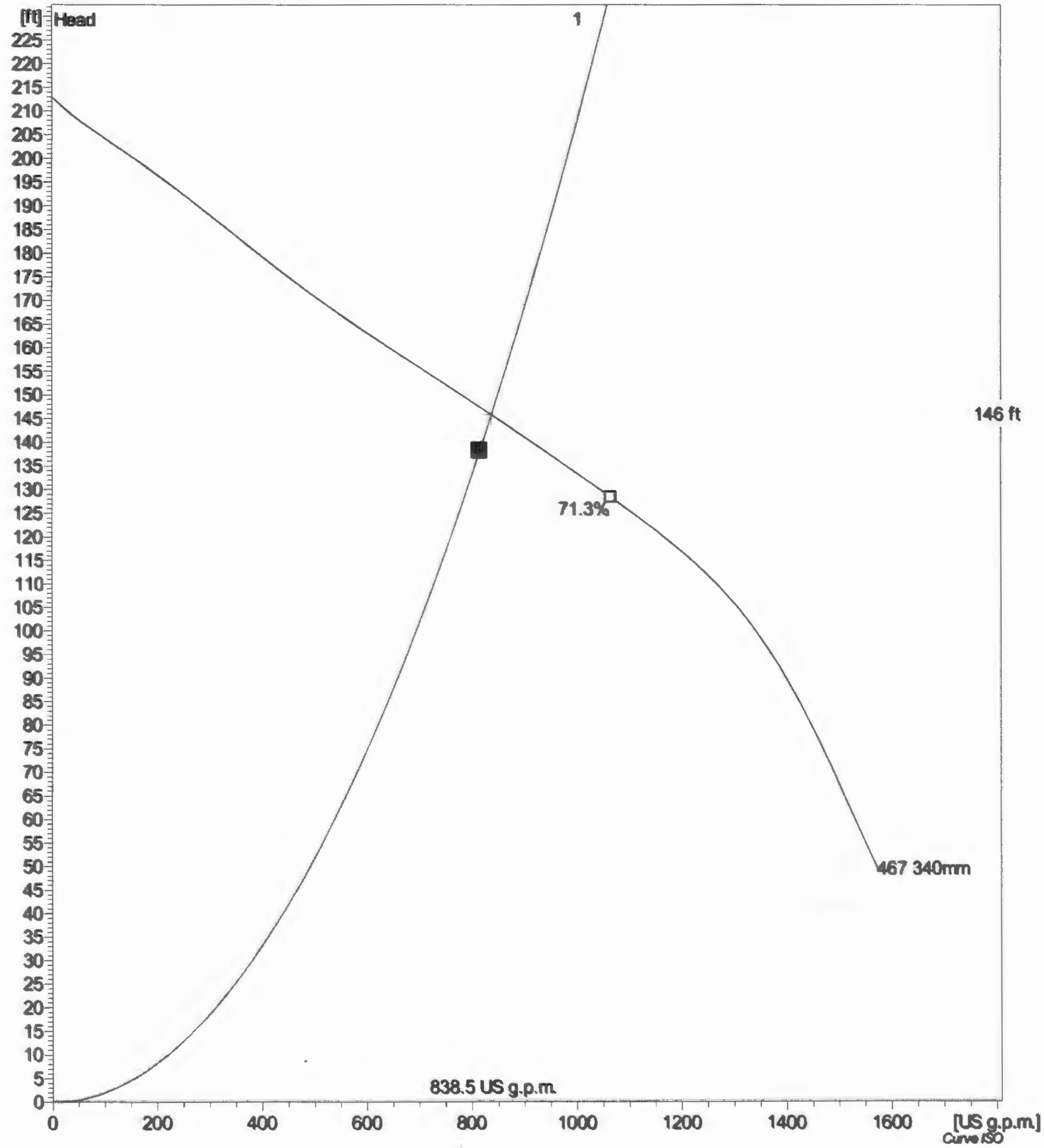
NP 3202 HT 3~ 467

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	838 US g.p.m.	146 ft	44.6 hp	838 US g.p.m.	146 ft	44.6 hp	69.4 %	713 kWh/US MG	13.6 ft
1	54.7 Hz	768 US g.p.m.	122 ft	34.2 hp	768 US g.p.m.	122 ft	34.2 hp	69.4 %	599 kWh/US MG	11.9 ft
1	49.7 Hz	698 US g.p.m.	101 ft	25.7 hp	698 US g.p.m.	101 ft	25.7 hp	69.4 %	499 kWh/US MG	10.2 ft
1	44.8 Hz	628 US g.p.m.	81.8 ft	18.7 hp	628 US g.p.m.	81.8 ft	18.7 hp	69.4 %	410 kWh/US MG	8.6 ft
1	39.8 Hz	558 US g.p.m.	64.7 ft	13.2 hp	558 US g.p.m.	64.7 ft	13.2 hp	69.4 %	332 kWh/US MG	7.12 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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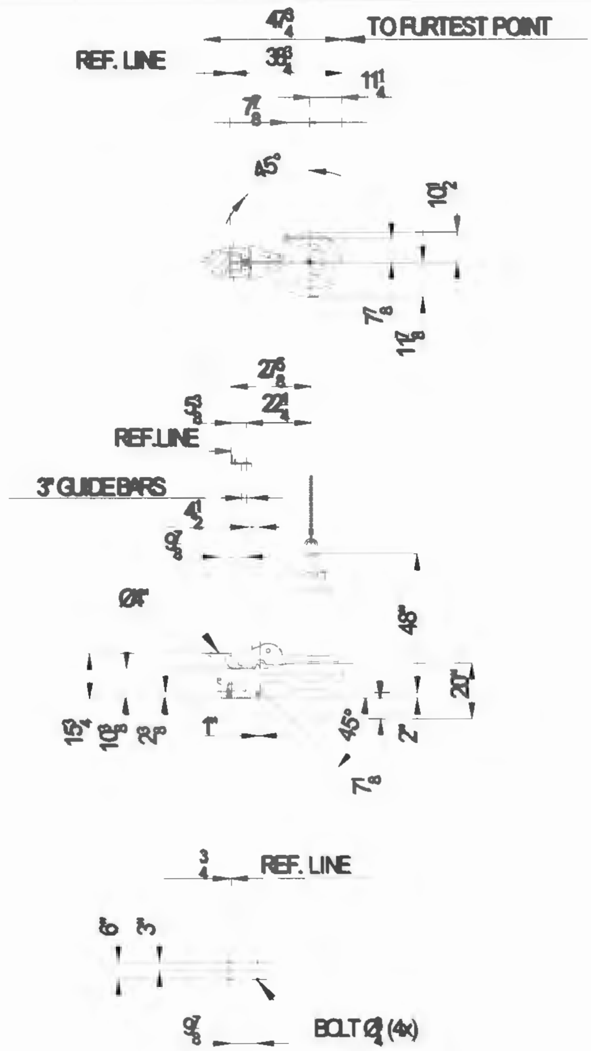
NP 3202 HT 3~ 467
Dimensional drawing



Weight (lbs)	
Pump with cooling jacket	Disch
1235	100
Pump without cooling jacket	
1125	

* DIMENSION TO ENDS OF GUIDE BARS

MIN LEVEL

AUTOCAD DRAWING | Dimensional dwg FPNP3202HT | NK | KA | 110224 | 5369 | 7011100 | 10

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

Version 10

NP 3202 HT 3~ 467

Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

Total costs

0.00 USD Energy
0.00 USD Investment costs
0.00 USD Installation & commissioning
0.00 USD Operating cost
0.00 USD Maintenance & repair
0.00 USD Downtime
0.00 USD Environmental
0.00 USD Decommissioning

0.00
USD

First year costs

0.00 USD Energy (1st year)
0.00 USD Investment costs (1st year)
0.00 USD Installation & commissioning (1st year)
0.00 USD Operating cost (1st year)
0.00 USD Maintenance & repair (1st year)
0.00 USD Downtime (1st year)
0.00 USD Environmental (1st year)
0.00 USD Decommissioning (1st year)

0.00
USD

Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

FC-2 Short-Term Lift Station Calculations

Wet Well Design Worksheet

Short-Term Flamingo East Parcel - FC2

Diameter =	12 ft
Area =	113.10 Sq ft
Vol./ft =	846.0 gal/ft
Peak Flow In=	833 gpm
Actual Pump Rate =	856 gpm

V=(QT)/4
where,

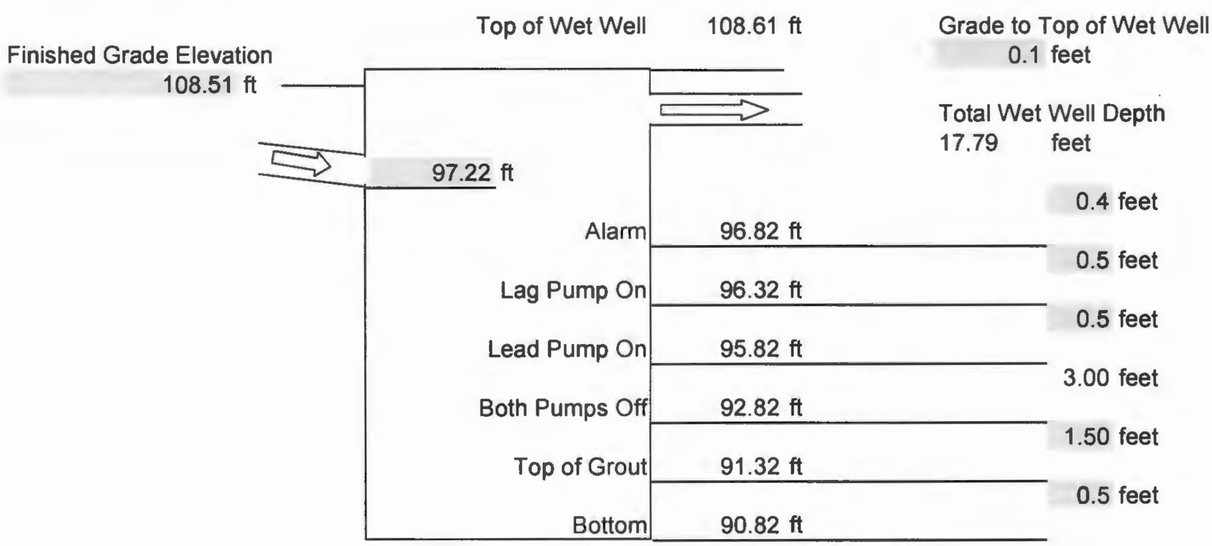
Q = Design Flow Rate =	856	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	2140.0	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	2.53	feet
Use an actual height of:	3.00	feet

Check Pump Run-Time

Actual Pump Flow Rate =	856	gpm
Run-time = Volume/ flow rate =	2.50	minutes



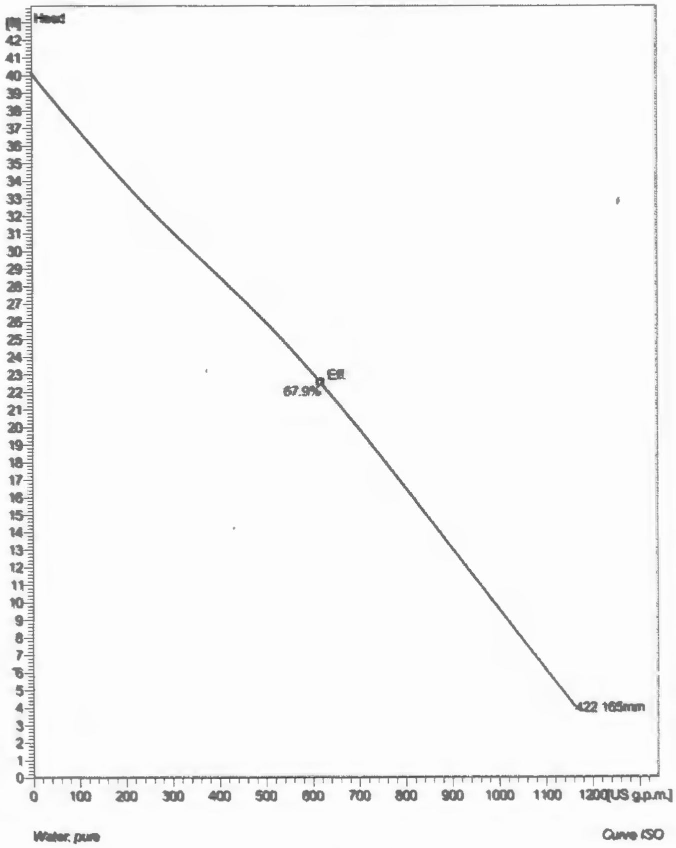
xylem

Different pumps are used for FC-2 in the short-term and long-term scenarios

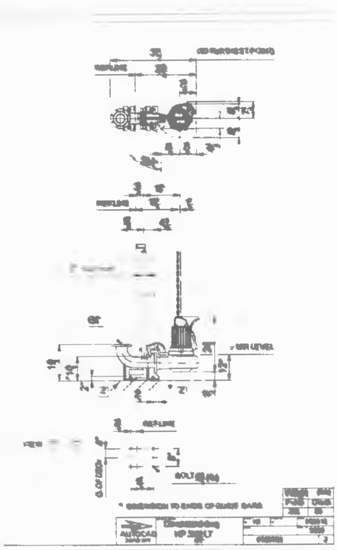
FLYGT

NP 3102 LT 3~ Adaptive 422

Technical specification



Installation: P - Semi permanent, Wet



Note: Picture might not correspond to the current configuration.

General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	3 15/16 inch
Impeller diameter	165 mm
Number of blades	2

Motor

Motor #	N3102.920 18-11-4AS-W IE3 5.5hp Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	4
Phases	3~
Rated power	5.5 hp
Rated current	6.2 A
Starting current	42 A
Rated speed	1800 rpm
Power factor	
1/1 Load	0.90
3/4 Load	0.86
1/2 Load	0.75
Motor efficiency	
1/1 Load	91.9 %
3/4 Load	91.5 %
1/2 Load	90.1 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/14/2018	

xylem

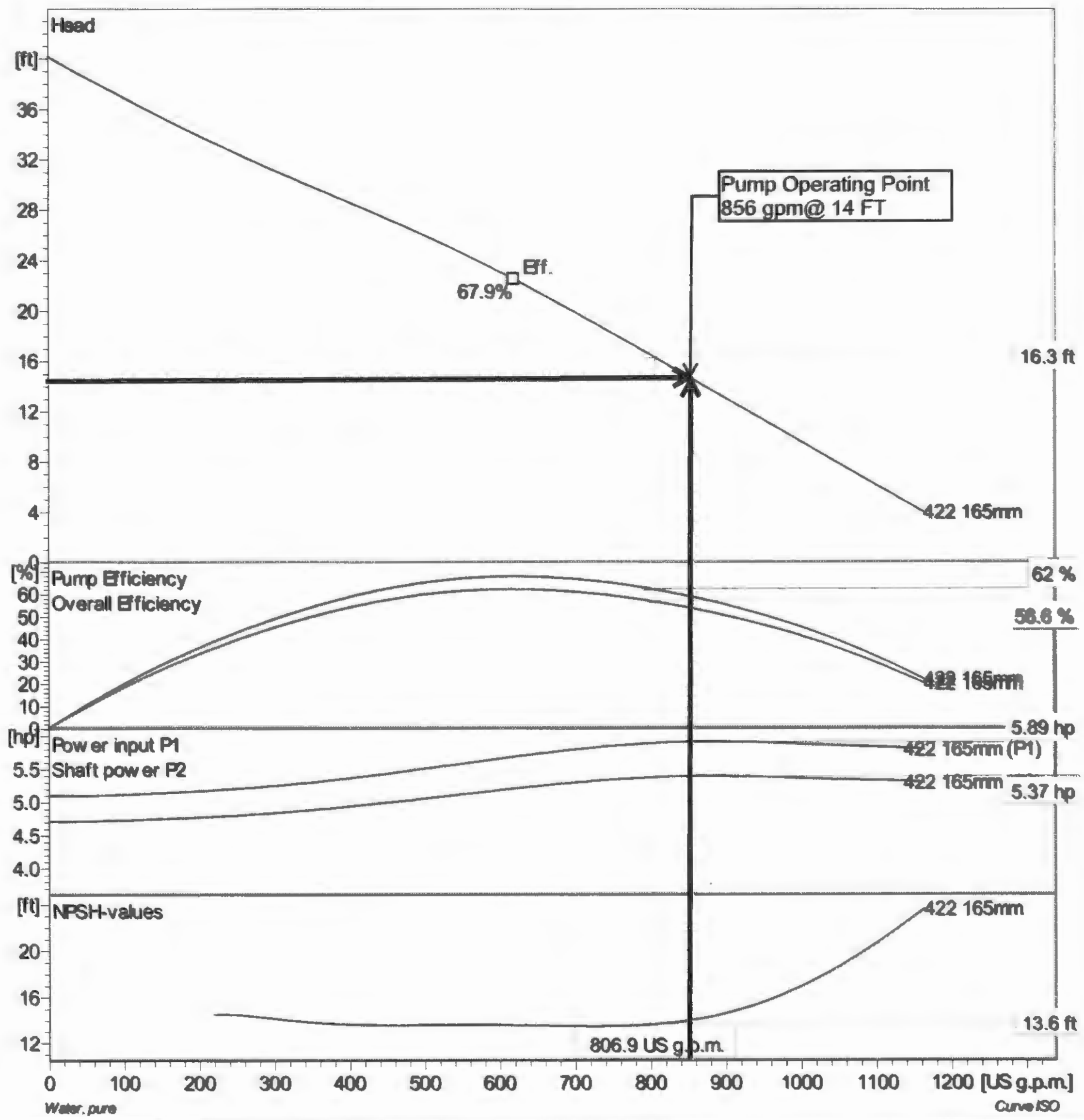
Different pumps are used for FC-2 in the short-term and long-term scenarios

FLYGT

NP 3102 LT 3~ Adaptive 422

Performance curve

Pump		**Motor**			
Discharge Flange Diameter	3 15/16 inch	Motor #	N3102.920 18-11-4AS-W IE3 5.5hp	Power factor	
Suction Flange Diameter	100 mm			1/1 Load	0.90
Impeller diameter	6½"	Stator variant	1	3/4 Load	0.86
Number of blades	2	Frequency	60 Hz	1/2 Load	0.75
		Rated voltage	460 V		
		Number of poles	4	Motor efficiency	
		Phases	3~	1/1 Load	91.9 %
		Rated power	5.5 hp	3/4 Load	91.5 %
		Rated current	6.2 A	1/2 Load	90.1 %
		Starting current	42 A		
		Rated speed	1800 rpm		



Duty point		**Guarantee**
Flow	**Head**	
833 US g.p.m.	16.8 ft	No

Project	Project ID	Created by	Created on	Last update
			2/14/2018	

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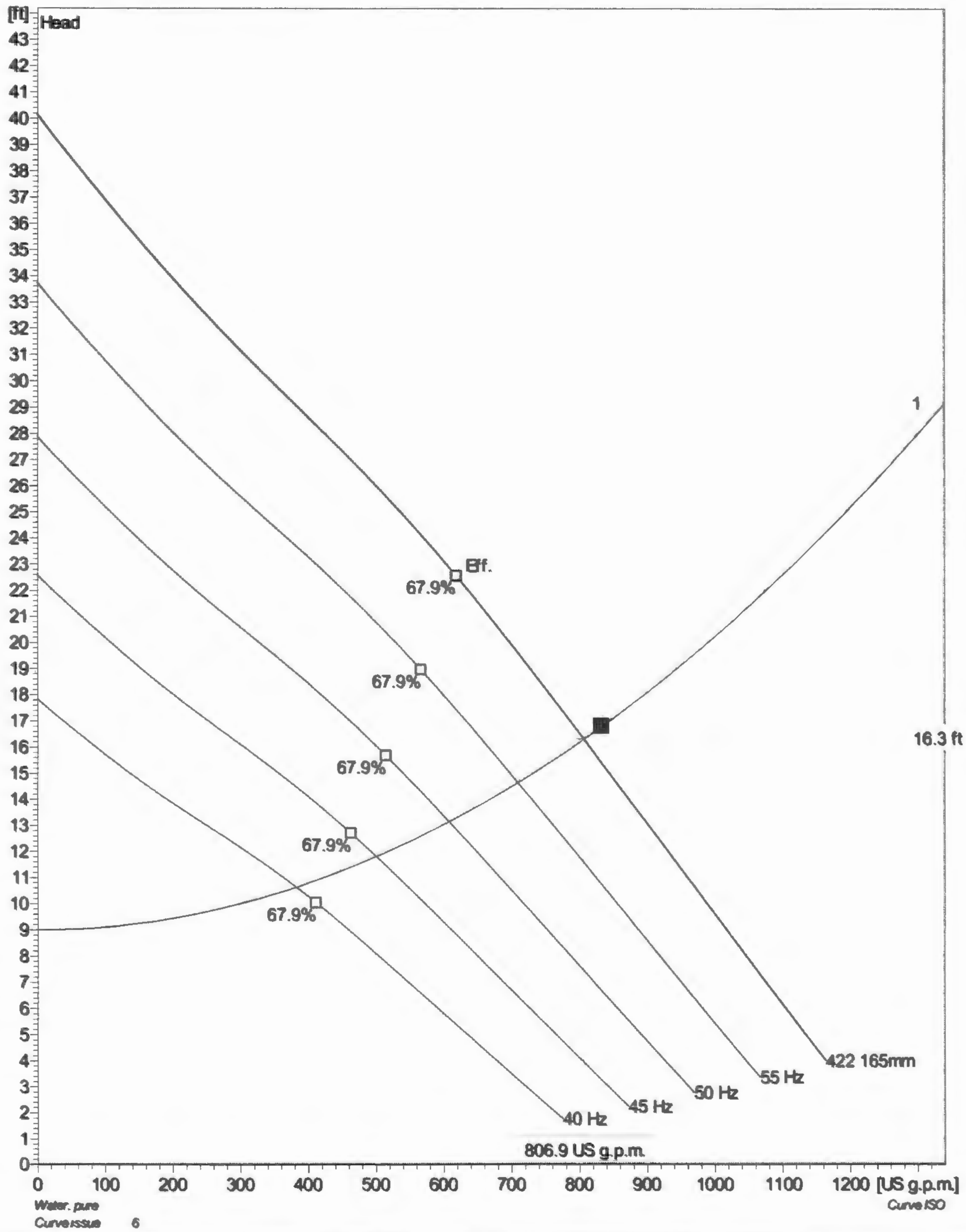
NP 3102 LT 3~ Adaptive 422

Duty Analysis



Pumps running /System	Individual pump Flow	Head	Shaft power	Total Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	807 US g.p.m.	16.3 ft	5.37 hp	807 US g.p.m.	16.3 ft	5.37 hp	62 %	90.7 kWh/US MG	13.6 ft

Project	Project ID	Created by	Created on	Last update
			2/14/2018	

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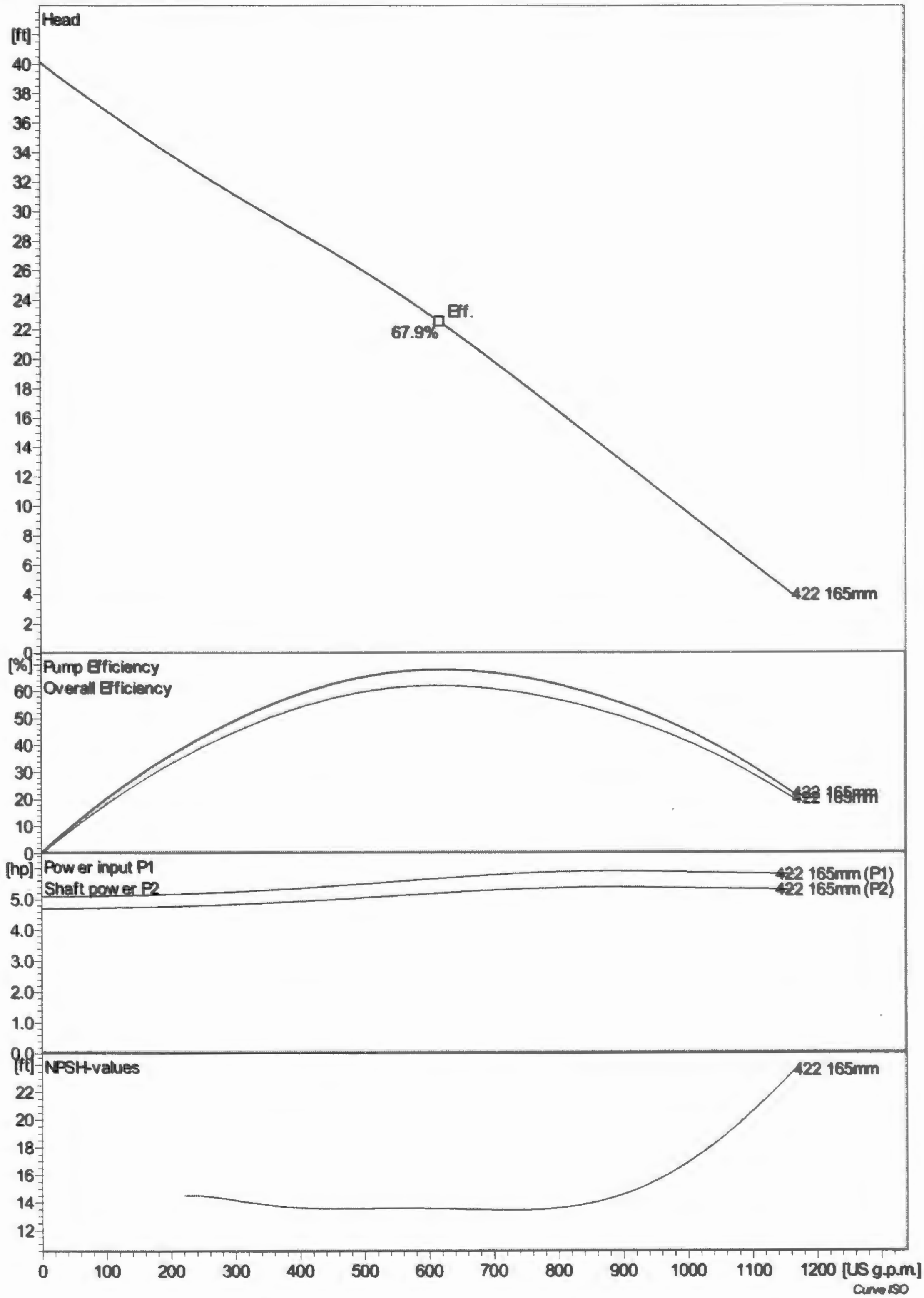
NP 3102 LT 3~ Adaptive 422
VFD Curve

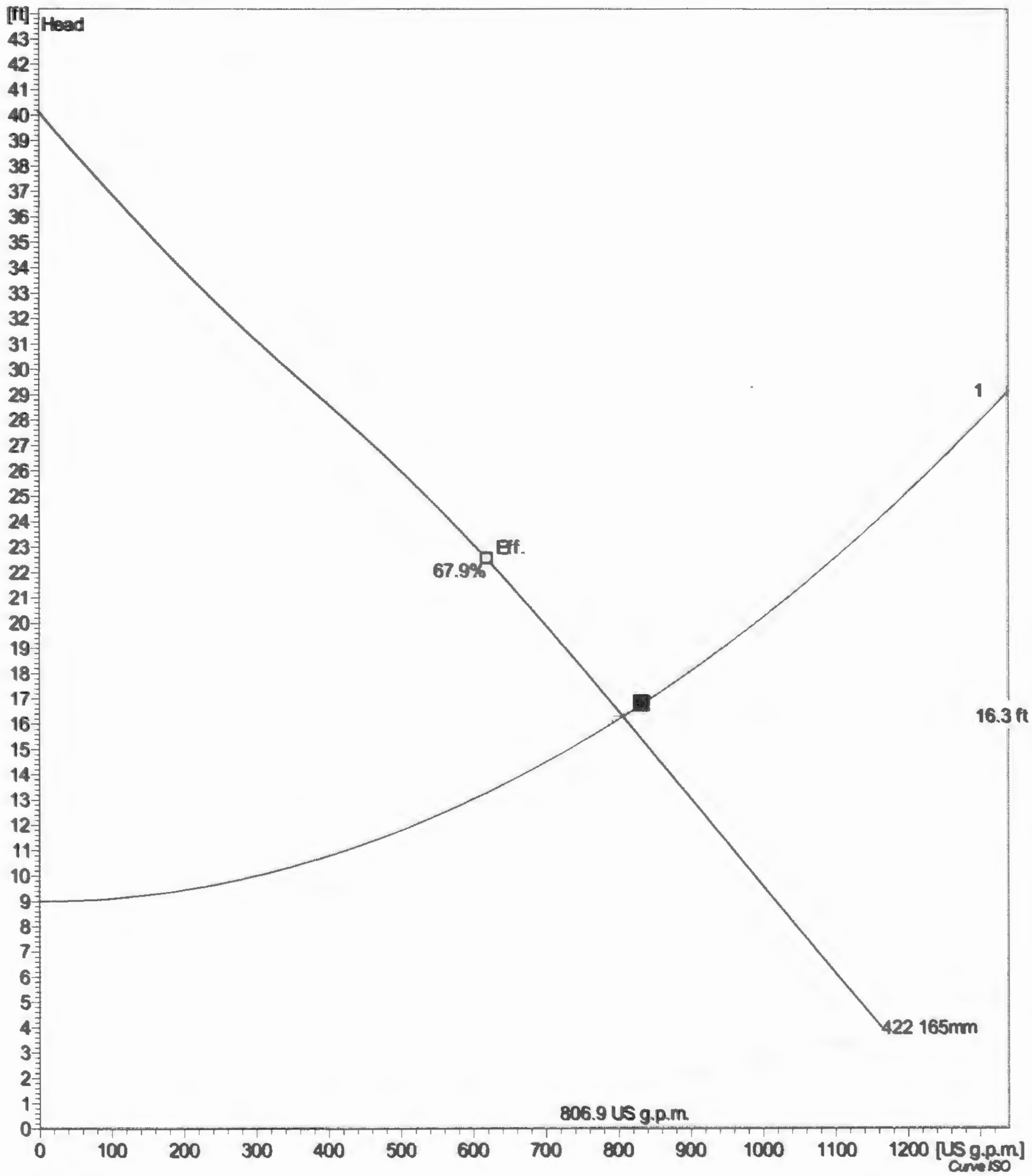


Project	Project ID	Created by	Created on	Last update
			2/14/2018	

xylem

NP 3102 LT 3~ Adaptive 422

VFD Analysis



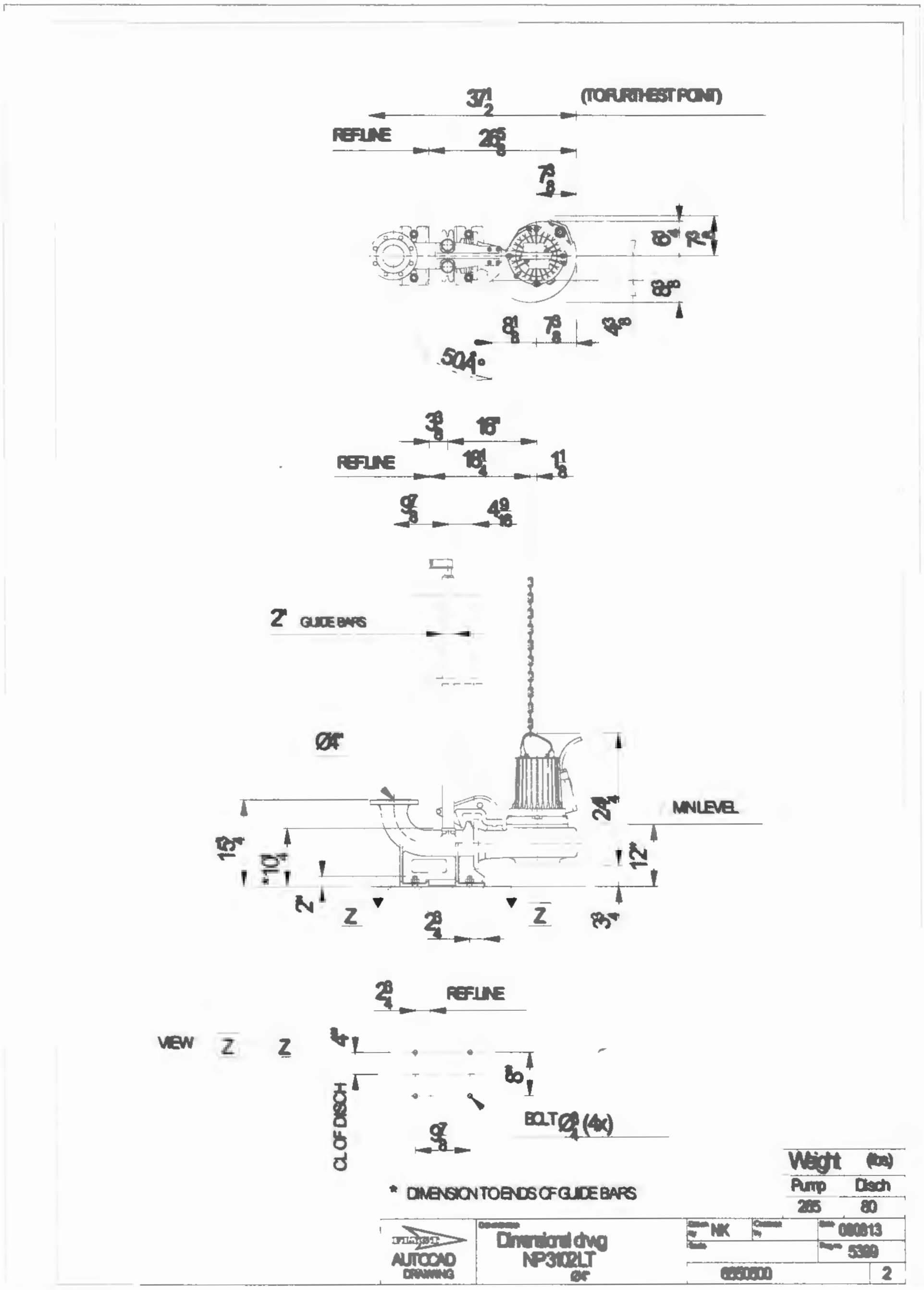
Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	807 US g.p.m.	16.3 ft	5.37 hp	807 US g.p.m.	16.3 ft	5.37 hp	62 %	90.7 kWh/US MG	13.6 ft
1	55 Hz	710 US g.p.m.	14.7 ft	4.12 hp	710 US g.p.m.	14.7 ft	4.12 hp	63.8 %	78 kWh/US MG	11.7 ft
1	50 Hz	608 US g.p.m.	13.2 ft	3.08 hp	608 US g.p.m.	13.2 ft	3.08 hp	65.7 %	70 kWh/US MG	10 ft
1	45 Hz	501 US g.p.m.	11.8 ft	2.22 hp	501 US g.p.m.	11.8 ft	2.22 hp	67.4 %	63 kWh/US MG	8.52 ft
1	40 Hz	382 US g.p.m.	10.6 ft	1.52 hp	382 US g.p.m.	10.6 ft	1.52 hp	67.5 %	56.7 kWh/US MG	7.1 ft

Project	Project ID	Created by	Created on	Last update
			2/14/2018	

xylem

NP 3102 LT 3~ Adaptive 422

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			2/14/2018	

FC-2 Long-Term Lift Station Calculations

Wet Well Design Worksheet

Long-Term Flamingo East Parcel - FC2

Diameter =	12	ft
Area =	113.10	Sq ft
Vol./ft =	846.0	gal/ft
Peak Flow In=	833	gpm
Actual Pump Rate =	907	gpm

V=(QT)/4
where,

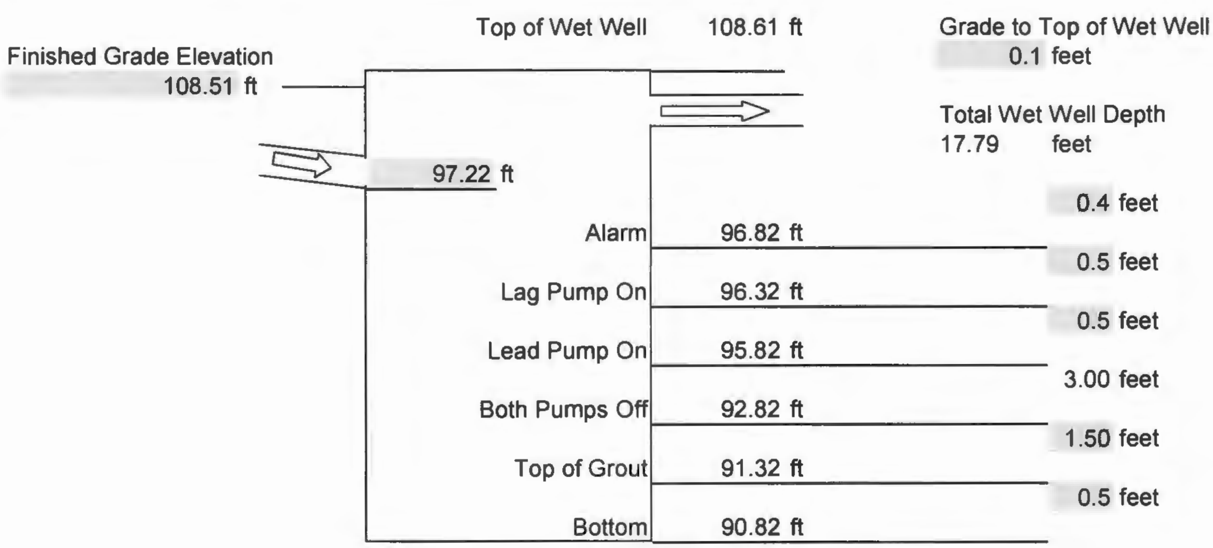
Q = Design Flow Rate =	907	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	2267.6	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	2.7	feet
Use an actual height of:	3.0	feet

Check Pump Run-Time

Actual Pump Flow Rate =	907	gpm
Run-time = Volume/ flow rate =	2.50	minutes



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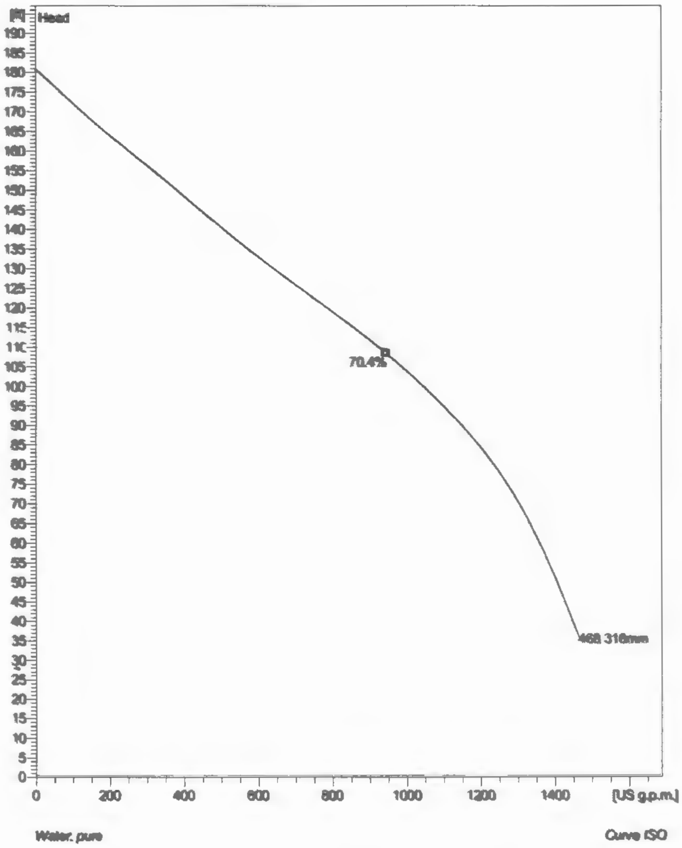
Different pumps are used for FC-2 in the short-term and long-term scenarios

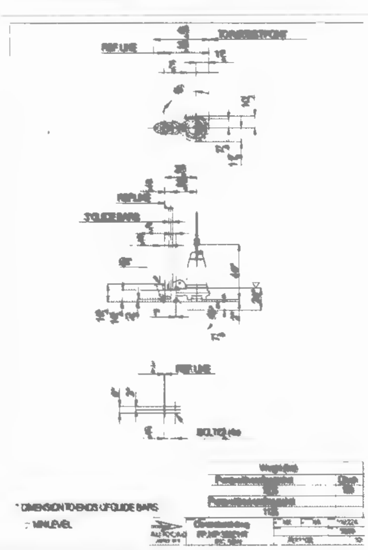
FLYGT

NP 3202 HT 3~ 468

Technical specification



Installation: P - Semi permanent, Wet



Note: Picture might not correspond to the current configuration.

General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	7 7/8 inch
Impeller diameter	316 mm
Number of blades	2

Motor

Motor #	N3202.185 30-19-4AA-W 45hp Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	4
Phases	3~
Rated power	45 hp
Rated current	52 A
Starting current	365 A
Rated speed	1775 rpm
Power factor	
1/1 Load	0.89
3/4 Load	0.85
1/2 Load	0.77
Motor efficiency	
1/1 Load	91.0 %
3/4 Load	91.5 %
1/2 Load	91.0 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

xylem

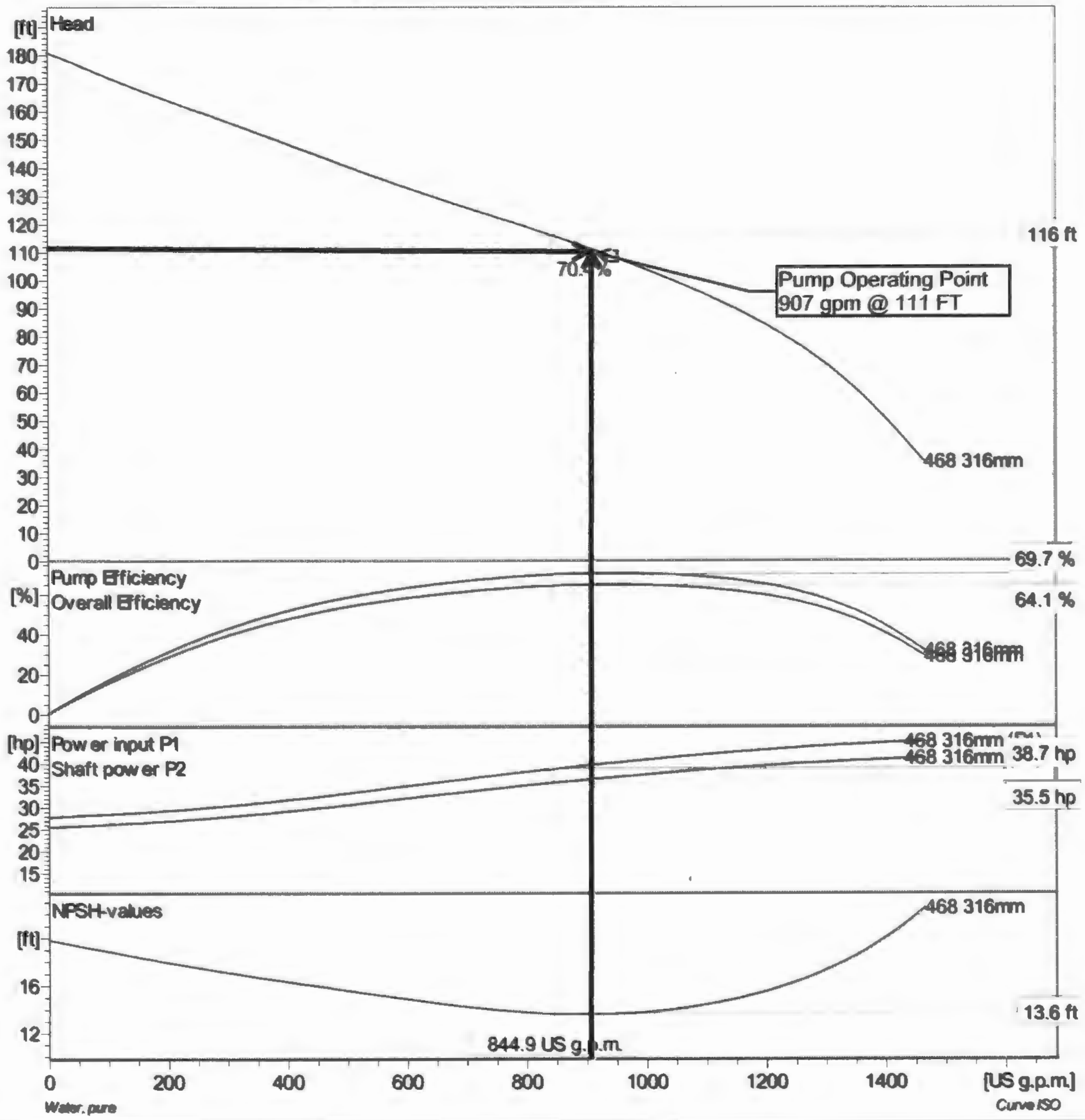
Different pumps are used for FC-2 in the short-term and long-term scenarios

NP 3202 HT 3~ 468

Performance curve

FLYGT

Pump		Motor			
Discharge Flange Diameter	3 15/16 inch	Motor #	N3202.185 30-19-4AA-W 45hp	Power factor	
Suction Flange Diameter	200 mm			1/1 Load	0.89
Impeller diameter	12 7/16"	Stator variant	1	3/4 Load	0.85
Number of blades	2	Frequency	60 Hz	1/2 Load	0.77
		Rated voltage	460 V		
		Number of poles	4	Motor efficiency	
		Phases	3~	1/1 Load	91.0 %
		Rated power	45 hp	3/4 Load	91.5 %
		Rated current	52 A	1/2 Load	91.0 %
		Starting current	365 A		
		Rated speed	1775 rpm		



Duty point		Guarantee
Flow	Head	
833 US g.p.m.	113 ft	No

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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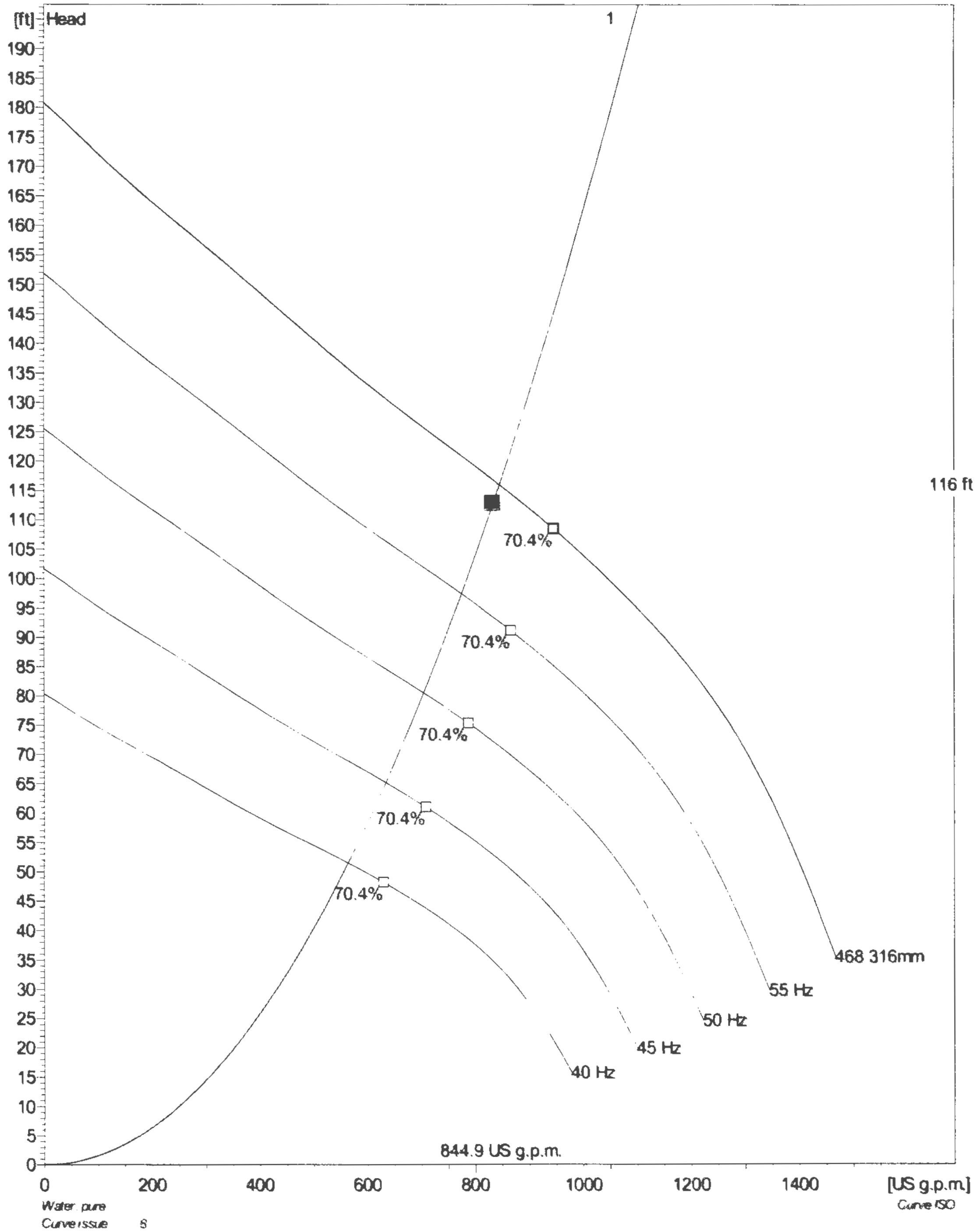
NP 3202 HT 3~ 468
Duty Analysis



	Individual pump			Total					
Pumps running /System	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	845 US g.p.m.	116 ft	35.5 hp	845 US g.p.m.	116 ft	35.5 hp	69.7 %	569 kWh/US MG	13.6 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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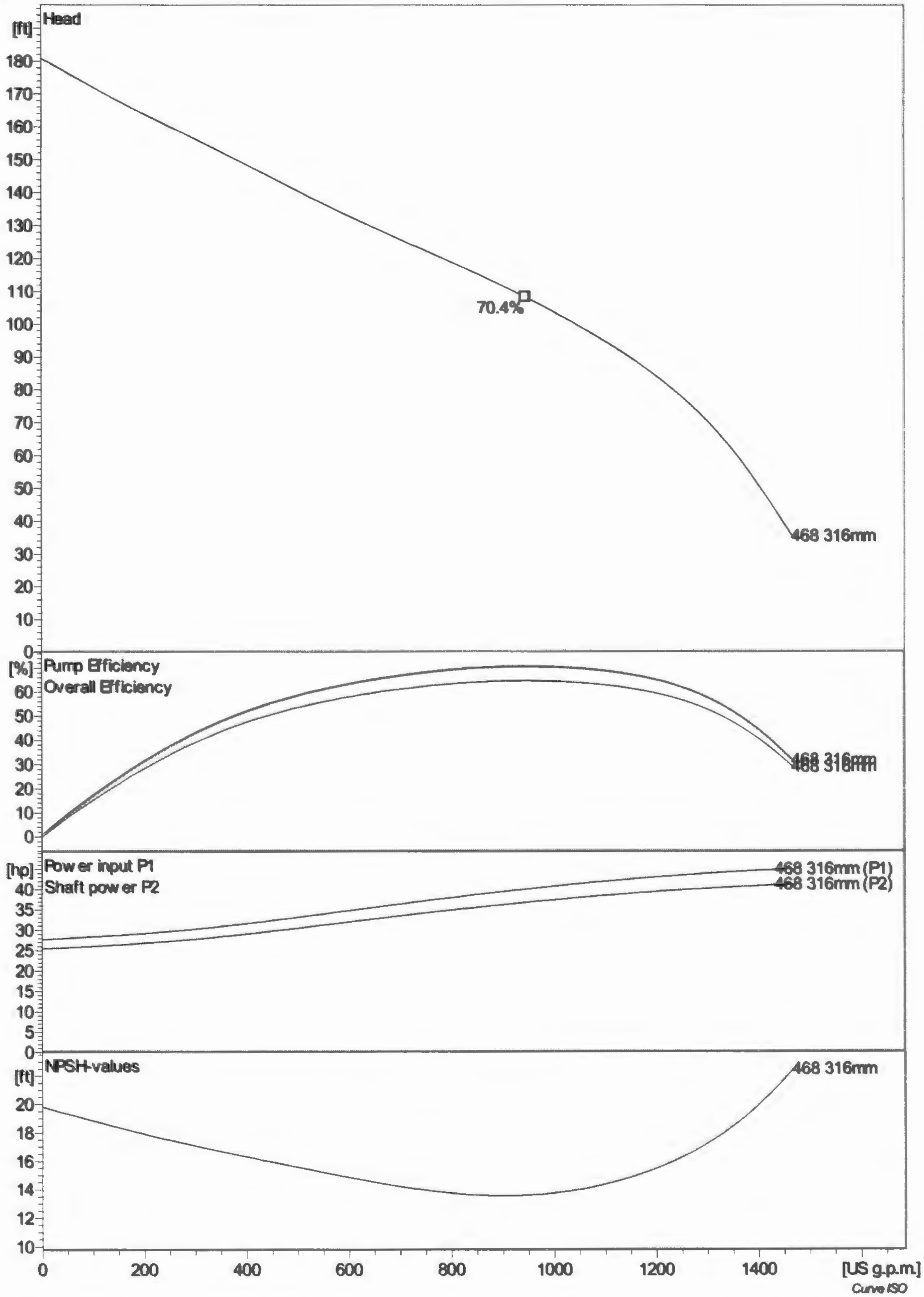
NP 3202 HT 3~ 468

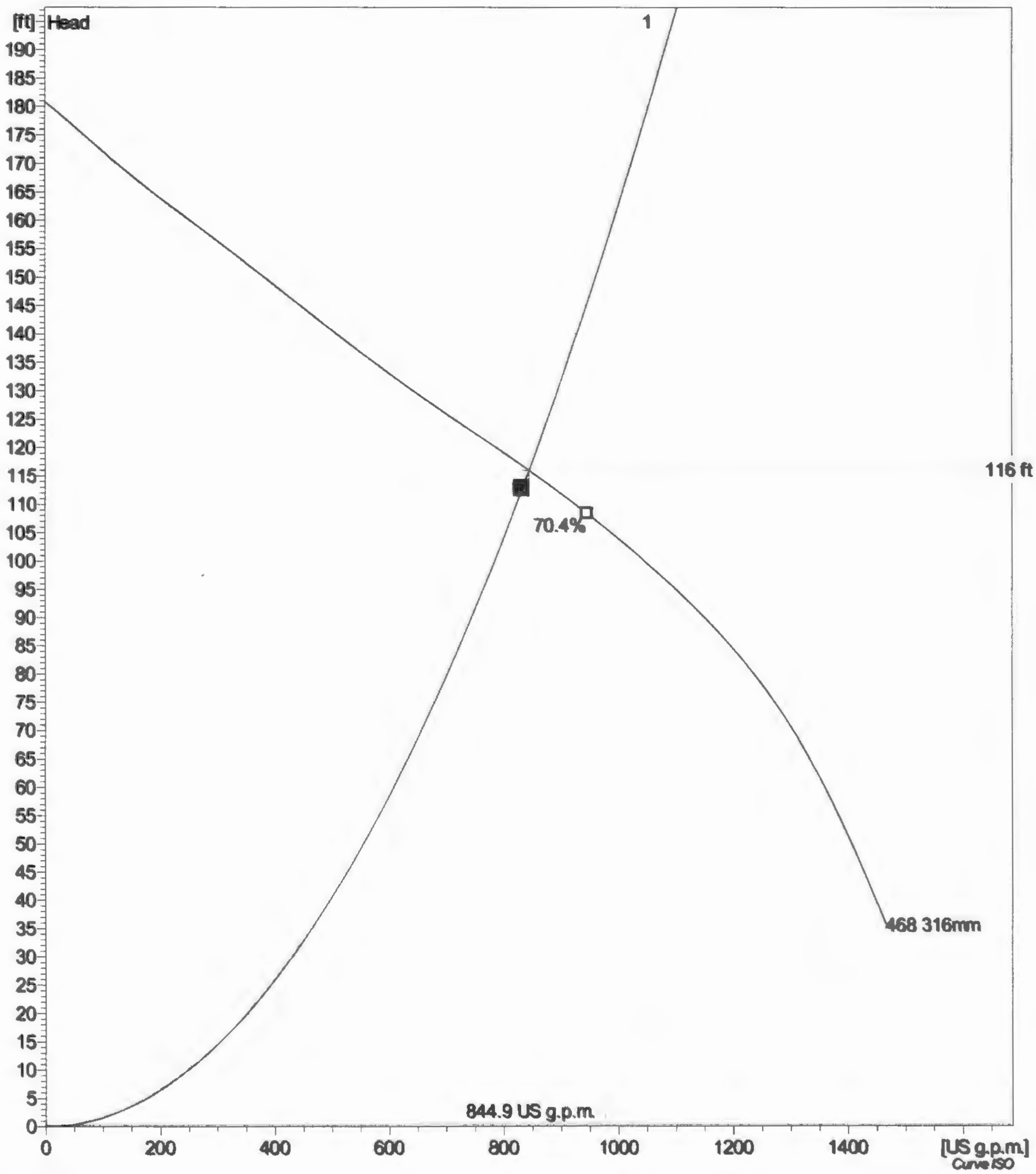
VFD Curve



Project	Project ID	Created by	Created on	Last update
			2/21/2018	

NP 3202 HT 3~ 468

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	845 US g.p.m.	116 ft	35.5 hp	845 US g.p.m.	116 ft	35.5 hp	69.7 %	569 kWh/US MG	13.6 ft
1	55 Hz	775 US g.p.m.	97.4 ft	27.4 hp	775 US g.p.m.	97.4 ft	27.4 hp	69.7 %	478 kWh/US MG	11.9 ft
1	50 Hz	704 US g.p.m.	80.5 ft	20.6 hp	704 US g.p.m.	80.5 ft	20.6 hp	69.7 %	399 kWh/US MG	10.2 ft
1	45 Hz	634 US g.p.m.	65.2 ft	15 hp	634 US g.p.m.	65.2 ft	15 hp	69.7 %	328 kWh/US MG	8.6 ft
1	40 Hz	563 US g.p.m.	51.5 ft	10.5 hp	563 US g.p.m.	51.5 ft	10.5 hp	69.7 %	267 kWh/US MG	7.12 ft

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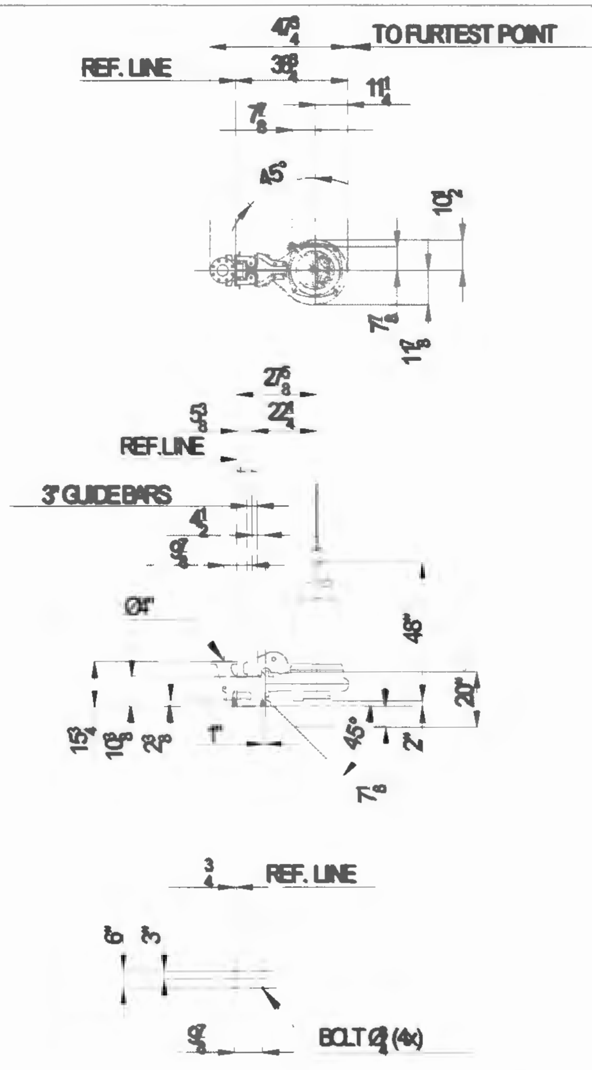
NP 3202 HT 3~ 468
Dimensional drawing



Weight (lbs)	
Pump with cooling jacket	Disch
1235	100
Pump without cooling jacket	
1125	

* DIMENSION TO ENDS OF GUIDE BARS

MIN LEVEL

AUTOCAD DRAWING

Dimensional dwg FP.NP3202HT

NK KA 110224

5399

7011100 10

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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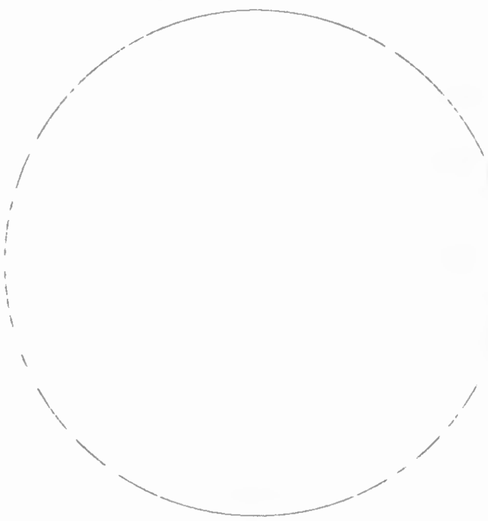
Version 10

NP 3202 HT 3~ 468

Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

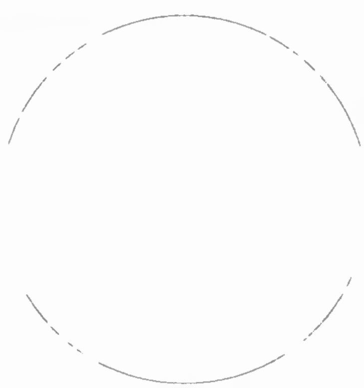
Total costs



0% **0.00 USD** Energy
0.00 USD Investment costs
0% **0.00 USD** Installation & commissioning
0% **0.00 USD** Operating cost
0% **0.00 USD** Maintenance & repair
0% **0.00 USD** Downtime
0% **0.00 USD** Environmental
0% **0.00 USD** Decommissioning

0.00 USD

First year costs



0% **0.00 USD** Energy (1st year)
0.00 USD Investment costs (1st year)
0% **0.00 USD** Installation & commissioning (1st year)
0% **0.00 USD** Operating cost (1st year)
0% **0.00 USD** Maintenance & repair (1st year)
0% **0.00 USD** Downtime (1st year)
0% **0.00 USD** Environmental (1st year)
0% **0.00 USD** Decommissioning (1st year)

0.00 USD

Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xyleminc can therefore not guarantee that the estimated savings will actually occur.

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

BI-N Long-Term Lift Station Calculations

Wet Well Design Worksheet

Long-Term Flamingo East Parcel - BI-N

Diameter =	6	ft
Area =	28.27	Sq ft
Vol./ft =	211.5	gal/ft
Peak Flow In=	318	gpm
Actual Pump Rate =	395	gpm

V=(QT)/4
where,

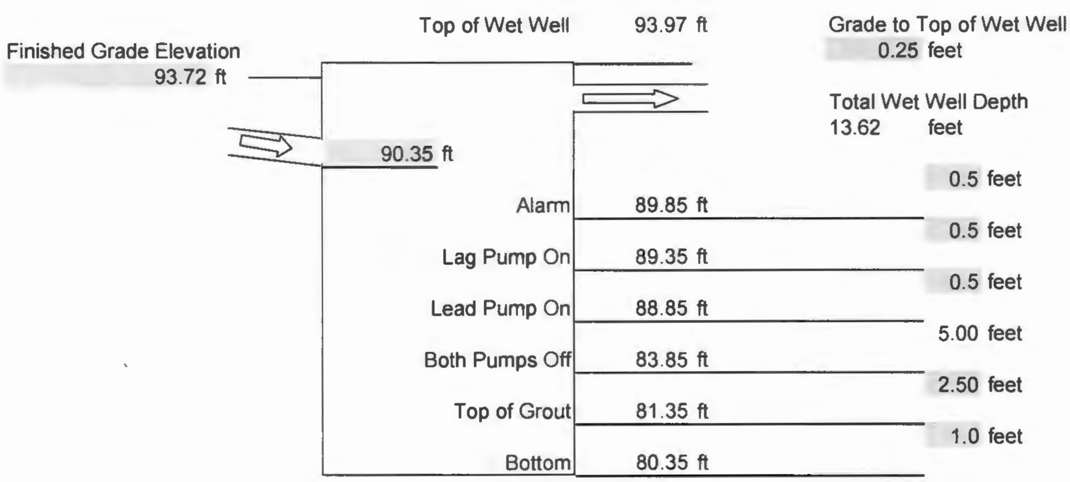
Q = Design Flow Rate =	395	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	987.5	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	4.67	feet
Use an actual height of:	5.00	feet

Check Pump Run-Time

Actual Pump Flow Rate =	395	gpm
Run-time = Volume/ flow rate =	2.50	minutes



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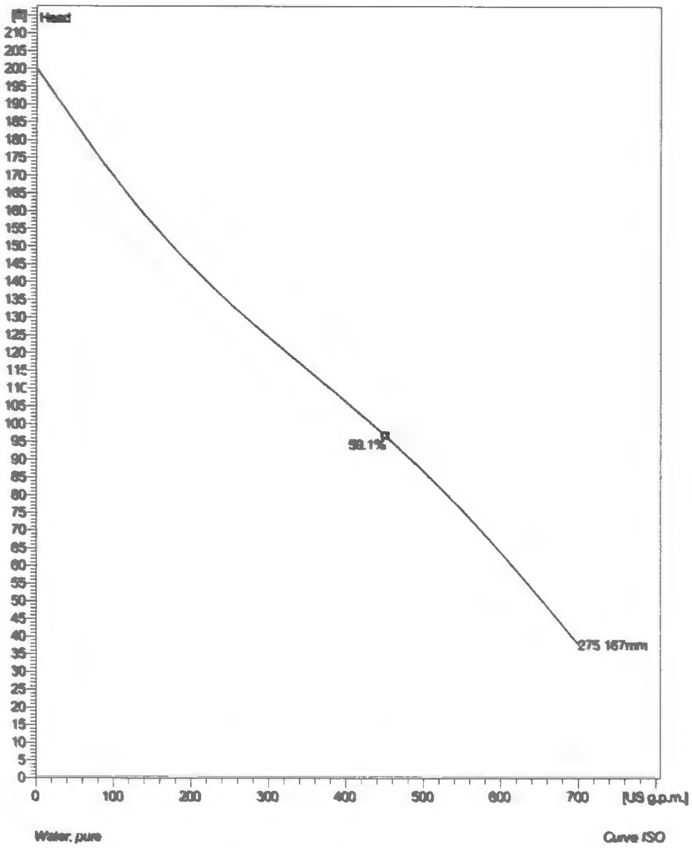
NP 3153 SH 3~ 275

Technical specification



Note: Picture might not correspond to the current configuration.

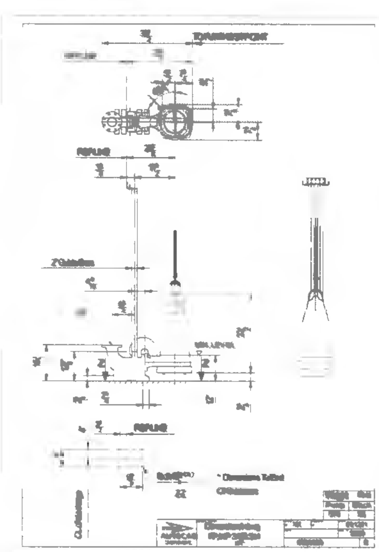
General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	150 mm
Impeller diameter	167 mm
Number of blades	2

Installation: **P - Semi permanent, Wet**



Motor

Motor #	N3153.185 21-18-2BB-W 23hp
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	2
Phases	3~
Rated power	23 hp
Rated current	26 A
Starting current	215 A
Rated speed	3510 rpm
Power factor	
1/1 Load	0.90
3/4 Load	0.87
1/2 Load	0.79
Pump Efficiency	
1/1 Load	91.0 %
3/4 Load	91.5 %
1/2 Load	91.5 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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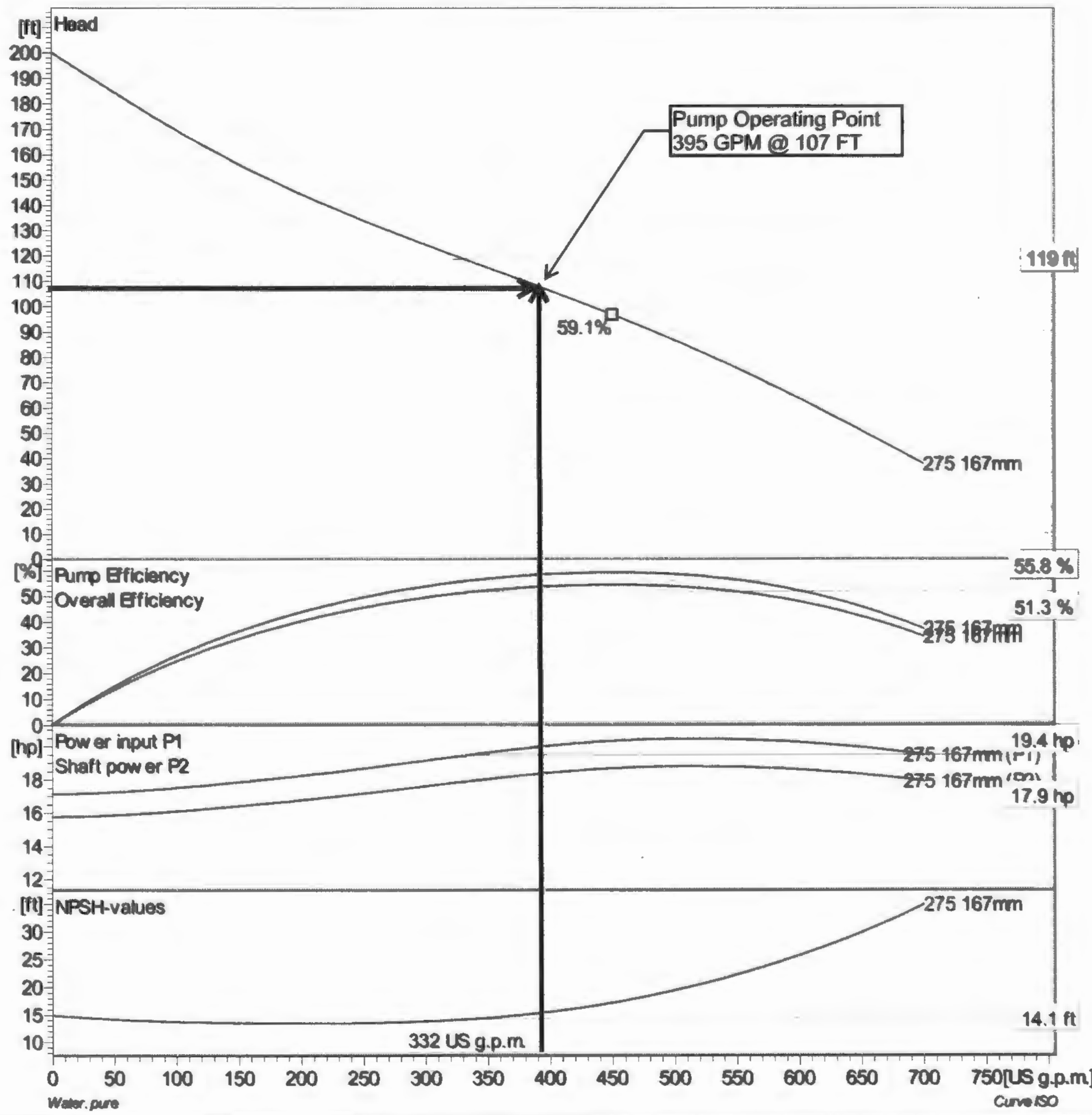
NP 3153 SH 3~ 275

Performance curve

Pump		Motor			
Discharge Flange Diameter	3 15/16 inch	Motor #	N3153.185 21-18-2BB-W 23hp	Power factor	
Suction Flange Diameter	150 mm	Stator variant	1	1/1 Load	0.90
Impeller diameter	6⁹⁄₁₆"	Frequency	60 Hz	3/4 Load	0.87
Number of blades	2	Rated voltage	460 V	1/2 Load	0.79
		Number of poles	2	Pump Efficiency	
		Phases	3~	1/1 Load	91.0 %
		Rated power	23 hp	3/4 Load	91.5 %
		Rated current	26 A	1/2 Load	91.5 %
		Starting current	215 A		
		Rated speed	3510 rpm		



Duty point		Guarantee
Flow	Head	
318 US g.p.m.	108 ft	No

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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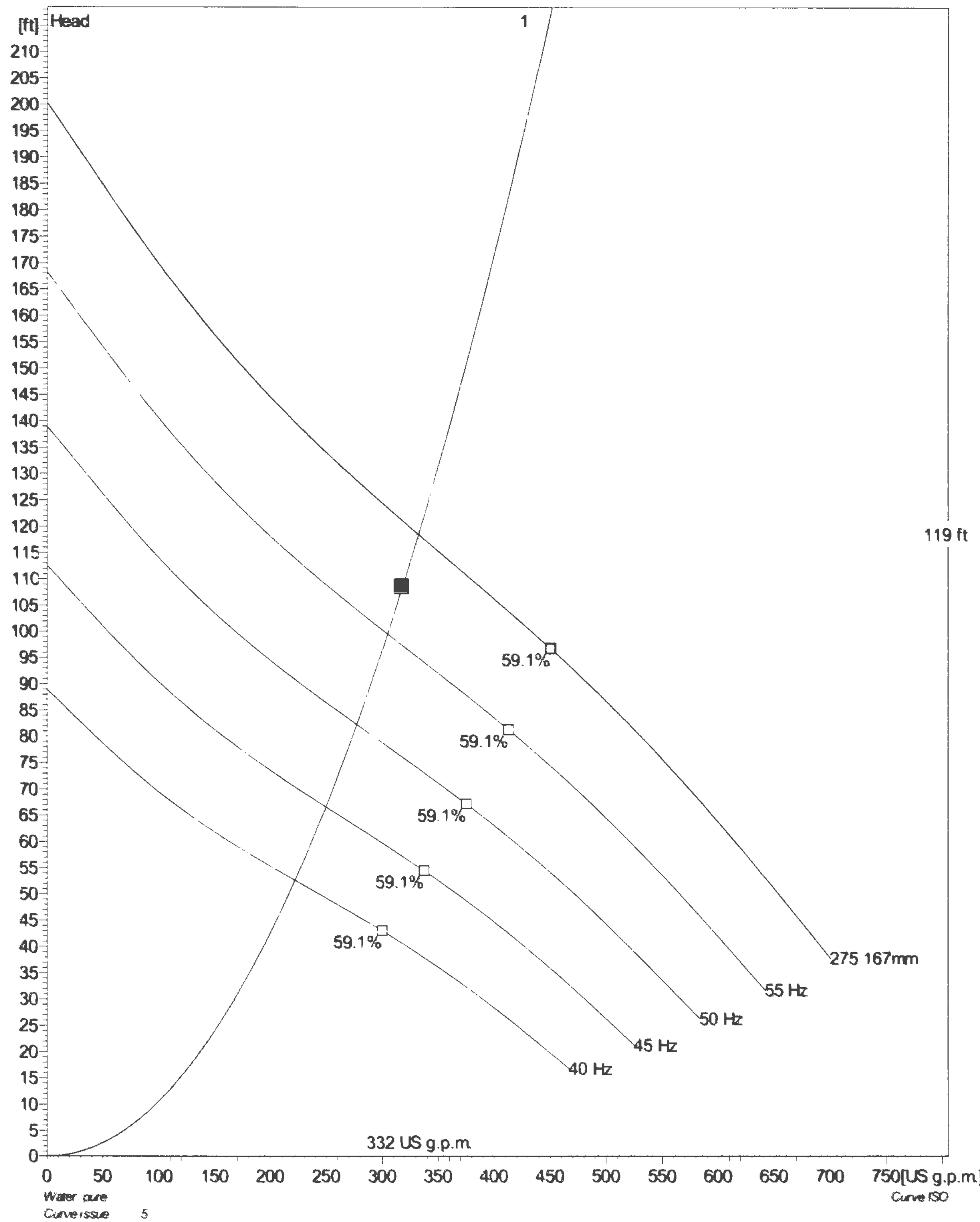
NP 3153 SH 3~ 275

Duty Analysis



Pumps running /System	Individual pump Flow	Head	Shaft power	Total Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	332 US g.p.m.	119 ft	17.9 hp	332 US g.p.m.	119 ft	17.9 hp	55.8 %	727 kWh/US MG	14.1 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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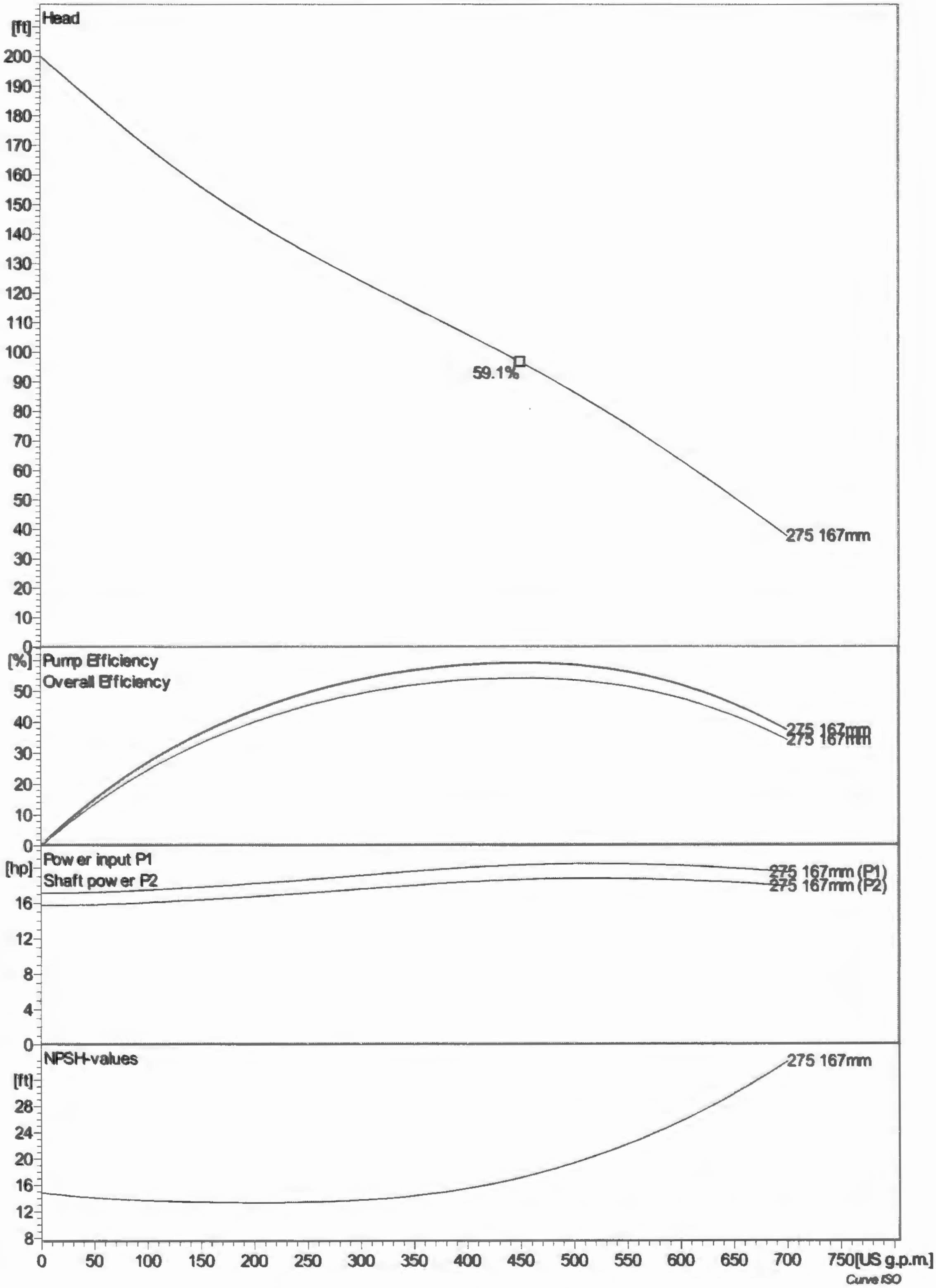
NP 3153 SH 3~ 275

VFD Curve

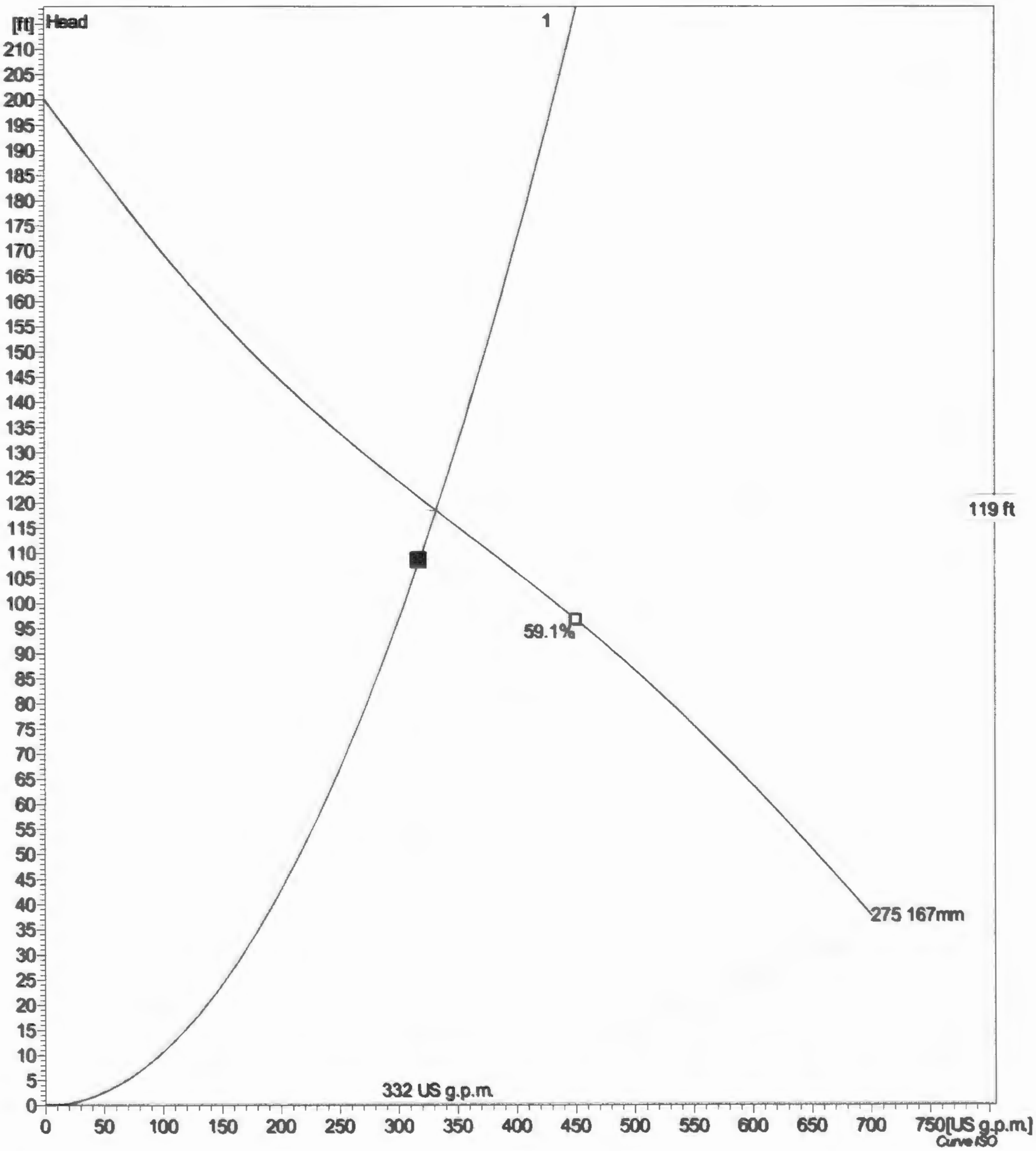


Project	Project ID	Created by	Created on	Last update
			2/21/2018	

xylem

NP 3153 SH 3~ 275

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	332 US g.p.m.	119 ft	17.9 hp	332 US g.p.m.	119 ft	17.9 hp	55.8 %	727 kWh/US MG	14.1 ft
1	55 Hz	305 US g.p.m.	99.6 ft	13.8 hp	305 US g.p.m.	99.6 ft	13.8 hp	55.8 %	612 kWh/US MG	12.3 ft
1	50 Hz	277 US g.p.m.	82.3 ft	10.3 hp	277 US g.p.m.	82.3 ft	10.3 hp	55.8 %	509 kWh/US MG	10.6 ft
1	45 Hz	249 US g.p.m.	66.7 ft	7.54 hp	249 US g.p.m.	66.7 ft	7.54 hp	55.8 %	417 kWh/US MG	8.92 ft
1	40 Hz	222 US g.p.m.	52.7 ft	5.3 hp	222 US g.p.m.	52.7 ft	5.3 hp	55.8 %	338 kWh/US MG	7.38 ft

Project .	Project ID	Created by	Created on	Last update
			2/21/2018	

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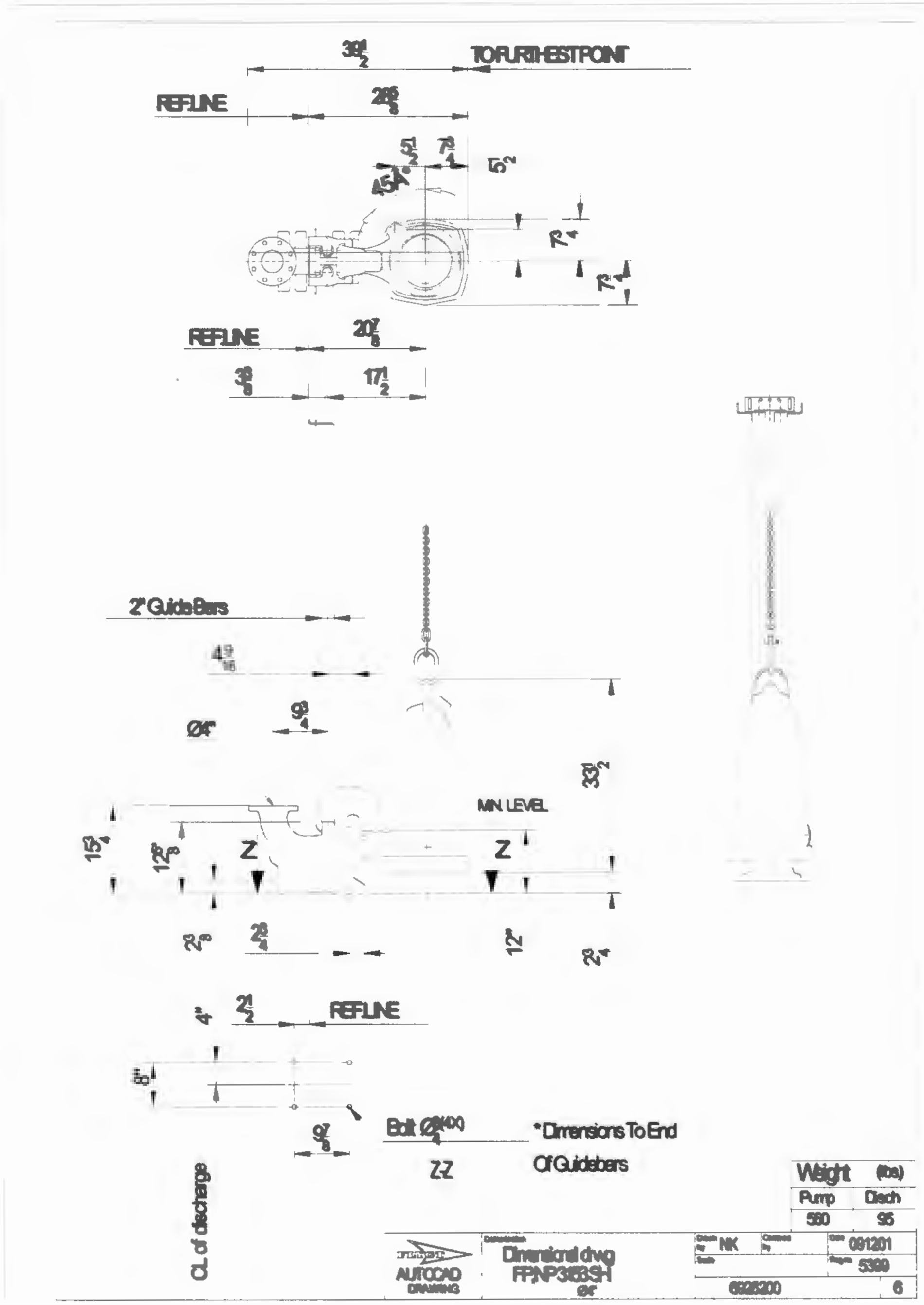
NP 3153 SH 3~ 275
Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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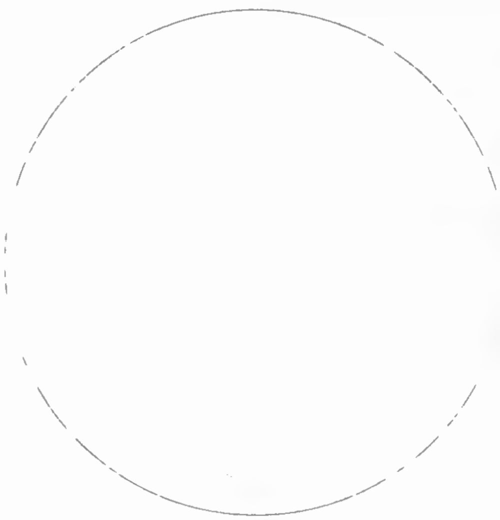
Version 10

NP 3153 SH 3~ 275

Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

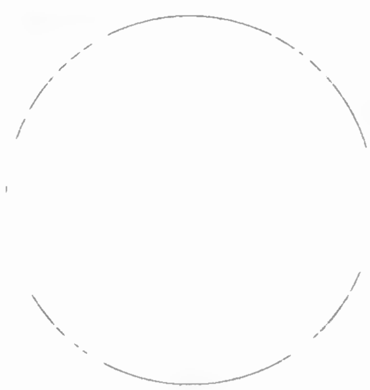
Total costs



0.00 USD Energy
0.00 USD Investment costs
0.00 USD Installation & commissioning
0.00 USD Operating cost
0.00 USD Maintenance & repair
0.00 USD Downtime
0.00 USD Environmental
0.00 USD Decommissioning

0.00
USD

First year costs



0.00 USD Energy (1st year)
0.00 USD Investment costs (1st year)
0.00 USD Installation & commissioning (1st year)
0.00 USD Operating cost (1st year)
0.00 USD Maintenance & repair (1st year)
0.00 USD Downtime (1st year)
0.00 USD Environmental (1st year)
0.00 USD Decommissioning (1st year)

0.00
USD

Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

BI-S Long-Term Lift Station Calculations

Wet Well Design Worksheet

Long-Term Flamingo East Parcel - BI-S

Diameter =	6 ft
Area =	28.27 Sq ft
Vol./ft =	211.5 gal/ft
Peak Flow In=	341 gpm
Actual Pump Rate =	343 gpm

V=(QT)/4
where,

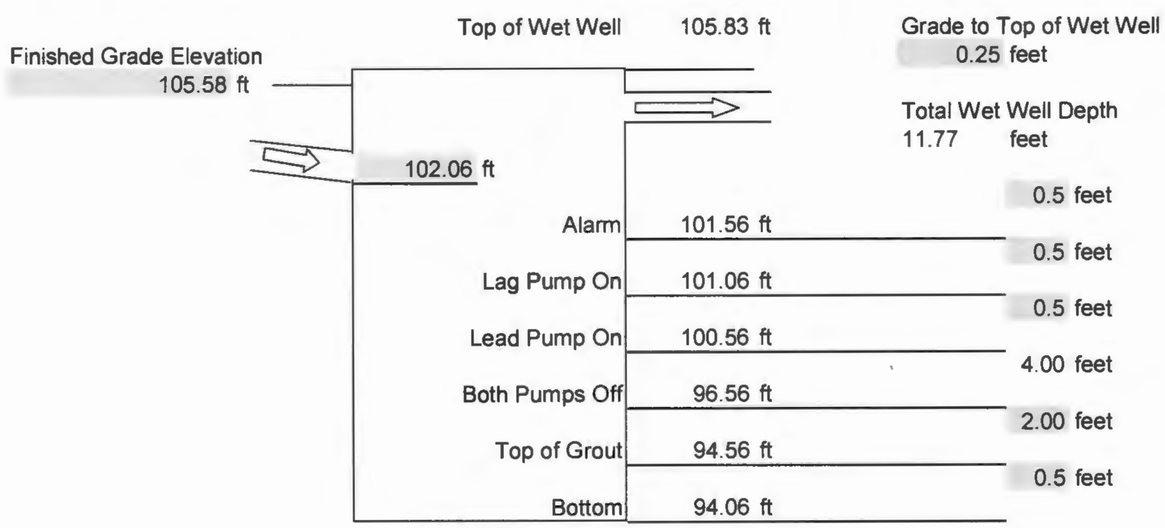
Q = Design Flow Rate =	343	gpm
T = Assumed Cycle Time =	10	minutes
V = Volume =	857.5	gallons

The height to which this volume will rise in the wet well is calculated by the following equation.

H = Volume/(Volume/foot of the wet well) =	4.05	feet
Use an actual height of:	4.00	feet

Check Pump Run-Time

Actual Pump Flow Rate =	343	gpm
Run-time = Volume/ flow rate =	2.50	minutes



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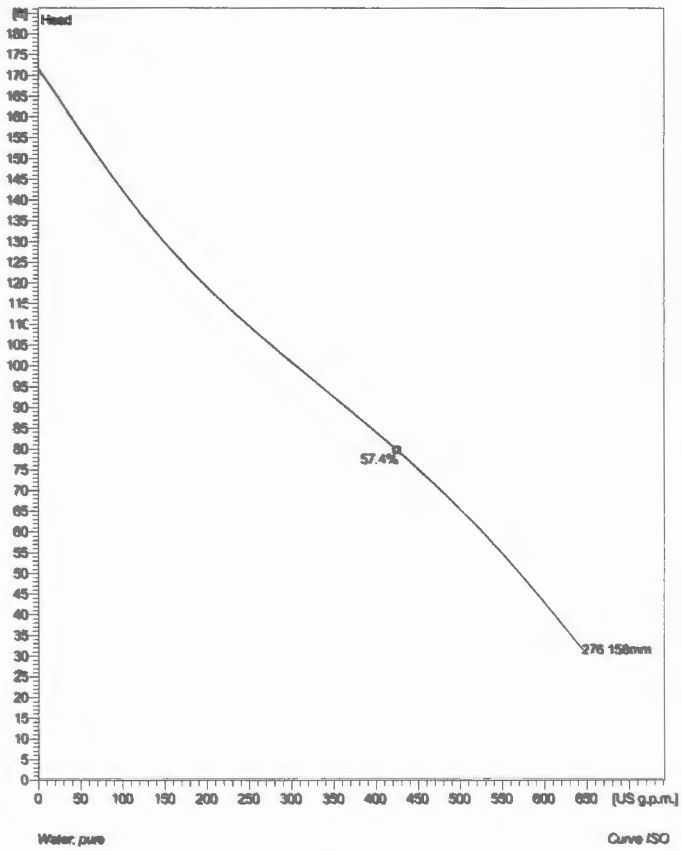
NP 3153 SH 3~ 276

Technical specification



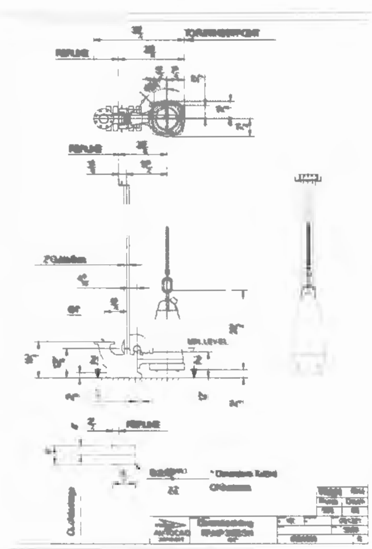
Note: Picture might not correspond to the current configuration.

General
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Hard-Iron ™
Discharge Flange Diameter	3 15/16 inch
Suction Flange Diameter	150 mm
Impeller diameter	158 mm
Number of blades	2

Installation: P - Semi permanent, Wet



Motor

Motor #	N3153.185 21-18-2FB-W 17hp
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	2
Phases	3~
Rated power	17 hp
Rated current	19 A
Starting current	141 A
Rated speed	3500 rpm
Power factor	
1/1 Load	0.94
3/4 Load	0.92
1/2 Load	0.88
Pump Efficiency	
1/1 Load	91.0 %
3/4 Load	92.0 %
1/2 Load	92.5 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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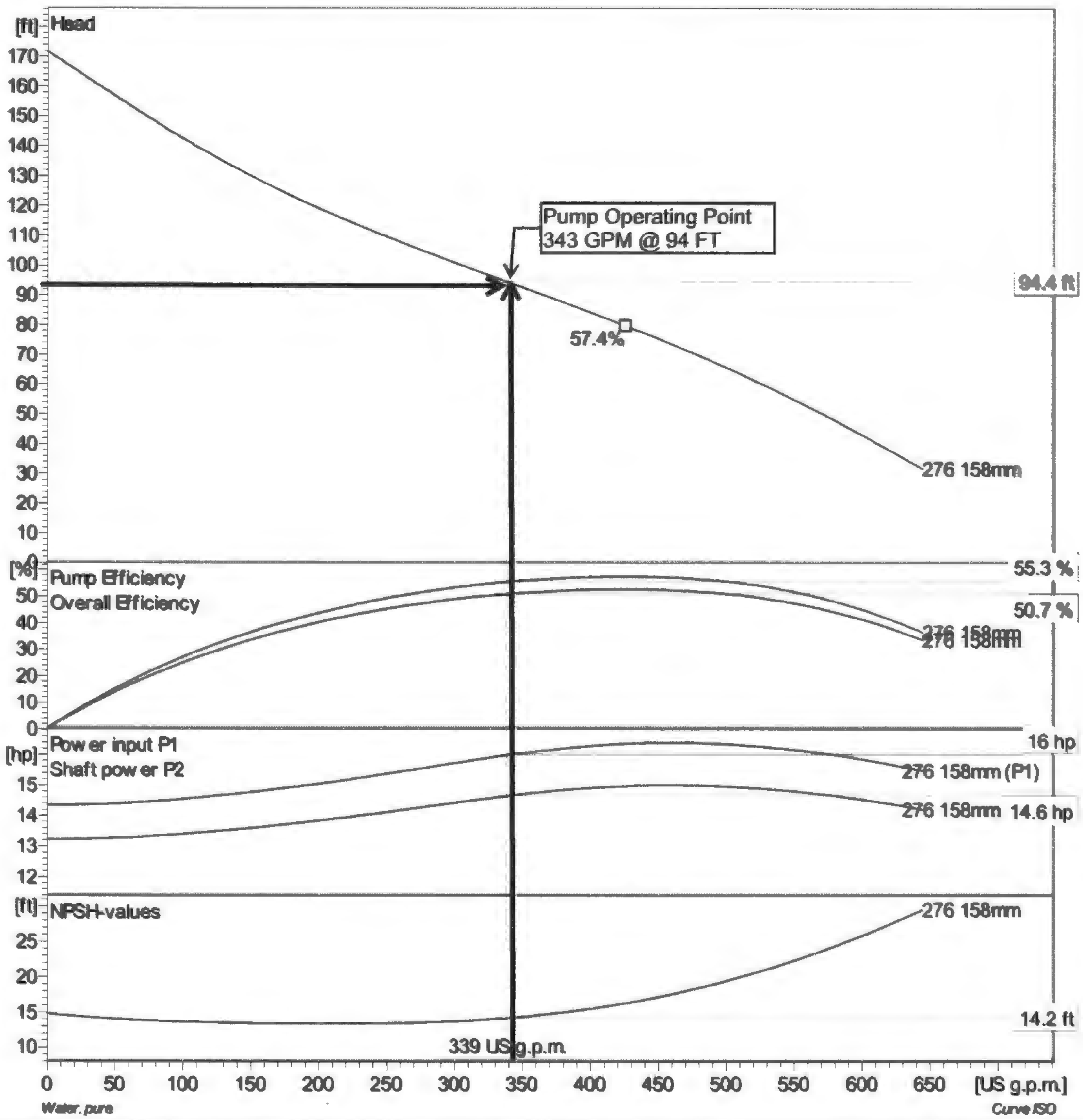
NP 3153 SH 3~ 276

Performance curve

Pump		Motor			
Discharge Flange Diameter	3 15/16 inch	Motor #	N3153.185 21-18-2FB-W 17hp	Power factor	
Suction Flange Diameter	150 mm	Stator variant	1	1/1 Load	0.94
Impeller diameter	6¼"	Frequency	60 Hz	3/4 Load	0.92
Number of blades	2	Rated voltage	460 V	1/2 Load	0.88
		Number of poles	2	Pump Efficiency	
		Phases	3~	1/1 Load	91.0 %
		Rated power	17 hp	3/4 Load	92.0 %
		Rated current	19 A	1/2 Load	92.5 %
		Starting current	141 A		
		Rated speed	3500 rpm		



Duty point		Guarantee
Flow	Head	
341 US g.p.m.	95.6 ft	No

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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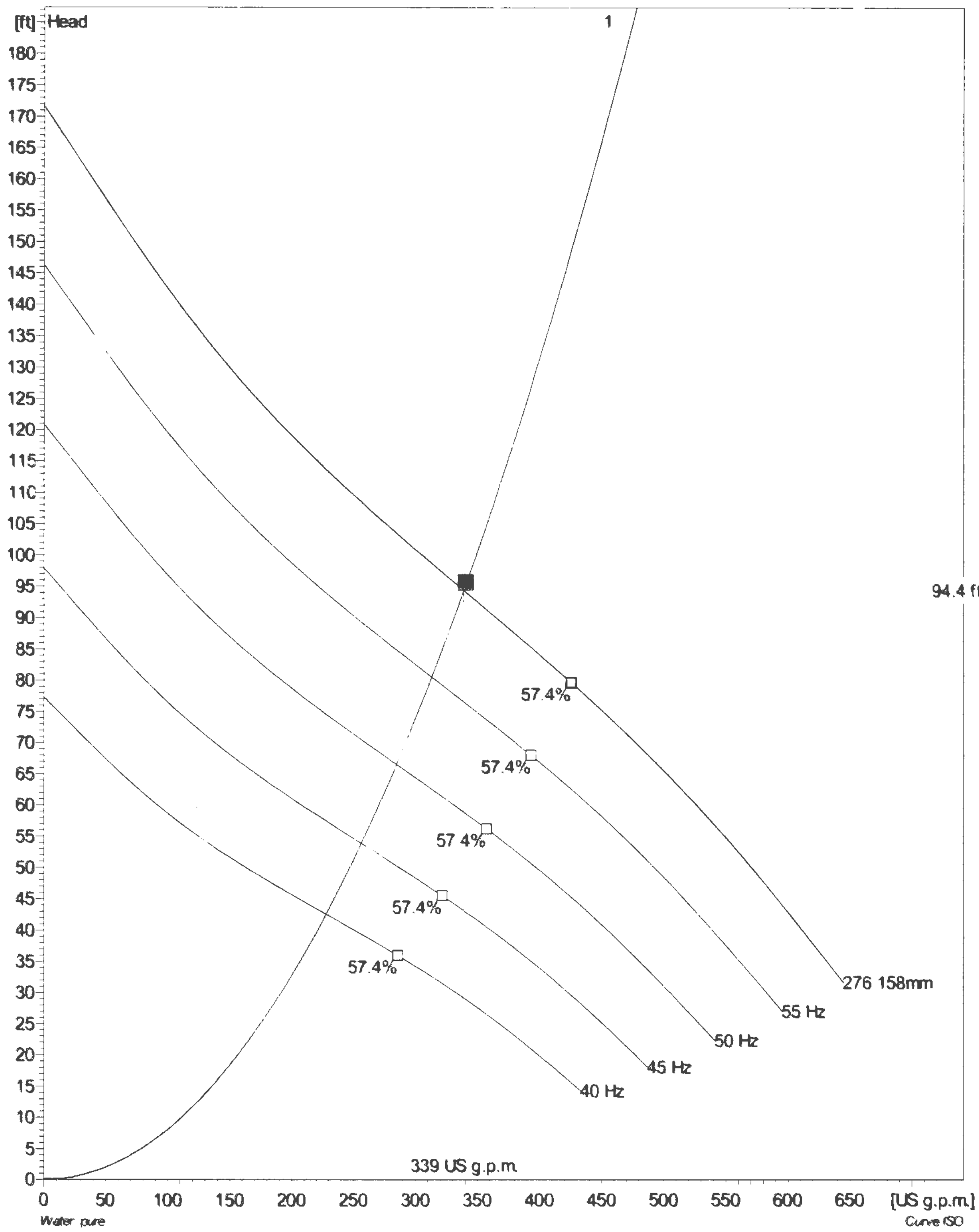
NP 3153 SH 3~ 276

Duty Analysis

FLYGT



Pumps running /System	Individual pump Flow	Head	Shaft power	Total Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	339 US g.p.m.	94.4 ft	14.6 hp	339 US g.p.m.	94.4 ft	14.6 hp	55.3 %	586 kWh/US MG	14.2 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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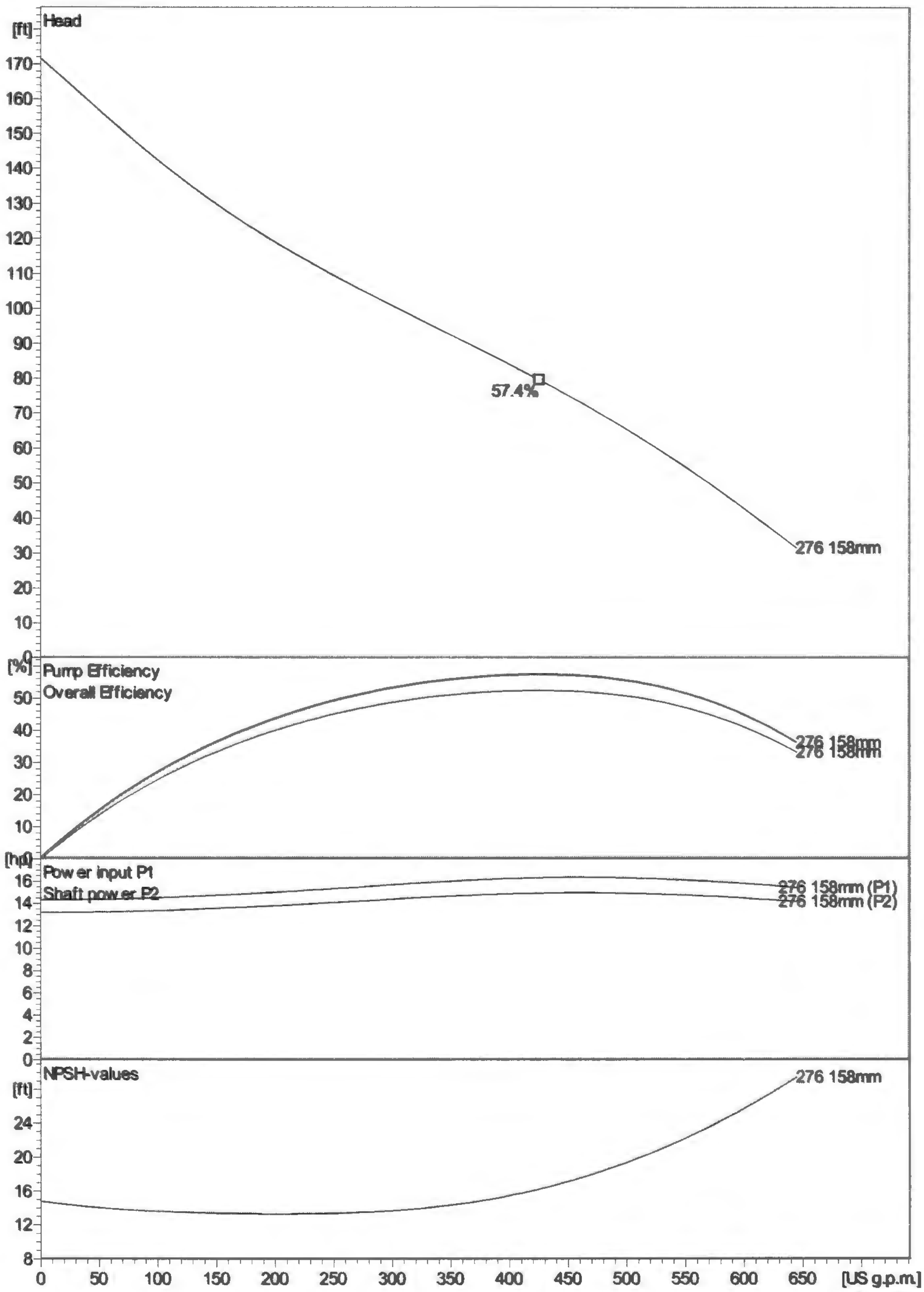
NP 3153 SH 3~ 276

VFD Curve



Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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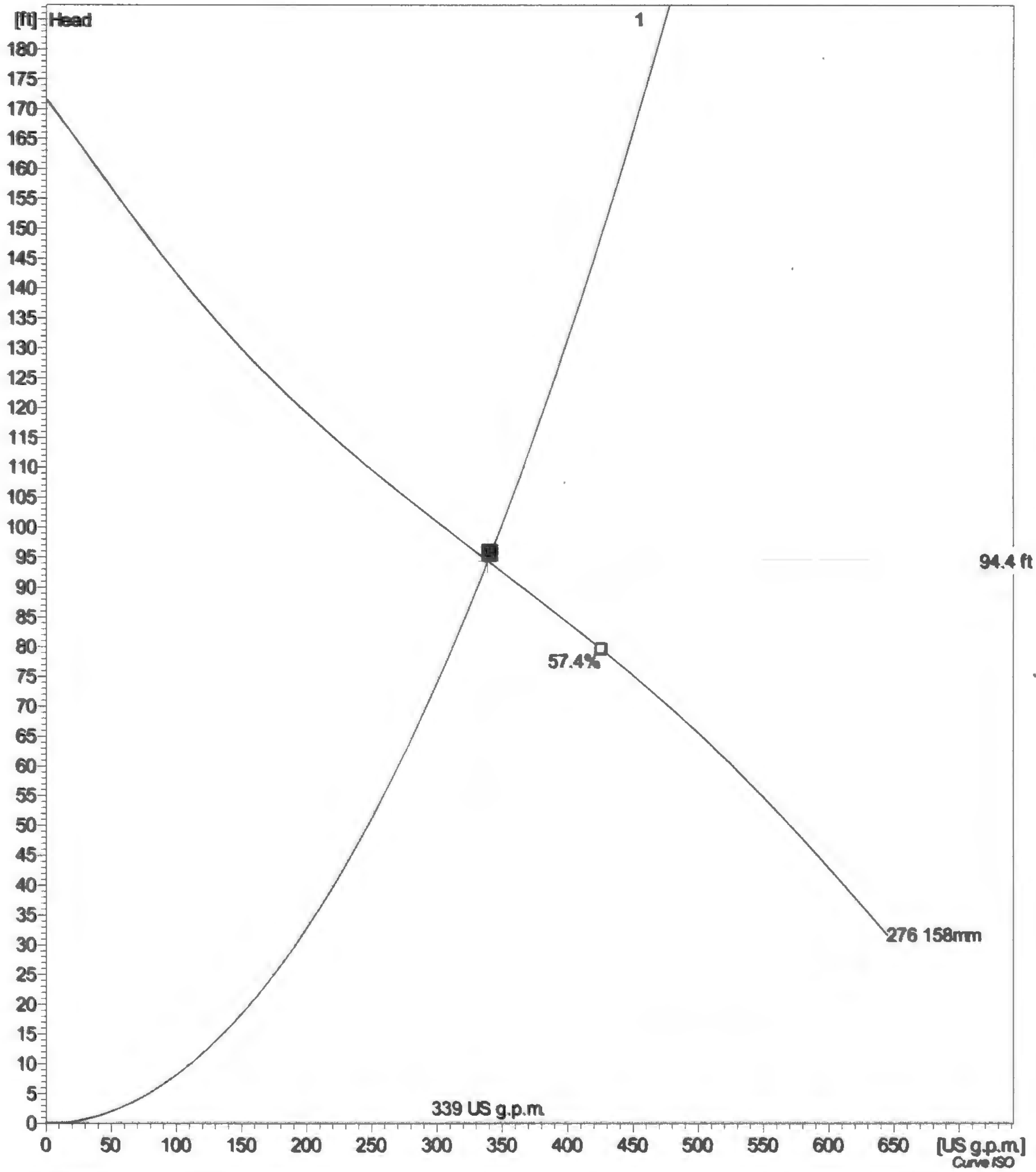
NP 3153 SH 3~ 276

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	339 US g.p.m.	94.4 ft	14.6 hp	339 US g.p.m.	94.4 ft	14.6 hp	55.3 %	586 kWh/US MG	14.2 ft
1	54.9 Hz	313 US g.p.m.	80.6 ft	11.5 hp	313 US g.p.m.	80.6 ft	11.5 hp	55.3 %	495 kWh/US MG	12.5 ft
1	49.9 Hz	285 US g.p.m.	66.6 ft	8.67 hp	285 US g.p.m.	66.6 ft	8.67 hp	55.3 %	410 kWh/US MG	10.7 ft
1	44.9 Hz	256 US g.p.m.	54 ft	6.32 hp	256 US g.p.m.	54 ft	6.32 hp	55.3 %	334 kWh/US MG	9.05 ft
1	39.9 Hz	228 US g.p.m.	42.6 ft	4.44 hp	228 US g.p.m.	42.6 ft	4.44 hp	55.3 %	267 kWh/US MG	7.5 ft

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

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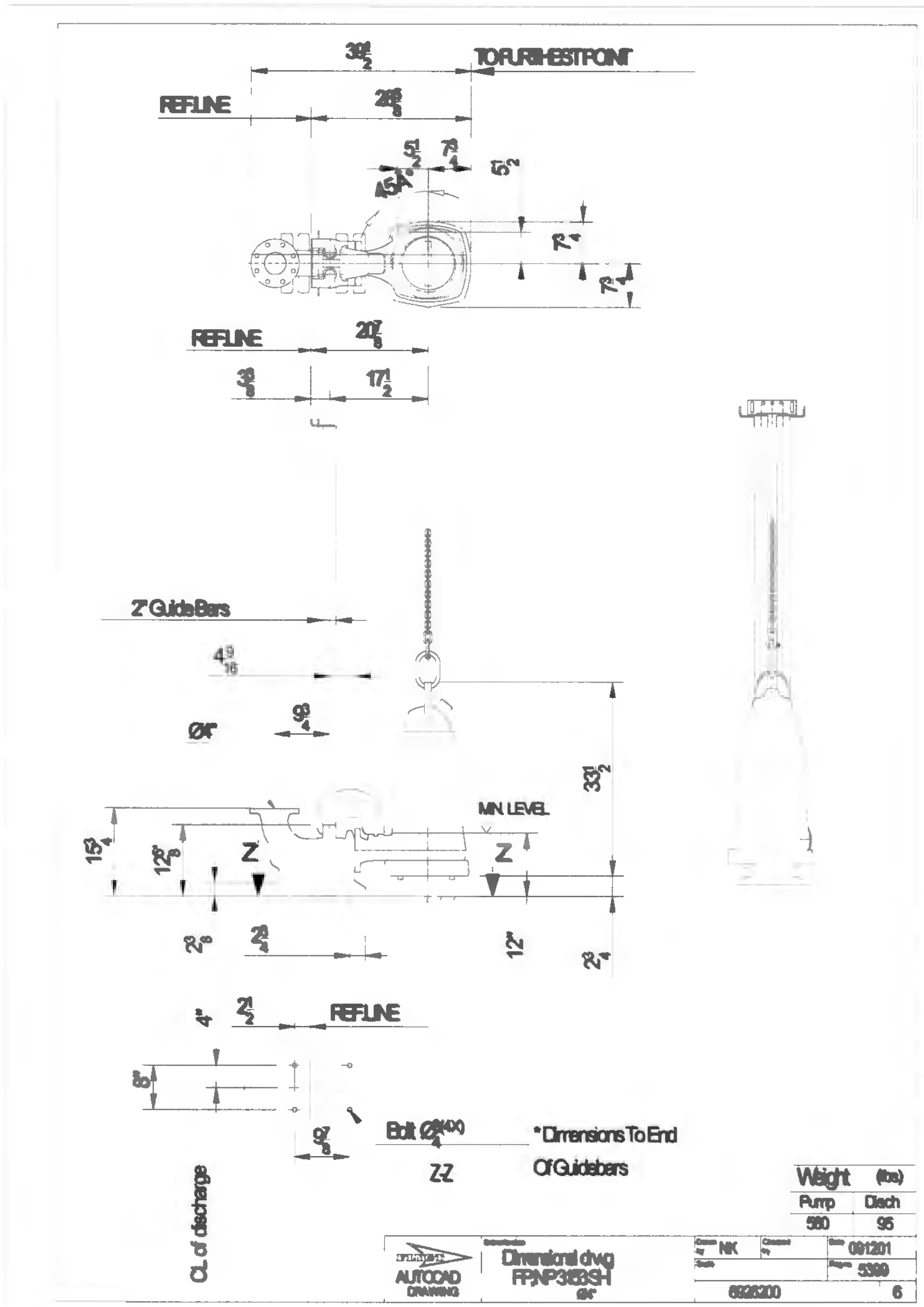
NP 3153 SH 3~ 276

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			2/21/2018	

xylem

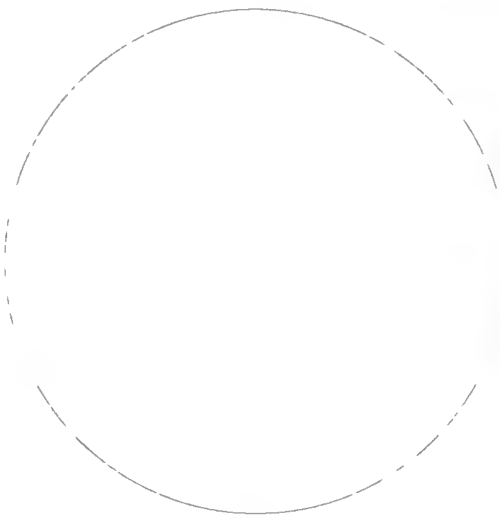
Version 10

NP 3153 SH 3~ 276

Life cycle costs (LCC)

Total lifetime	15	Inflation rate (rate of price increases)	2 %
Annual operating time	5600	Interest rate (for investment)	3 %
Energy cost per kWh	0.00 USD		
Power input P1			

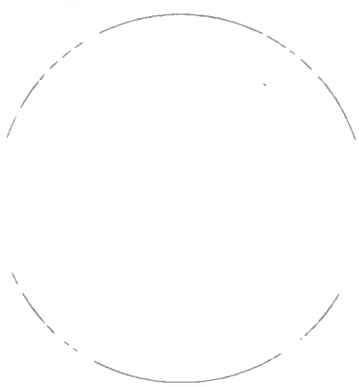
Total costs



0.00 USD Energy
0.00 USD Investment costs
0% 0.00 USD Installation & commissioning
0.00 USD Operating cost
0.00 USD Maintenance & repair
0.00 USD Downtime
0% 0.00 USD Environmental
0% 0.00 USD Decommissioning

0.00 USD

First year costs



0.00 USD Energy (1st year)
0.00 USD Investment costs (1st year)
0% 0.00 USD Installation & commissioning (1st year)
0.00 USD Operating cost (1st year)
0.00 USD Maintenance & repair (1st year)
0% 0.00 USD Downtime (1st year)
0% 0.00 USD Environmental (1st year)
0% 0.00 USD Decommissioning (1st year)

0.00 USD

Disclaimer: The calculations and the results are based on user input values and general assumptions and provide only estimated costs for the input data. Xylem inc can therefore not guarantee that the estimated savings will actually occur.

Project	Project ID	Created by	Created on	Last update
			2/21/2018	

Appendix F. Flamingo Crossings Letter Agreement

ORANGE COUNTY GOVERNMENT FLORIDA

UTILITIES DEPARTMENT
Raymond E. Hanson, P. E., *Director*
9150 Curry Ford Road
Orlando, Florida 32825-7600
Telephone: 407-254-9809
Fax: 407-254-9899
Email: Ray.Hanson@ocfl.net

January 19, 2018

John H. Classe, Jr., District Administrator
Reedy Creek Improvement District
Post Office Box 10170
Lake Buena Vista, Florida 32830

Re: Amendment to 2012 Flamingo Crossings Letter Agreement for Water and Reclaimed Water Interconnection and Wholesale Service by and between Reedy Creek Improvement District (the "District") and Orange County Utilities (the "County") Dated December 19, 2012 (the "Letter Agreement")

Dear Mr. Classe:

Upon counter-signature of this letter below by the District, the Letter Agreement shall be amended as follows:

The introductory language of Section 3 is amended as follows (deletions are double strikethrough and insertions are bold and double underline):

3. Volume and Delivery of Potable Water and Reclaimed.

A. Potable Water. RCID shall provide up to ~~240,000~~ **508,000** GPD annual average daily flow (AADF) of potable water to the County to serve its customers in the area of Flamingo Crossings Boulevard and at the point of connection as indicated in **Exhibit "A."**

RCID shall provide said potable water services at the following flows and minimum pressures in pounds per square inch ("psi") at the connection point:

~~170~~ **355** GPM @ 55 psi (AADF)
~~600 GPM @ 50 psi (Peak hour flow)~~
~~3,840~~ **2,710** GPM @ 45 psi (Maximum Daily demand plus Fire Flow)

B. Reclaimed Water. RCID shall provide reclaimed water to the County to serve its customers in the area of Flamingo Crossings Boulevard and at the point of connection as indicated in Exhibit "A" in an amount that does not exceed the volume of wastewater County delivers to RCID (as governed **by** the Substitute Letter Agreement for Orange Lake/Reams Road Letter Agreement for Wastewater Interconnection and Wholesale Service entered into on 6/21/11**, as amended**) and in no event shall exceed 1.0 million GPD nor cause the residual service pressure in the Flamingo Crossings area, as determined by RCID in its sole discretion, to drop below 50 psi. ~~RCID shall provide said reclaimed water services at the following minimum pressures in pounds per square inch ("psi") at the connection point: 600 GPM @50 psi.~~

The Initial Term as set forth in Section 7 of the Letter Agreement is hereby extended to January 24, 2028.

All other terms of the Letter Agreement remain unchanged and continue in full force and effect. If you agree to these changes, please sign both copies of this letter amendment and return one execution original to my office.

Sincerely,

Date: 1-22-18

Raymond E. Hanson, P.E., Director
Orange County Utilities Department

Signed and Agreed to:

Date: 1/24/18

John H. Classe, Jr. District Administrator
Reedy Creek Improvement District

UTILITIES DEPARTMENT
Raymond E. Hanson, P. E., *Director*
9150 Curry Ford Road
Orlando, Florida 32825-7600
Telephone: 407-254-9809
Fax: 407-254-9899
Email: Ray.Hanson@ocfl.net

January 19, 2018

John H. Classe, Jr., District Administrator
Reedy Creek Improvement District
Post Office Box 10170
Lake Buena Vista, Florida 32830

Re: Amendment to 2017 Substitute Letter Agreement for Orange Lake/Reams Road Wastewater Interconnection and Wholesale Service by and between Reedy Creek Improvement District (the "District") and Orange County Utilities (the "County") Dated October 11, 2017 (the "Letter Agreement")

Dear Mr. Classe:

Upon counter-signature of this letter below by the District, the Letter Agreement shall be amended as follows:

The introductory language of Section 4.2 and subsections 4.2.1 and 4.2.2 are amended as follows, (deletions are double strikethrough and insertions are bold and double underline) (subsection 4.2.3 remains unchanged):

4.2 RCID agreed to accept, treat and dispose or reuse up to ~~2,350,000~~ **2,535,000** gallons per day (gpd) annual average flow (AADF) of wastewater from the combination of the Reams Road and Orange Lake connection points upon the in-service date of the new force main referred to in Sections 2.2 and 3~~, for a term of fifteen years,~~ subject to other provisions of this 2017 Substitute Letter Agreement.

4.2.1 **Reams Road:** RCID agrees to accept, treat and dispose/reuse up to 2, 100,000 gpd AADF (and 2,917 gpm PHF) of wastewater flow at Reams Road as of the Effective Date of this 2017 Substitute Letter Agreement. Upon 30 days written notice by RCID, the capacity at the Reams Road connection can be reduced to 2,000,000 gpd AADF (and 2,778 gpm PHF).

4.2.2 **Orange Lake:** RCID agrees to accept, treat and dispose/reuse up to ~~250,000~~ **435,000** gpd AADF (and ~~521~~ **900** gpm PHF) of wastewater flow at Orange Lake as of the Effective Date of this 2017 Substitute Letter Agreement. The County's delivery of wastewater to the Orange Lake connection point shall not exceed

> ~~250,000~~ **435,000** gpd AADF and ~~621~~ **900** gpm PHF without prior written notification to RCID and receipt of written approval from RCID.

Sections 7 and 9 of the Letter Agreement are deleted in their entirety. The Letter Agreement is effective as of the date it was signed by the last Party thereto and shall be effective until January 24, 2028 (the "Initial Term"). The Letter Agreement shall be renewed automatically for two (2) successive terms of five (5) years beyond the Initial Term unless either Party provides written notice to the other Party at least one (1) year prior to the expiration of the Initial Term or at least one (1) year prior to the expiration of the first renewal term that the Party does not intend to renew the Letter Agreement.

All other terms of the Letter Agreement remain unchanged and continue in full force and effect. If you agree to these changes, please sign both copies of this letter amendment and return one execution original to my office.

Sincerely,

Date: 1-22-18

Raymond E. Hanson, P.E., Director
Orange County Utilities Department

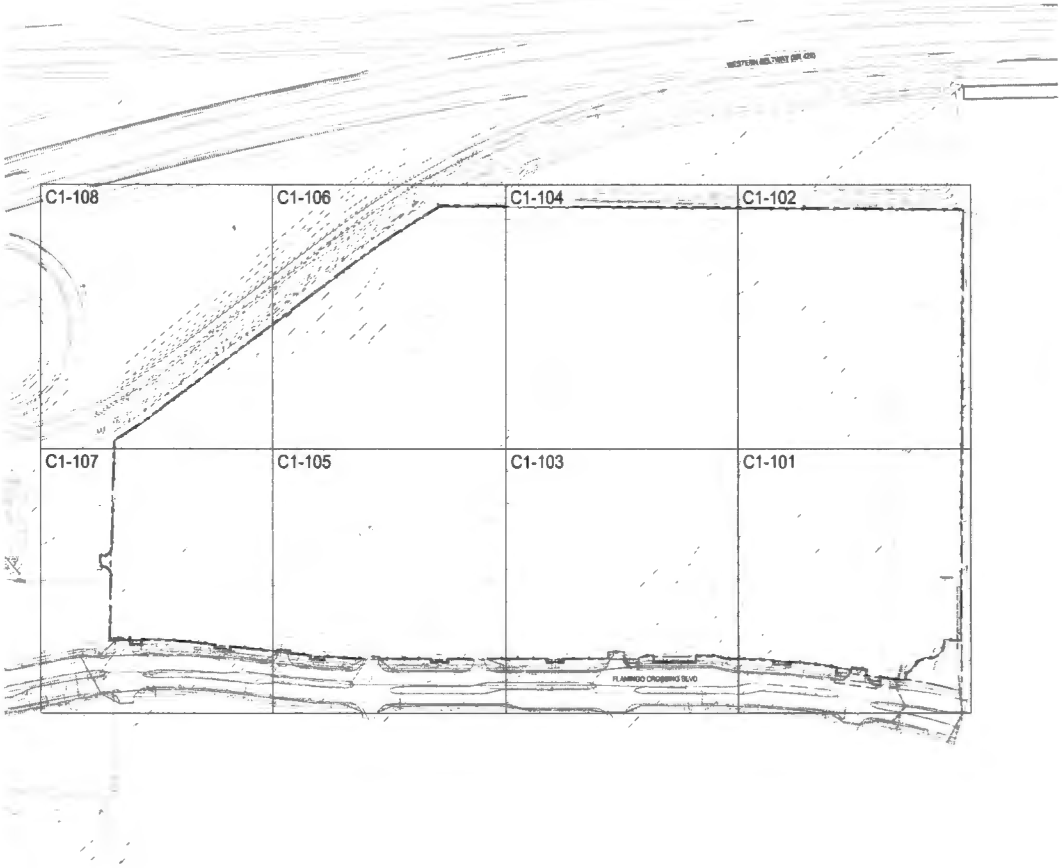
Signed and Agreed to:

Date: 1/24/18

John H. Classe, Jr. District Administrator
Reedy Creek Improvement District

Appendix G. Parcel Topographic Map

Figure G-1 FC-1 Topographic Map



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- DOUBLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY. REFER TO DETAIL SHEET C300 FOR PROPOSED LOCATION)
- SINGLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY. REFER TO DETAIL SHEET C300 FOR PROPOSED LOCATION)
- FLOATING TURBIDITY BARRIER (LOCATION IS SHOWN APPROXIMATE FOR CLARITY)
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING SIDEWALK TO BE REMOVED
- EXISTING CONTOURS
- PRESERVED WETLAND LIMIT
- WETLAND BUFFER
- #22.19 WETLAND SYSTEM NUMBER
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

Z

FULL SCALE: 1"=50'
HALF SCALE: 1"=100'

FL ORLANDO

JOHN PATRICK WOODS, P.E.
FLORIDA REG. NO. 54 ...

ATKINS

APARTMENTS
ORLANDO, FL

JEFFERSON APARTMENT GROUP LLC
112 LAKE AVENUE
ORLANDO, FL 32801
PH. (407) 367-3033

charlan • brock associates

architects planners

1770 fennell street
maitland florida 32751-7208
407 660 8900 f 407 875 9948
www cbaarchitects com

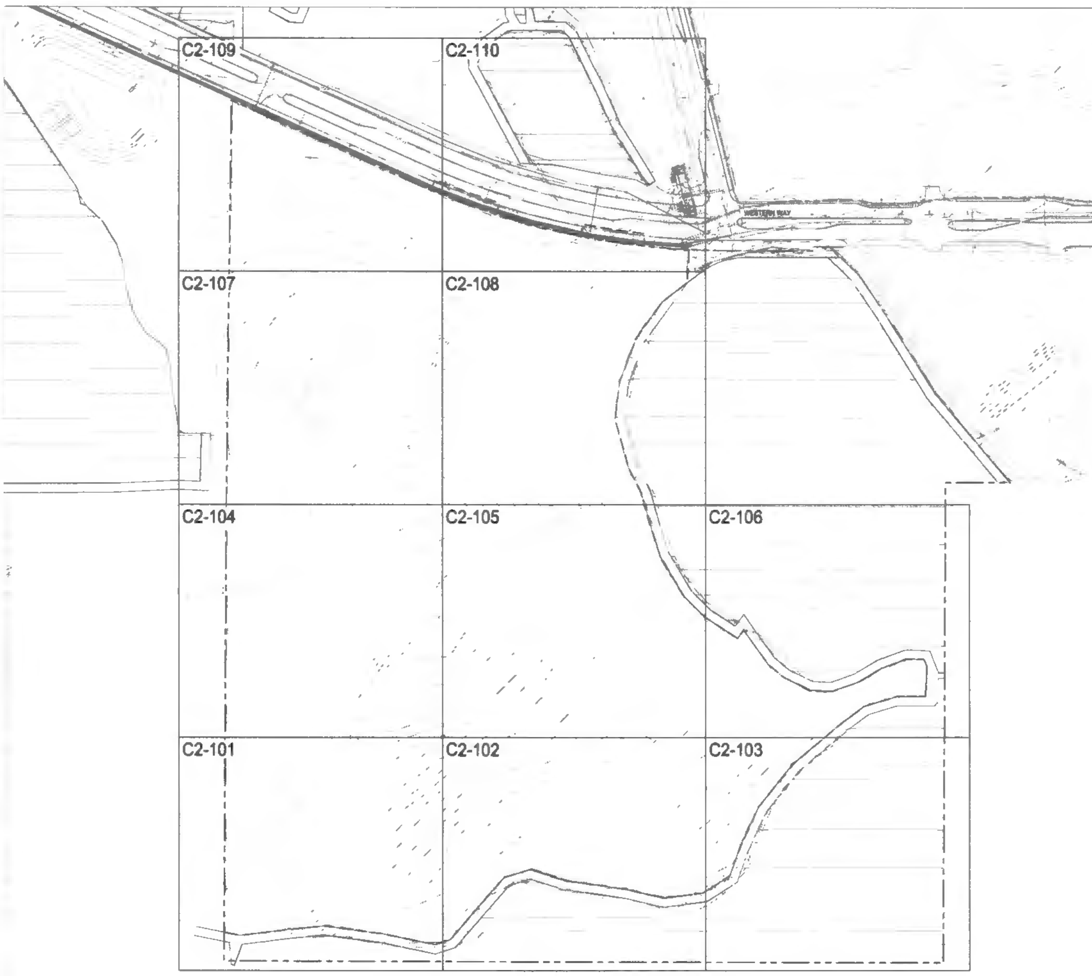
OVERALL EXISTING CONDITIONS AND EROSION CONTROL PLAN

date 01/18/17
drawn by LGB
reviewed by JPW
PC-C1-100 EXISTING

1 18 2017 JAG SCHEMATIC DESIGN - NOT FOR CONSTRUCTION

C1-100

Figure G-2 FC-2 Topographic Map



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- DOUBLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY REFER TO DETAIL SHEET C500 FOR PROPOSED LOCATION)
- SINGLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY REFER TO DETAIL SHEET C500 FOR PROPOSED LOCATION)
- FLOATING TURBIDITY BARRIER (LOCATION IS SHOWN APPROXIMATE FOR CLARITY)
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING SIDEWALK TO BE REMOVED
- EXISTING CONTOURS
- PRESERVED WETLAND LIMIT
- WETLAND BUFFER
- #22 19 WETLAND SYSTEM NUMBER
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

N

0 120' 240'
FULL SCALE 1"=120'
HALF SCALE 1"=240'

ATKINS

APARTMENTS
ORLANDO, FL

JEFFERSON APARTMENT GROUP LLC

charlan • brock associates
architects • planners

www.cbaarchitects.com

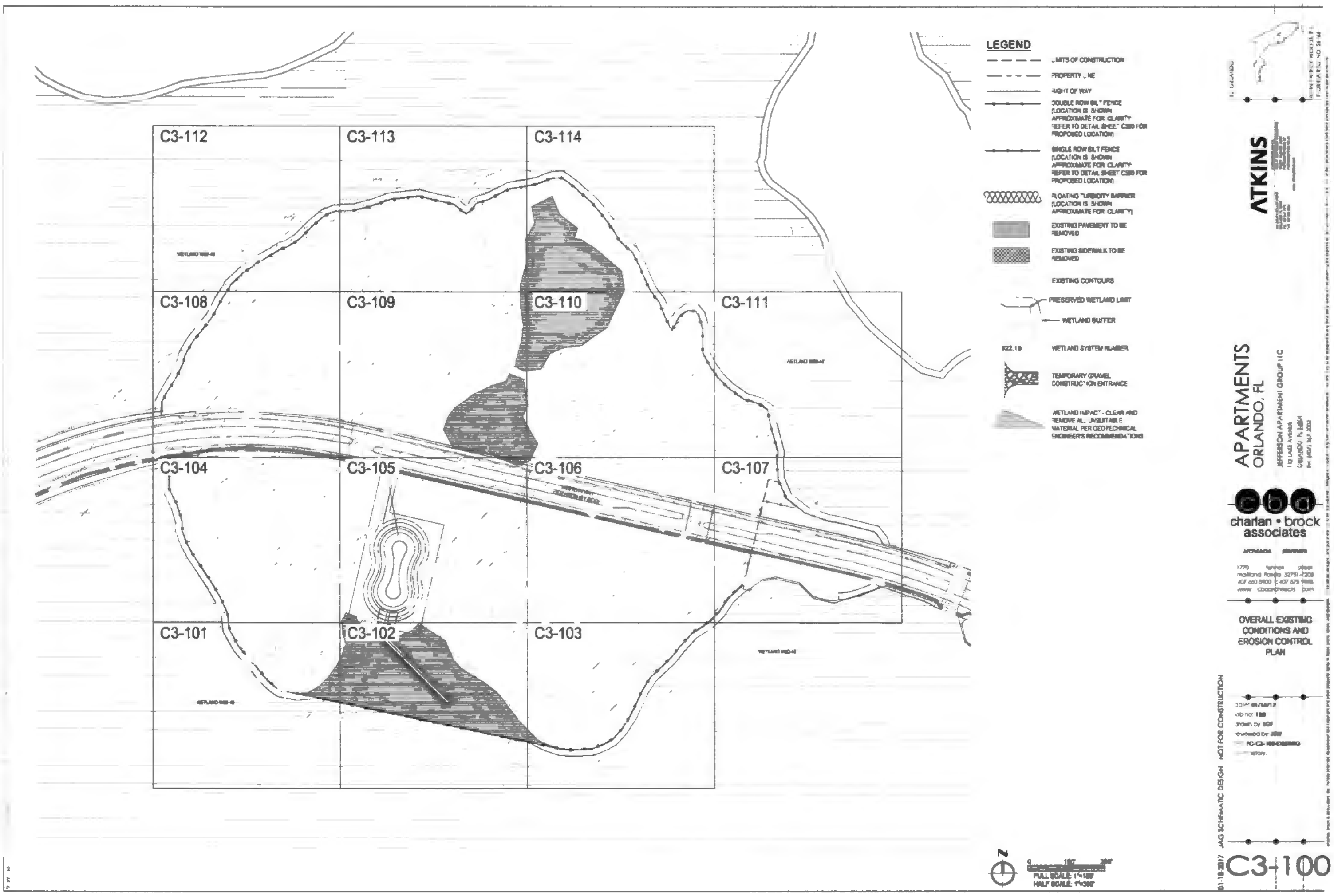
OVERALL EXISTING CONDITIONS AND EROSION CONTROL PLAN

date: 01/18/17
job no: TBD
drawn by: LBP
reviewed by: JPW
file: PC-C2-100 EXISTING
issue history:

JAG SCHEMATIC DESIGN NOT FOR CONSTRUCTION

C2-100

Figure G-3 BI North and South Topographic Map


C3-112
C3-113
C3-114
C3-108
C3-109
C3-110
C3-111
C3-104
C3-105
C3-106
C3-107
C3-101
C3-102
C3-103
LEGEND
LIMITS OF CONSTRUCTION
PROPERTY LINE
RIGHT OF WAY
DOUBLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY REFER TO DETAIL SHEET C300 FOR PROPOSED LOCATION)
SINGLE ROW SILT FENCE (LOCATION IS SHOWN APPROXIMATE FOR CLARITY REFER TO DETAIL SHEET C300 FOR PROPOSED LOCATION)
FLOATING TURBIDITY BARRIER (LOCATION IS SHOWN APPROXIMATE FOR CLARITY)
EXISTING PAVEMENT TO BE REMOVED
EXISTING SIDEWALK TO BE REMOVED
EXISTING CONTOURS
PRESERVED WETLAND LIMIT
WETLAND BUFFER
WETLAND SYSTEM NUMBER
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
WETLAND IMPACT - CLEAR AND REMOVE ALL UNSUITABLE MATERIAL PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS
FULL SCALE: 1"=100'
HALF SCALE: 1"=200'
ATKINS
APARTMENTS
ORLANDO, FL
JEFFERSON APARTMENT GROUP LLC
charlan • brock associates
architects planners
OVERALL EXISTING CONDITIONS AND EROSION CONTROL PLAN
JAG SCHEMATIC DESIGN NOT FOR CONSTRUCTION
C3-100

Appendix H. Existing FC West Pump Station Pump Curve

FLYGT

ITT

Engineering Submittal #1

Job: FLAMINGO CROSSING PH 1 BP 1-2-RCID

To: JR DAVIS CONSTRUCTION
Date: MAY 6, 2008

☑ Work cannot proceed until one set of approved shop drawings is returned to this office.
☐ Submittal is for record only and we are proceeding with production.

Pumps

Qty.	Model	Impeller	HP	Phase	Voltage	Duty Points	Motor Leads
3	6"CP3201	452	47	3	460	800GPM@113'TDH	50'

Specials: (3) 6"X8" Discharge Connections
(3) 3201 Certified Test
(3) 3201 Factory Mutual
(3) 3201 Guarantee Spare Parts
(3) FLS

Accessories

1 Wetwell Hatch Model: W3S Size: 48X108 w/ 3 Door Cover Rating: 300

3 316SS 3" Upper Guide Bar Brackets
3 316SS 3" Intermediate Guide Bar Brackets ***PLEASE SPECIFY RISER PIPE SIZE___
1 316SS Cable Holder w/ Hooks

3 304SS Grip Eye Cables Length: 25'
12 316SS Threaded Rods w/ Adhesive Cartridge
6 316SS 3" Diameter Guide Rails Length: 25"

Specials:

control Panel w/ provide a 3-pt latch: per spec section 02750

Control Panel

1 Control Panel TRIPLEX 47HP 3PH 460VOLT, TO RCID PLANS AND SPECIFICATIONS Enclosure Material: ~~304SS~~ provide 316SS encl. per spec. NEMA Rating: 3R
1 Generator Receptacle 460R7W (HUBBLE)
6 ENM-10 Cable Length: 40'

Specials: (3) Mini-Cas

JUN 11 2008
APOPKA

Please Confirm Voltage For This Station

FLAMINGO CROSSING PH 1 BP 1-2-RCID

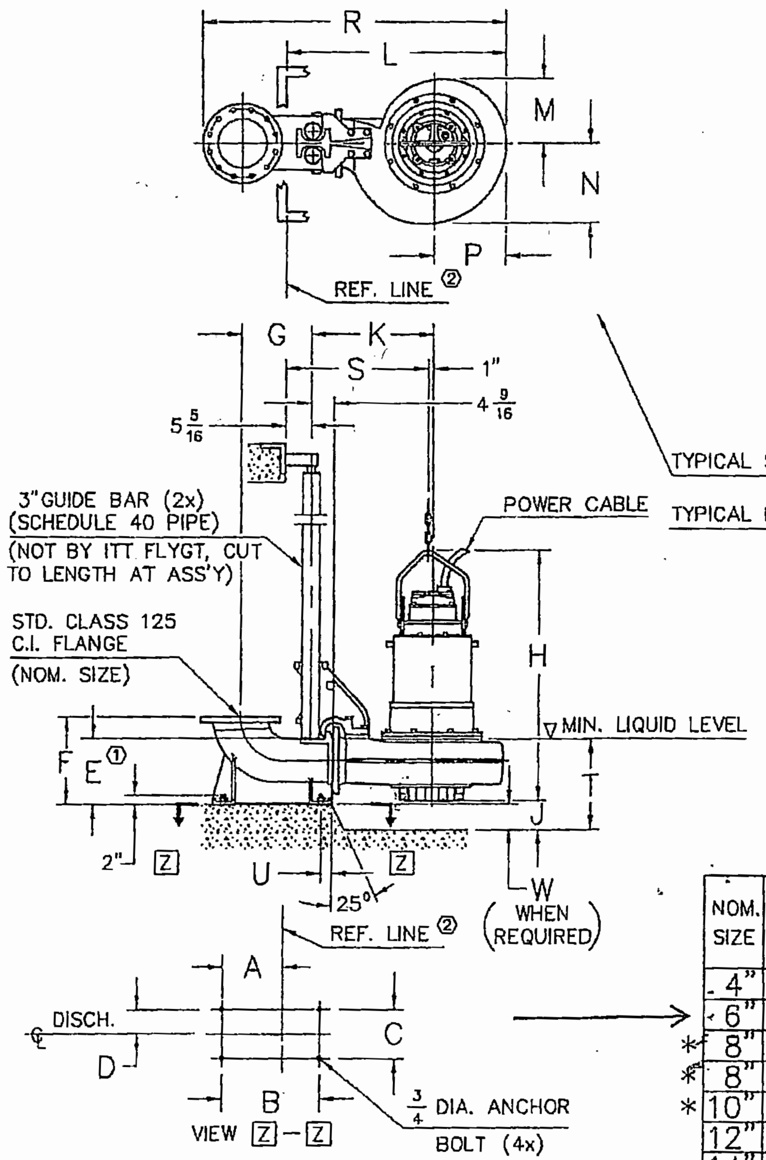
- [ ] 1 Phase 230 Volt
- [ ] 3 Phase 208 Volt
- [ ] 3 Phase 230 Volt
- [x] 3 Phase 460 Volt

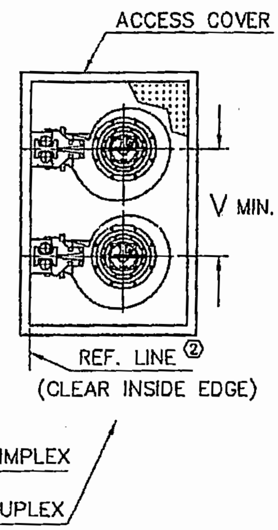
Voltage Confirmed By: ________

Date: 5/29/08

CP-3201

Section 4	FLYGT	**Outline Dimensions**	Issued: 1/05	Supersedes: 4/04





O NOTES:

1. DIM. TO ENDS OF GUIDE BARS.
2. REPRESENTS CLEAR INSIDE EDGE OF ACCESS FRAME OR OPENING.
3. SEE STATION DWG. FOR COMPLETE INSTALLATION DIMENSIONS.

NOM. SIZE	VERSION	WEIGHT (LBS)	
		PUMP	DISCH
		CI/SST	CI/SST
4"	SH	1110/ N/A	80/ N/A
→ 6"	HT	1140/1235	120/ N/A
* 8"	HT	1135/1235	150/160
* 8"	MT	1235/1280	175/ N/A
* 10"	MT	1235/1280	200/225
12"	LT	1415/ N/A	455/ N/A
14"	LT	1415/ N/A	465/ N/A

* ALSO AVAILABLE IN STAINLESS STEEL
ALL DIMENSIONS IN INCHES

NOM. SIZE	VERSION	DIMENSIONAL CHART																				
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W
4"	SH	3/4	9 7/8	8	4	10 1/4	15 3/4	10	50	4 1/2	22 1/2	38	10	11 1/2	10 1/2	47	26 3/4	17	2 3/4	29	4
→ 6"	HT	2 3/8	11	10	5	13	17 3/4	11	50	5 3/4	22 1/2	38	10 1/2	11	10 1/2	49 1/2	26 3/4	18	2 1/4	38	2
* 8"	HT	3 1/2	11	10	5	13 3/4	17 3/4	12 1/4	50	6 1/2	22 1/2	38	10 1/2	11	10 1/2	51 1/2	26 3/4	19	2 1/4	38	2
* 8"	MT	3 1/2	11	10	5	14 3/4	17 3/4	12 1/4	50 1/2	6 1/4	24 1/4	44 1/4	13	16 1/4	14 1/2	57 3/4	28 1/2	19	2 1/4	39	4
* 10"	MT	12 1/4	19 3/4	10	5	13 1/2	17 3/4	14 1/4	50 3/4	6	24 1/2	44	12 3/4	16 1/4	14 3/4	61	28 3/4	19	2 1/4	39	5
12"	LT	7 5/8	19 3/4	20 1/4	10 1/8	26 1/2	31 1/2	17	53 1/2	10 1/4	27 1/2	48 1/4	12 1/2	18 1/2	15 1/2	69 1/2	31 3/4	26	3	39	0
14"	LT	7 5/8	19 [illegible]	[illegible]0 1/4	10 1/8	26 1/2	3[illegible] 1/2	18	53 1/2	10 1/4	27 1/2	48 1/4	12 1/2	18 1/2	15 1/2	71 1/2	31 3/4	26	3	39	0

PERFORMANCE CURVE

PRODUCT	C 3201.180
TYPE	HT
DATE	2006-11-30
PROJECT	FLYGT US Catalog
CURVE NO	63-452-00-5350
ISSUE	5

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.89	0.86	0.80
EFFICIENCY	87.5 %	87.5 %	86.0 %
MOTOR DATA	—	—	—

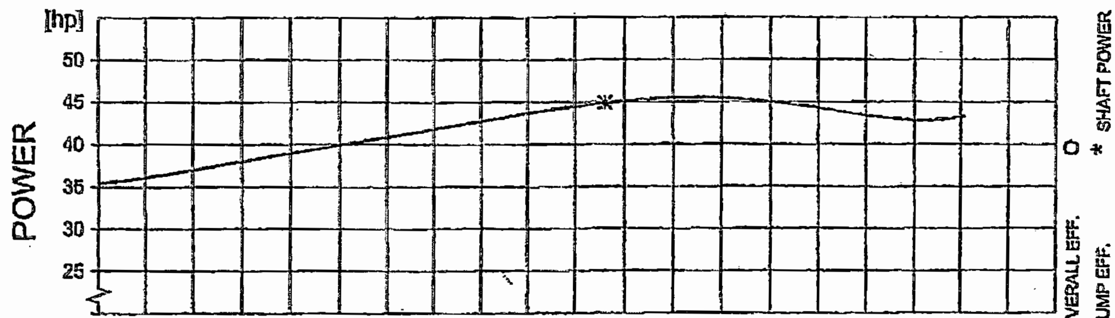
RATED POWER	47	hp
STARTING CURRENT ...	375	A
RATED CURRENT ...	57	A
RATED SPEED	1755	rpm
TOT.MOM.OF INERTIA ...	0.58	kgm2
NO. OF BLADES	1	

IMPELLER DIAMETER	330 mm
MOTOR #	27-26-4AA
STATOR	37YSER
REV	11
FREQ.	60 Hz
PHASES	3
VOLTAGE	460 V
POLES	4
GEARTYPE	—
RATIO	—

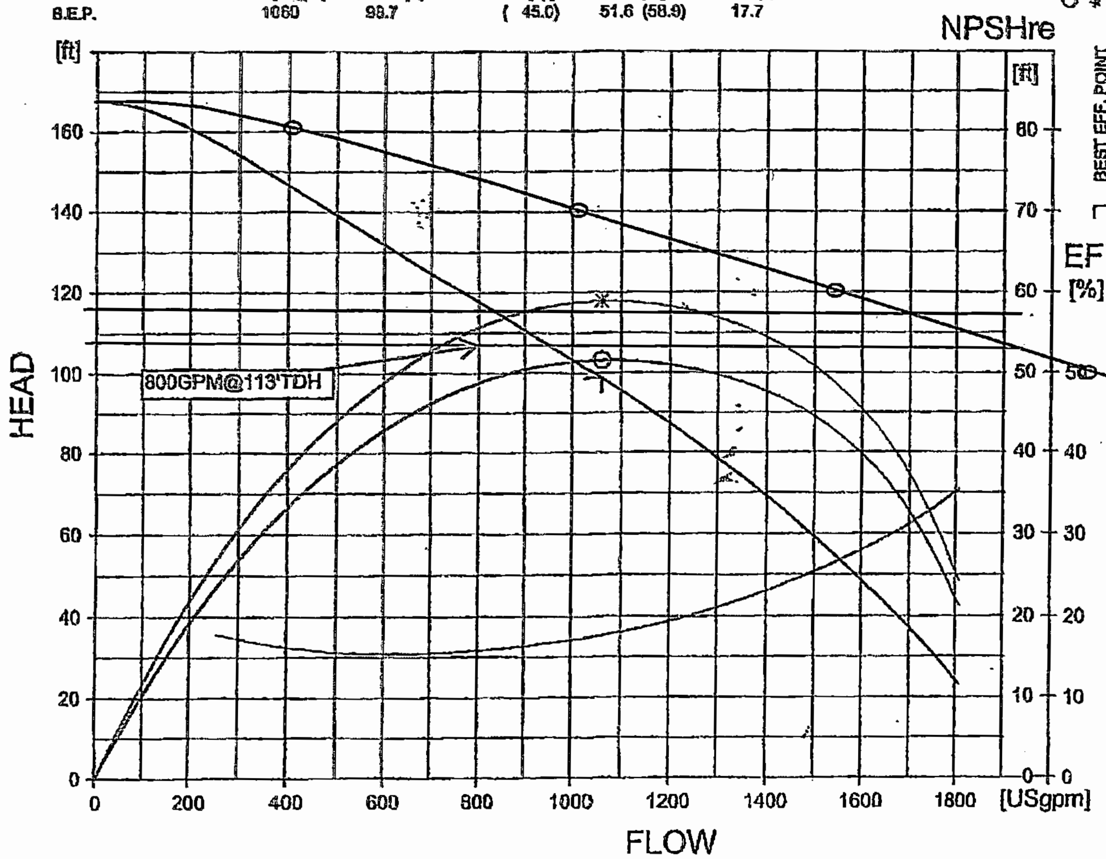
COMMENTS

NEMA Code Letter: H
Installs: CP/CS/CT/CZ

INLET/OUTLET	-/ 6 inch
IMP. THROUGHLET	3.0 inch



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]
B.E.P.	1060	99.7	(45.0)	51.6 (58.9)	17.7



FUSCAT 1.0 (20031201)

NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

CURVE

Motor Data

RATED OUTPUT POWER HP	(kW)	Ø	VOLTS NOM.	FULL LOAD AMPS	LOCKED ROTOR AMPS	LOCKED ROTOR KVA	LOCKED ROTOR CODE LETTER KVA/HP	RATED INPUT POWER kW	POLES/RPM
30	(22)	3	200	84	535	185	G	26	4/1755
			230	72	466				
			460	36	233				
			575	29	186				
30	(22)	3	200	94	396	137	E	26	8/860
			230	82	344				
			460	41	172				
			575	33	137				
35	(26)	3	200	100	630	198	G	30	6/1170
			230	87	495				
			460	44	249				
			575	38	259				
40	(30)	3	200	100	630	198	E	35	6/1165
			230	99	495				
			460	50	249				
			575	41	249				
47	(35)	3	200	130	870	298	H	40	4/1760
			230	113	750				
			460	57	375				
			575	46	315				

PUMP MOTOR HP	EFFICIENCY			POWER FACTOR		
	100% LOAD	75% LOAD	50% LOAD	100% LOAD	75% LOAD	50% LOAD
30 (4-pole)	86.5	86.5	85.5	0.90	0.88	0.81
30 (8 pole)	86.0	86.5	85.5	0.79	0.74	0.63
35	86.5	87.0	85.5	0.87	0.83	0.75
40	86.0	87.0	86.0	0.88	0.85	0.78
47	87.5	87.5	86.0	0.89	0.86	0.80

Cable Data

HP	VOLTS	MAX. LENGTH FT.	CABLE SIZE/ NOMINAL DIA.	CONDUCTORS (IN ONE CABLE)	PART NUMBER
30 (4 pole)	**200	165	6/3-2-1-GC 31.0 (1.22")	(3) 6 AWG (PWR) (2) 10 AWG (CTRL) (1) 8 AWG (GND) (1) 10 AWG (GC)	94 21 09
	**230	220			
	460	450			
	575	700			
30 (8 pole)	**200	170			
	**230	230			
	460	450			
	575	700			
35 & 40	**200	145			
	**230	170			
	460	335			
	575	510			
47	**200	110			
	**230	145			
	460	290			
	575	455			

** Requires 2 cables

C-3201

REQUIREMENTS
Furnish and install 3 submersible non-clog wastewater pump(s). Each pump shall be equipped with an 47 HP submersible electric motor connected for operation on 460 volts, 3 phase, 60 hertz, 4 wire service, with 50 feet of submersible cable (SUBCAB) suitable for submersible pump applications. The power cable shall be sized according to N.E.C. and ICEA standards and also meet with P-MSHA Approval. For 230 volt service, two power cables shall be used to share the load and thus keep power cables to a manageable size. The pump shall be supplied with a mating cast iron 6 inch discharge connection and be capable of delivering 800 GPM at 113' TDH. An additional point on the same curve shall be - GPM at - feet total head. Shut off head shall be 168 feet (minimum). Each pump shall be fitted with 25 feet of 304SS Grip-Eye Cables. The working load of the lifting system shall be 50% greater than the pump unit weight.

PUMP DESIGN
The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. **Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be acceptable.** No portion of the pump shall bear directly on the sump floor.

PUMP CONSTRUCTION
Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be AISI type 304 stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

Sealing design shall incorporate **metal-to-metal contact** between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

COOLING SYSTEM
Each unit shall be provided with an adequately designed cooling system. The water jacket shall encircle the stator housing; thus, providing heat dissipation for the motor regardless of the type of installation. Impeller back vanes shall provide the necessary circulation of the cooling liquid through the water jacket. The cooling media channels and ports shall be non-clogging by virtue of their dimensions. Provisions for external cooling and seal flushing shall also be provided. The cooling system shall provide for continuous pump operation in liquid temperature of up to 104°F. Restrictions below this temperature are not acceptable.

CABLE ENTRY SEAL
The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal. **The cable entry junction chamber and motor shall be separated by terminal board, which shall isolate the interior from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems shall not be considered acceptable.**

MOTOR
The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of bolts, pins or other fastening

devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of 40°C (104°F) and capable of up to 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 125°C (260°F) shall be embedded in the stator end coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel. The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.

The combined service factor (combined effect of voltage, frequency and specific gravity) shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40°C (104°F) ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided upon request showing curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting current and torque.

The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.

The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.

BEARINGS

The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated. The upper bearing shall be a single roller bearing. The lower bearing shall be a two row angular contact bearing to compensate for axial thrust and radial forces. **Single row lower bearings are not acceptable.**

MECHANICAL SEAL

Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in an lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating, corrosion resistant **tungsten-carbide** ring. The upper, secondary seal unit, located between the lubricant chamber and the motor housing, shall contain one stationary and one positively driven rotating, corrosion resistant **tungsten-carbide** seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor **depend on direction of rotation for sealing.** For special applications, other seal face materials shall be available.

The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces. No system requiring a pressure differential to offset pressure and to effect sealing shall be used.

Each pump shall be provided with an lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication. **The motor shall be able to operate dry without damage while pumping under load.**

Seal lubricant shall be FDA Approved, nontoxic.

PUMP SHAFT

Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The pump shaft shall be of carbon steel ASTM A 572 and shall be completely isolated from the pumped liquid.

IMPELLER

The impeller(s) shall be of gray cast iron, Class 35B, dynamically balanced, double shrouded non-clogging design having a long throughlet without acute turns. The impeller(s) shall be capable of handling solids, fibrous materials, heavy sludge and other matter found in wastewater. Whenever possible, a full vaned, not vortex, impeller shall be used for maximum hydraulic

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efficiency; thus, reducing operating costs. Impeller(s) shall be keyed to the shaft, retained with an Allen head bolt and shall be capable of passing a minimum 3.0 inch diameter solid. All impellers shall be coated with an acrylic dispersion zinc phosphate primer.

WEAR RINGS
A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impeller. Each pump shall be equipped with a brass, or nitrile rubber coated steel ring insert that is drive fitted to the volute inlet.

This pump shall also have a stainless steel impeller wear ring heat-shrink fitted onto the suction inlet of the impeller.

VOLUTE
Pump volute(s) shall be single-piece grey cast iron, Class 35B, non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified.

PROTECTION
All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. The thermal switches shall open at 125°C (260°F), stop the motor and activate an alarm.

A leakage sensor shall be available as an option to detect water in the stator chamber. The Float Leakage Sensor (FLS) is a small float switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and/or remote. **USE OF VOLTAGE SENSITIVE SOLID STATE SENSORS AND TRIP TEMPERATURE ABOVE 125°C (260°F) SHALL NOT BE ALLOWED.**

The thermal switches and FLS shall be connected to a Mini CAS (Control and Status) monitoring unit. The Mini CAS shall be designed to be mounted in any control panel.

MODIFICATIONS

1. Explosion-proof Pumps (X).

Refer to the General Guide Specifications for additional information.

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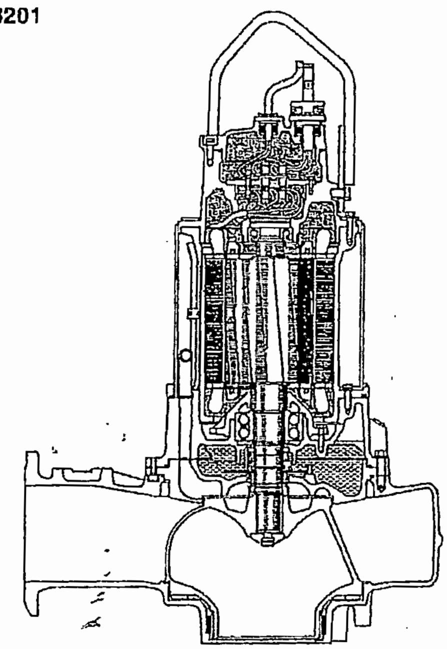

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ITT FLYGT WARRANTY

For the period defined, ITT FLYGT offers a commercial warranty to the original End Purchaser against defects in workmanship and material. Warranty covers parts and labor as outlined in **ADDENDUM – A.**

COVERAGE:
ITT FLYGT will pay the cost of parts and labor during the warranty period, provided that the product, with cable attached, is returned prepaid to an ITT FLYGT Authorized Service Facility for repairs. Coverage for parts and labor will be provided for the period shown in **ADDENDUM - A.** The warranty period will begin from date of shipment or date of a valid Start-up (For permanently installed pumps only). In cases where the Start-up date is used as the beginning of the warranty on a permanently installed pump, a Start-up Report completed by an approved service technician from an ITT FLYGT Authorized Service Facility must be received by the ITT FLYGT Area Service Manager within thirty (30) days of the initial onset of the unit placed into service. If not received, the beginning of the warranty coverage will default to the product ship date. A Start-up for a permanently installed pump must occur within one (1) year from the date of shipment from ITT FLYGT or warranty will automatically default to ship date as start of warranty. (See **STORAGE** section). When using the start-up date as the beginning of the warranty period then a copy of the Start-up Report is required to support a Warranty Claim. Warranty on Dewatering pumps will begin with ship date.

ITT FLYGT'S sole obligation under this Warranty shall be to replace, repair or grant credit for product upon ITT FLYGT'S exclusive determination that the product does not conform to the above warranty. In the event that the product is replaced, warranty on the replacement product will be equal to the balance remaining on the original product or ninety (90) days, which ever is greater.

MISUSE:
This Warranty shall not apply to any product or part of product which (i) has been subjected to misuse, misapplication, accident, alteration, neglect, or physical damage (ii) has been installed, operated, used or maintained in a manner and/or in an application contrary to ITT FLYGT's printed instructions for installation, operation and maintenance, including without limitation operation without being connected to monitoring devices supplied with specific products for protection; or (iii) has been damaged due to a defective power supply, improper electrical protection, faulty installation or repair, ordinary wear and tear, corrosion or chemical attack, an act of God, an act of war or by an act of terrorism; or (iv) has been damaged resulting from the use of accessory equipment not sold by ITT FLYGT or not approved by ITT FLYGT in connection with the product.

WEAR PARTS:
This warranty does not cover costs for standard and/or scheduled maintenance performed, nor does it cover parts that, by virtue of their operation, require replacement through normal wear (aka: Wear Parts), unless a defect in material or workmanship can be determined by ITT FLYGT. Wear Parts are defined as Cutters, Cutting Plates, Impellers, Agitators, Diffusers, Wear Rings (Stationary or Rotating), Volutes (when used in an abrasive environment), oil, grease and/or any items deemed necessary to perform normal maintenance on ITT FLYGT equipment.

DISCLAIMERS:
(i) ITT FLYGT'S warranties are null and void when the product is exported outside of the United States of America without the knowledge and written consent of ITT Flygt US; (ii) ITT FLYGT makes no independent warranty or representation with respect to parts or products manufactured by others and provided by ITT FLYGT (however, ITT FLYGT will extend to the Purchaser any warranty received from ITT FLYGT'S supplier of such parts or products).

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ITT FLYGT WARRANTY

LIMITATIONS:
ITT FLYGT NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON OR COMPANY TO ASSUME FOR ITT FLYGT, ANY OTHER OBLIGATION IN CONNECTION WITH THE SALE OF ITS EQUIPMENT. ANY ENLARGEMENT OR MODIFICATION OF THIS WARRANTY BY A DISTRIBUTOR, OR OTHER SELLING AGENT SHALL BECOME THE EXCLUSIVE RESPONSIBILITY OF SUCH ENTITY.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, CONDITIONS OR TERMS OF WHATEVER NATURE RELATING TO THE PRODUCT(S), INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED. PURCHASER'S EXCLUSIVE REMEDY AND ITT FLYGT'S AGGREGATE LIABILITY FOR BREACH OF ANY OF THE FOREGOING WARRANTIES IS LIMITED TO REPAIRING OR REPLACING THE PRODUCT AND SHALL IN ALL CASES BE LIMITED TO THE AMOUNT PAID BY THE PURCHASER HEREUNDER. IN NO EVENT IS ITT FLYGT LIABLE FOR ANY OTHER FORM OF DAMAGES, WHETHER DIRECT, INDIRECT, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFIT, LOSS OF ANTICIPATED SAVINGS OR REVENUE, LOSS OF INCOME, LOSS OF BUSINESS, LOSS OF PRODUCTION, LOSS OF OPPORTUNITY OR LOSS OF REPUTATION.

ITT FLYGT WILL NOT BE HELD RESPONSIBLE FOR TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR'S FEES, EXPENSES PERFORMED BY AN UNAUTHORIZED REPAIR SHOP, UNAUTHORIZED ALTERATIONS, OR FOR PUMPS USED WITHOUT ITT FLYGT SUPPLIED CABLE OR CONTROLS UNLESS IT CAN BE PROVEN SUCH ANCILLARY EQUIPMENT IS SUITABLE FOR THE PURPOSE AND EQUAL TO ITT FLYGT CABLES OR CONTROLS THAT WOULD ORIGINALLY BE SUPPLIED WITH THE TYPE OF EQUIPMENT IN USE. REIMBURSEMENT COSTS FOR CRANES AND/OR ANY SPECIAL EQUIPMENT USED IN CONJUNCTION FOR THE REMOVAL OR REINSTALLATION OF ANY ITT FLYGT EQUIPMENT IS NOT COVERED UNDER THIS WARRANTY.

REQUIREMENTS:
A copy of Electrical System Schematics of the control used (including Control's Bill of Material) could be required to support a Warranty Claim when a non Flygt control is used. In addition, a written record, hereby known as "the log", will be associated with each unit serial number and must be maintained by the organization having product maintenance responsibility. The log must record each preventative maintenance activity and any repair activity during the life of the warranty or verification that a Flygt authorized Service Contract is in force and is available for review and/or auditing. Failure to meet these conditions could render this warrant null and void. Such logs could be required to determine warranty coverage.

STORAGE:
Should a delay occur between ship date and the date of start-up, maintenance as outlined in ITT FLYGT's *Care & Maintenance Manual* must be performed by the "CONTRACTOR" and/or "OWNER" during any such period of storage. Documentation providing proof and outlining what maintenance was performed must be provided to ITT FLYGT or its representative within thirty (30) days of said maintenance, or the ITT FLYGT warranty could be considered void.

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ITT FLYGT WARRANTY

CONTROLS:

Warranty coverage for permanently installed controls start on date of shipment to end purchaser. This warranty does not apply to controls that have been damaged due to a defective and/or improper input power supply, improper electrical protection, accidental damage, improper or unauthorized installation and/or repair, unauthorized alteration, negligence, environmental corrosion or chemical attack, improper maintenance or storage of control, any act of God, an act of war, an act of terrorism or damage resulting from the use of accessory equipment not approved by ITT Flygt. Further, this warranty does not apply in the event an adjustment is found to correct the alleged defect.

Solid state devices will be covered for a period of one year. Electrical control panels containing controllers, PLC's, drives, soft starts, and other computerized equipment require Transient Voltage Surge Suppression (TVSS) protection in order to satisfy the requirements of this warranty. The protection equipment associated with the control must be kept in working condition during the life of the warranty. Auxiliary equipment supplied with the control (air-conditioners etc.) is limited by the respective original equipment manufacturer's warranty offered. Components not supplied by Flygt are not covered by this warranty.

TOPS (The Optimum Pump Station)

ITT Flygt will warrant the TOPS pre-engineered fiberglass pump station components against defects in material and workmanship for a period of one (1) year from date of start-up or eighteen (18) months from date of shipment, whichever is sooner to the original owner of the station. Warranty shall cover the cost of labor and materials, excluding removal and reinstallation costs, required to correct any warrantable defect, FOB, Manufacturer's authorized warranty service location. ITT Flygt products contained within a TOPs pre-engineered fiberglass pump station will carry the standard ITT Flygt warranty for the product and/or accessory installed in the TOPs pre-engineered fiberglass pump station.

All restrictions and/or limitations as outlined and described within the context of this warranty are germane to all sections of this ITT Flygt Warranty document.

ITT Flygt US
National Quality Assurance - US Corporate
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ADDENDUM – A **WARRANTY COVERAGE BY PRODUCT**

PRODUCT	PRODUCT SERIES AND CONFIGURATION	Months [illegible]	Months [illegible]	Months [illegible]	Months [illegible]	Months 40-60
Axial Flow/ Mixed Flow/ Centrifugal Pumps & Mixers	3000 Series (CP, NP, DP, CT, NT, CZ, LL) 7000 Series (PL), 4000 Series (SR, PP)	100%		50%		25%
Electrical Control Panels (permanently installed)	Flygt Manufactured Control Panels	100%				
Abrasion/Corrosion Resistant & Chopper/ Grinder Pumps	3000 Series (MP, MF, MH, FS, FP, HP, HS) 5000 Series (HP, HS)	100%				
Dewatering Pumps	2000 Series (BS, KS) 3000 Series (CS, NS, DS)	100%				
Hydro ejectors/ Aerators	HE, JA	100%				
Accessories	Permanent / Portable	100%				
Portable Pump Controls	Control Boxes (Nolta , MSHA etc,)	100%				
Small Pumps	3045, 3057, SX	100%				
Parts - *	All new spare parts	100%				

* - Parts that fail where used in a repair are warranted for one (1) year from the date of the repair for the failed part only – no labor.

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Installation Procedures

The faultless functioning of a Flygt Pumping Station will depend upon the correct selection of the pump to suit system requirements and proper installation. A great majority of Flygt Electric Submersible Wastewater Pumps are installed in underground wet pits with Automatic Discharge Connections, Guide Bars and Access Covers as shown in the station drawings. Wet Pits constructed of precast concrete rings offer significant savings in labor costs over poured-in-place concrete, masonry or brick and are universally accepted for use in sanitary or storm sewer systems. Precast concrete sections are available up to 120 inch inside diameter (sometimes up to 144 inch inside diameter) throughout the U.S. and are generally manufactured in accordance with the provisions of ASTM Specification C478.

Because of this, Flygt Corporation's official engineering documentation is based on stations designed in precast concrete circular man-holes. Each individual station drawing shows a suggested Simplex and a suggested Duplex Pumping Station built of precast concrete sections installed between a Bottom Slab and a Top Slab (the Top Slab, usually at ground level, contains the cast-in Access Cover). The configurations and dimensions shown on these Proposed Layouts are suggested minimum requirements only, all details, including sizing of pit, type, size, location and arrangement of valves and piping, etc. are to be specified by the Consulting Engineer and are subject to his approval.

The following is a partial list of useful suggestions for construction and installation. (Please always observe local regulations applicable).

A. Excavation:
Excavate a large enough hole to provide sufficient working room around the station. The outside diameter of the Bottom Slab should be at least one foot larger than that of the concrete sections used.

B. Connecting Pipes:
Provide connecting holes for the Influent Pipe, Effluent Pipe(s) and Cable Thrulets in accordance with the Engineer's specification. Flexible joints outside of concrete wall will reduce the danger of dislocation due to settlement.

C. Backfill:
Backfill gradually and evenly around station after concrete and joints have hardened. Compact backfill to minimize post-installation settlement.

D. Top Slab with Access Cover:
Diameter of Top Slab shall be at least two feet larger than O.D. of ring sections. The Access Cover must be installed and properly oriented in the Top Slab.

1. See Station Drawings for Pump Model and Access Cover location in relation to the centerline of the station.
2. Positioning of the Hinge Side of the Cover (See Accessories Section).
3. The Top Slab and Access Cover must be level.
4. For Heavy Duty Covers (See Accessories Section).

E. Automatic Discharge Connection:
The Automatic Discharge Connection must be attached to the Bottom Slab at the exact location required relative to the Access Cover.

SUGGESTED PROCEDURES:

1. Attach the Upper Guide Bar Bracket(s) to the Access Frame (See Accessories Section). Also, the centerline of the Bracket(s) will determine the centerline of the installed pump(s).
2. Place the pump Discharge Connection(s) on the Bottom Slab and line up as shown in the Accessories Section.
3. Cut to length and install the Guide Bars between the Upper Guide Bar Bracket(s) and Discharge Connection(s).
4. Before securing anchor bolt nuts, check across the Discharge Connection(s) Outlet Flange(s) face with level and shim if necessary. Guide Bars should be Parallel and Vertical.

F. Internal Piping and Manifold:
Use proper gaskets, tighten bolts gradually and evenly. In deep stations, install Discharge pipe Brackets to relieve Discharge Connections from overload and intermediate Guide Bar Brackets to prevent Guide Bars from bending.

Installation Procedures

G. Installation of Pump Units:
Lower Pump Units into place along guide bars. Check visually metal-to-metal contact between Volute Flange and Discharge Connection.If necessary, re-check and re-align Discharge Connection(s) and Guide Bars with pumps in place.

H. Grouting:
After proper alignment of all components, including metal-to-metal connection of pump flange is established, grout Access Cover, Discharge Connection(s) and Pipe Thrulets. Build up and shape slopes at bottom of the station as shown in Station Drawings. This will help in preventing build-up of solids at the bottom where side walls meet the floor.

I. Surface Protection:
An epoxy-coal tar system is suggested for all internal surfaces, concrete or metallic, if possible, follow the recommendations in WPCF Manual of Practice No. 17 "Paints and Protective Coatings for Wastewater Treatment Facilities" or the instructions of a reputable manufacturer of protective coating systems, such as Carboline, Koppers, Inertol, Perry-Austen, etc. Proper surface preparation and careful application will pay off in reduced maintenance costs and longer life.

J. Storage of Pump Units Prior to Start-Up:
It is ***not*** good practice to store the Pump Units in the wet pit, especially when long periods between installation and start-up are anticipated. If this practice cannot be avoided, rather than leaving them on their Discharge Connections, secure them and their power cable at some point above any anticipated liquid level. Pay special attention to unprotected open cable ends; seal them off and make sure that they are not submerged or exposed to moisture. Penetration of moisture thru the cable may cause breakdown of the insulation, arcing at the pump terminal board, destruction of the Junction Chamber and serious damage to the pump. If in doubt, before start-up, re-check the cable, Cable Entry and Junction Chamber following instructions in the Maintenance Manual under "Electrical Checks". If possible, connect Pumps power cables to Control Panel and during longer periods until the official start-up, start and run the units manually for 30 seconds at least once every two weeks. (see "Storage" in this section.)

Storage

Each Flygt pump leaves the factory properly assembled and prepaired to perform even after a reasonable idle time in storage. However, as prolonged idle time can be detrimental to any rotating machinery, the procedures outlined below should be followed in order to insure that the equipment is in top condition to operate when finally installed. Whenever possible, store pumping units in a dry environment free of extreme temperatures and strong direct sunlight.

NEW pumps:

Storage 6 to 12 months:
In general, rotating machinery left idle for extended periods of time, tends to establish a "set" position due to inaction of the moving parts. Some of these areas may be damaged (especially seals) from the sudden fast breakaway of start-up after a prolonged idle time. To insure that all rotating parts are free for final installation and start-up, it is good practice to rotate the impeller by hand once a month. It is also good practice to relieve the tension on the cable entry sealing grommet by backing off the cable entry compression screws slightly. If this is done, it is most important that a clear note be attached as a reminder to: ***Re-Tighten Cable Entry Compression Screws Before Installation.***

Storage 12 to 24 months:
In addition to the above, apply a protective spray coating of silicone or rust inhibiting oil to the impeller and inside of the volute by spraying in through the volute outlet and up through the volute inlet. Also coat the volute outlet flange face.

USED pumps:

Before storing a used pump for an extended period of time, the unit should be dismantled, checked for any defects, repaired where necessary and reassembled. At reassembly, follow instructions in the ***Service Manual***, especially regarding seal assemblies. Protect the impeller and volute as mentioned in the paragraph above.

In all cases, it is good practice to check all external bolts, nuts and screws for tightness before final installation after extended storage.

CONTROLS:

It is most important to make sure that Electrical Controls, when subjected to extended storage, be stored in a protected dry environment. free from any corrosive atmosphere. Moisture in any form, including condensation, can cause serious corrosion problems to the contact point surfaces as well as terminal connections.

Even though all terminal connections have been made tight on initial assembly at the factory, they may not remain 100% tight over an extended storage period due to the compressibility of the copper wire and possible movement due to variations in ambient temperature. The problem will vary in degree depending on wire size and whether the terminal connection is of solid or stranded wire. To insure proper operation, recheck all terminal connection screws for tightness prior to placing the control on line.

Explosion-proof Pumps

Explosion-proof Pumps for Hazardous Locations

ITT Flygt Electric Submersible Explosion-proof Wastewater Pumps are examined; tested, and approved by Factory Mutual Research (FM) as Explosion-proof. They conform to the latest edition of the National Electrical Code (NEC), Articles 500, 501, 502, and 503 requirements as explosion proof and suitable for use in Class I, Division 1, Groups C and D, and dust ignition proof and suitable for use in Class II, Division 1; Groups E and G hazardous locations, and suitable for use in Class III, Division 1 hazardous locations. FM approval also meets OSHA (Occupational Safety and Health Administration) requirements.

Definition of Hazardous Locations by NEC

Class I locations are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosion or ignitable mixtures.

Class I, Division 1 location is a location: (1) in which ignitable concentrations of flammable gases or vapors exist under normal operating conditions; or (2) in which ignitable concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or (3) in which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases or vapors, and might also **cause** simultaneous failure of electric equipment.

Class II locations are those that are hazardous because of the presence of combustible dust.

Class II, Division 1 location is a location: (1) in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures; or (2) where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes; or (3) in which combustible dusts of an electrically conductive nature may be present.

Class III locations are those that are hazardous because of the presence of easily ignitable fibers or flyings but not likely in air suspension in quantities sufficient to produce ignitable mixtures.

Class III, Division 1 location is one in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.

Special Features

The construction of an Explosion Proof pump is similar in most respects to the standard wastewater pump, but differs in the following details:

1. Hydrostatically pressure tested high strength, cast iron housings are designed to withstand an internal explosion and have long tight flame paths to reduce exit temperature of any exploding gases to a value below the ignition temperature of the surrounding environment.

2. All pumps have required pilot thermal sensors embedded in stator windings, to guarantee that the pump surface temperature never exceeds safe limits, avoiding possible environmental ignition.

3. Externally mounted leakage sensors may not be used unless explosion proof or intrinsically safe (consult factory for details).

4. Special approved power cables required: Flygt SUBCAB.

5. All pumps, except 3075(X), 3085(X), 3102(X) and 3127(X), have a **special** stator inspection plug. The 3075(X), 3085(X), 3102(X) and 3127(X) stator housings are inspected for leakage through the cable entry. Here, penetration of oil from the oil chamber below, or water from the junction chamber above can be detected.

6. ITT Flygt controls supplied with these pumps incorporate the following **required** circuits:

   A. Motor pilot thermal sensors (connection is approval **mandatory**).

   B. Intrinsically safe relays for ENM-10 level sensors (or equal) - usage is **mandatory.**

CAUTION: All controls, used with these pumps but not supplied by ITT Flygt, **must** be designed according to the latest applicable standards. See Tab Section 11 for additional details and requirements.

Environmental Limits

The maximum temperature of exposed (external) pump surfaces is self controlled by the motor pilot thermal switches. Maximum allowed ambient (environmental) temperature is 115°F (46°C).

Explosion-proof Pumps

CAUTION: To maintain APPROVAL, the pump cannot be altered without Factory Mutual permission and service must be done by an Explosion-proof CERTIFIED repairman. For training and certification details, consult factory.

Application of Explosion-proof Pumps

These pumps may be used in sewage wet wells that are classified as Class I, Division 1, Groups C and D hazardous locations (gases and vapors). They can also be used in applications that are classified as Class II, Division 1, Groups E and G hazardous locations (typified by grain or coal storage); also, Class III, Division 1 locations (fibers and flyings).

Other areas, which may be classified hazardous under normal conditions and where the use of Explosion-proof pumps for handling contaminated wastewater is required are: refineries, petrochemical industry locations, tank farms, gas utility vaults, etc., always taking into consideration that these pumps are **not designed or approved as process pumps deliberately and protractedly handling high concentrations of hazardous liquids, e.g.: gasoline, etc.**

Limitations

1. CP/CS, DP/DS and FP/FS 3085(X) does not optionally have a terminal board as does the standard version.
2. CP/CT/CS and HP/HS 3201(X) for 230 volt service requires two (2) 6/3-2-1 power cables.
3. None of these Explosion-proof pumps is available in the Warm Liquid (WL) variant.

Division 2, All Classes: For Class I or II locations, a Division 2 designation means that the ignitable or combustible materials will not normally be present in hazardous concentrations except by accident or malfunctions of containing or protective systems. In Class III locations, Division 1 and 2 are almost the same (check NEC Article 503).

Equipment approved as suitable for use in Division 1 locations is automatically suitable for use in Division 2 locations. **However**, if the Authority Having Jurisdiction has definitely defined the area as Division 2, standard submersible pumps (motors) may be used so long as they do not contain any open (non-hermetically sealed) ignition sources (See NEC Article 501-8 and 502-8) and use motor pilot thermal switches to limit surface temperatures. Standard ITT Flygt submersible pumps meet these requirements.

Classification

A sewage wet well (or any other wastewater collection location) is not automatically a hazardous location. The nature and classification of any location must be determined and indicated by whoever is considered to be the Authority Having Jurisdiction.

This Authority is not always easily determined. Care and diligence must be exercised to make sure, once a preliminary identification has been made, that there is not some other superseding Authority.

Depending on the type and geographical position of the "location", the Authority may range the gamut from a federal agency to state, regional, local agencies or the consulting or plant engineer. Often the best source of information is the state Administrative Code or a state agency such as a Department of Environmental Protection (DEP), Environmental Protection Agency (EPA), Department of Health, etc.

Approval Requirements (NEC/Factory Mutual)

Class I, Division 1: suitable equipment must be explosion proof. It must also contain pilot motor thermal sensors (which must be connected in the motor control).

Class II, Division 1: suitable equipment must be "dust ignition proof" and use motor pilot surface temperature limiting thermal switches as in Class I.

Class III, Division 1: suitable equipment need only be totally enclosed, non ventilated.

Current Approvals for hazardous location pumps previously noted are by FM (Factory Mutual Research). FM is officially listed by OSHA (Occupational Safety & Health Administration) in the Federal Register as a Nationally recognized testing laboratory (NRTL). It is in all regards equivalent to UL (Underwriters Laboratory).

Restrictions: The listed (X) pumps are not approved for "process pumping" where high concentrations of liquids (other than wastewater) are handled for process work, transfer, or recovery. The acceptable usage is for handling wastewater (contaminated water, sewage, etc.) for the purposes of treatment, transfer, storage, or disposal.

No accessory equipment may be attached to an approved pump unless it is specifically approved for the location or "intrinsically safe" (See NEC 500-2 for Intrinsic Safe requirements).

Explosion-proof Pumps

WARNING: All NEC and local code requirements must be scrupulously observed when making an installation. Be certain that glands and conduits where pump(s) or control wiring/cable passes from a hazardous location (wet pit, etc.) to electrical service, controls, or nonclassified area are suitably sealed against passage of gases or liquids.

Aggressive Liquids: Depending on temperature, pH, concentration, and their intrinsic reactivity, certain contaminant chemicals (acids, alkalies, solvents, etc.) may have a deteriorating effect on the equipment and pose a safety hazard to the installation. Be careful to fully examine these circumstances with the end user or his representative and consult with ITT Flygt.

A number of alternative configurations or approaches are available which may make the equipment suitable in the presence of these materials: alternate elastomers, cable sheathing, special cable entries, etc.

Accessories: Non-sparking bronze "Safe-Slide®" installation/removal guide accessories are available for all approved pumps. While not required by the Approval Authority they may be desired by local authorities and do provide an extra margin of safety for particularly hazardous classified locations.

Cable: Flexible cords or cables used in hazardous locations must be of the NEC type "extra-hard usage" and be specifically approved/tested for the approved equipment (motor/pumps) which they will be used with. No unapproved substitutions may be made without loss of official approval. Cables supplied by ITT Flygt and used with ITT Flygt electric submersible pumps are FM tested and approved for the hazardous locations listed for the pumps in the beginning of this Explosion-proof pumps section.

To protect against the damaging and unsafe effects of very aggressive contaminants (liquids, dissolved solids) in the wastewater, special cable entries are available which will allow pipe or stainless steel flex hose sheathing to be attached to protect the cable.

Special Exceptions for Hazardous Locations: It is possible in some circumstances to use standard pumps in what would normally be declared as hazardous locations. These approaches are supported by various codes but may **not** be used if specifically disallowed by an Authority Having Jurisdiction.

Guaranteed Pump Submersion (GPS): If the equipment is so controlled that the liquid level never falls below a point 4 - 6 inches above the topmost point of the pump, then standard non-approved pumps may be used. This is because the volume below a liquid surface is not considered hazardous.

The means for guaranteeing that a pump will always remain submerged during operation vary from one part of the country to another. Consult ITT Flygt for appropriate configurations.

Declassification: An examination of local/state administrative codes, NEC Chapter 5, and NFPA Standard 70C and 496, shows that a hazardous location may be reduced in classification from Division 1 to Division 2 or even to a nonhazardous condition through the use of suitable air purging and use of monitoring safeguards. This would then allow the installation of standard pumping equipment.

This is a common practice in many parts of the country when the installation makes it practical. The approach has additional benefits: purging not only removes any explosive/flammable gases, but also removes smothering or poisonous gases thus improving the personnel safety aspects of the location.

Mine Safety and Health Administration (MSHA)

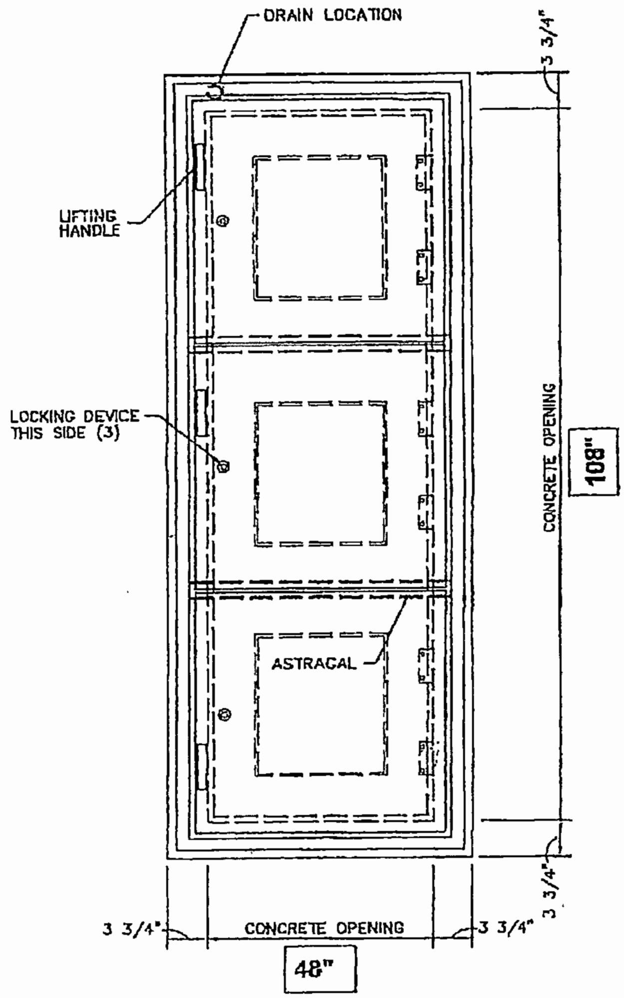
Equipment approved by MSHA (Permissible-suitable for use in gassy mines) may **not** be used in any hazardous location covered by the NEC categories (Class I, II, or III) without written permission of the Authority Having Jurisdiction.

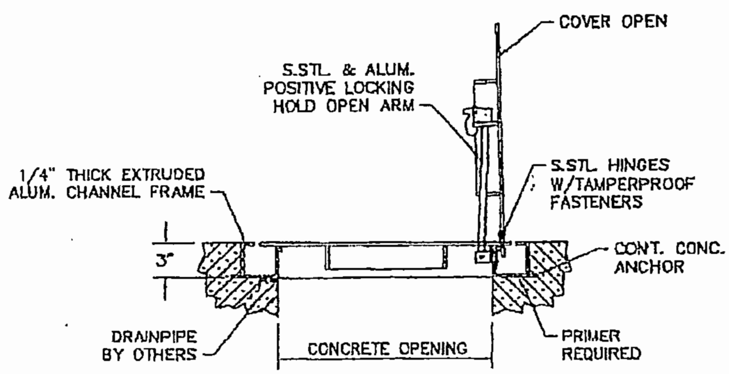
Nor may equipment approved/listed by FM or UL be used in a gassy mine without the written approval of MSHA.

HALLIDAY PRODUCTS, INC.
ORLANDO, FL
http://www.hallidayproducts.com

HALLIDAY PRODUCTS

MODEL NO. W3S048108CBD--D--
UNIT WT. 302 LB.
QUANTITY: 1
ORDER NO. Q46147
DATE 4/15/08
LOCATION/TAG: NONE





SECTION

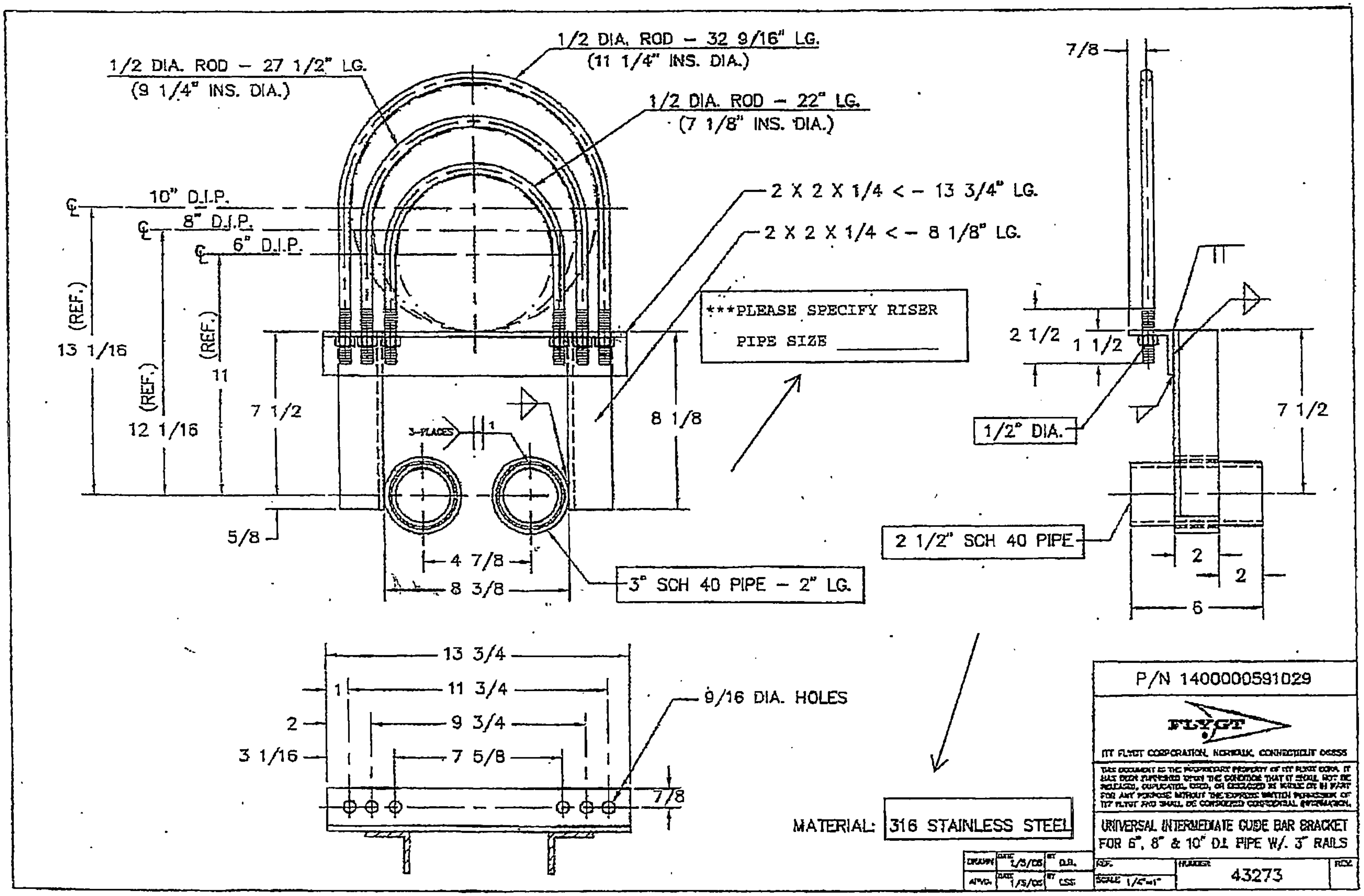
STANDARD FEATURES:

1/4 ALUMINUM TREAD PLATE COVER
1/4 THICK ALUMINUM FRAME EXTRUSION
T-316 STAINLESS STEEL HARDWARE
S.STL. & ALUM. HOLD OPEN ARM
1 1/2" DRAIN COUPLING
RECESSED LIFT HANDLE (S)
LIFETIME GUARANTEE
300 LB. PER SQ. FT. LOAD RATING

X	ASTRAGAL:	DRIP CHANNEL WELDED TO COVER

OPTIONS/FEATURES:

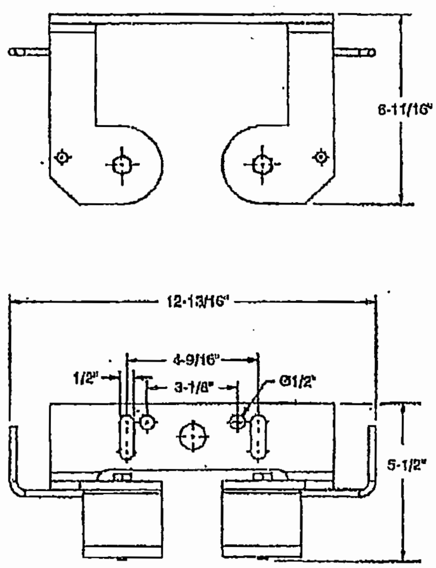
	PADLOCK BAR
X	S.STL. SLAM LOCK W/ KEY
	KEYED CYLINDER LOCK
	RECESSED LOCK BOX
X	BITUMINOUS COATING
	CLEAR ANODIZED FINISH
	LACQUER FINISH
X	SPRING ASSIST
X	GASKET/CUSHION **
	2" INSULATION W/ CAPTIVE PAN
	NUTRAIL - SPECIFY LENGTH & LOCATION
	1/2 X 2 CENTER BAR
	BOLT DOWN COVER
	SAFETY CABLE W/ POST
	SLAB SKIRT HEIGHT (INCLUDING FRAME)
	PVC PROTECTIVE COVER
	INSPECTION DOOR
	MODULAR DESIGN
	SIDE DRAIN LOCATION
	SPECIAL DRAIN LOCATION
	MISCELLANEOUS



1/2 DIA. ROD – 32 9/16" LG.
(11 1/4" INS. DIA.)
1/2 DIA. ROD – 27 1/2" LG.
(9 1/4" INS. DIA.)
1/2 DIA. ROD – 22" LG.
(7 1/8" INS. DIA.)
10" D.I.P.
8" D.I.P.
6" D.I.P.
2 X 2 X 1/4 < – 13 3/4" LG.
2 X 2 X 1/4 < – 8 1/8" LG.
***PLEASE SPECIFY RISER
PIPE SIZE
(REF.)
13 1/16
(REF.)
12 1/16
(REF.)
11
7 1/2
8 1/8
3-PLACES
5/8
4 7/8
8 3/8
3" SCH 40 PIPE – 2" LG.
7/8
2 1/2
1 1/2
1/2" DIA.
7 1/2
2 1/2" SCH 40 PIPE
2
2
6
13 3/4
11 3/4
9 3/4
7 5/8
1
2
3 1/16
9/16 DIA. HOLES
7/8
MATERIAL: 316 STAINLESS STEEL
P/N 1400000591029
FLYGT
ITT FLYGT CORPORATION, NORWALK, CONNECTICUT 06855
THIS DOCUMENT IS THE PROPRIETARY PROPERTY OF ITT FLYGT CORP. IT HAS BEEN FURNISHED UPON THE CONDITION THAT IT SHALL NOT BE RELEASED, DUPLICATED, USED, OR DISCLOSED IN WHOLE OR IN PART FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF ITT FLYGT AND SHALL BE CONSIDERED CONFIDENTIAL INFORMATION.
UNIVERSAL INTERMEDIATE GUIDE BAR BRACKET FOR 6", 8" & 10" D.I. PIPE W/. 3" RAILS
DRAWN DATE 1/5/05 BY D.B.
APVD. DATE 1/5/05 BY CSS
REF.
SCALE 1/4"=1"
NUMBER 43273
REV.

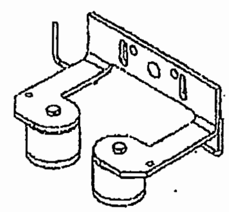
3" UPPER GUIDE BAR BRACKET

661 54 01 - 316 Stainless Steel

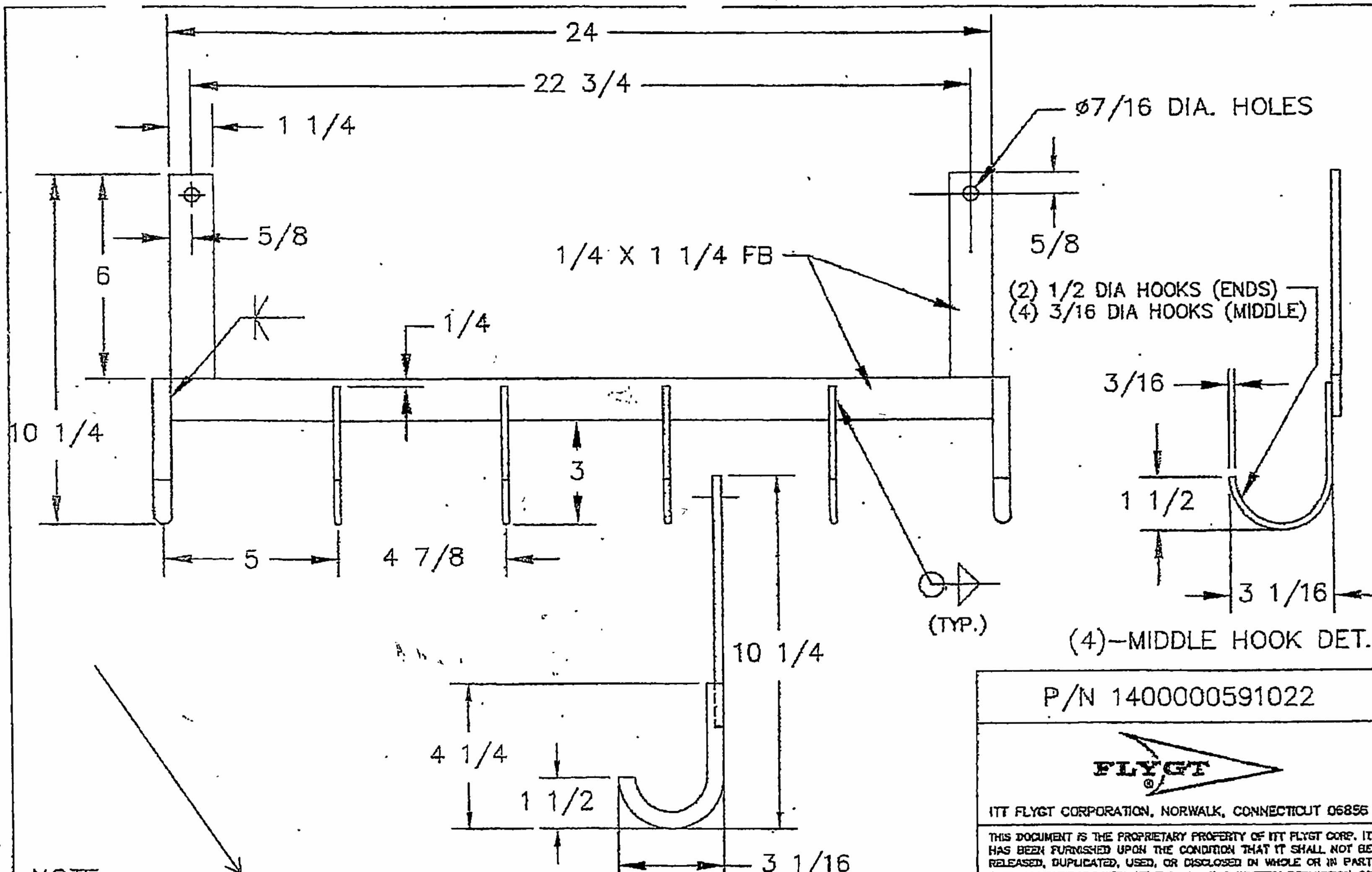


Standard for the following pumps:

CP-3170	CP-3312
NP-3171	CP-3351
CP 3201	CP-3356
NP-3202	CP-3400
CP/RP-3231	CP-3501
CP/NP/RP-3300	CP-3531
NP-3301	CP-3602
CP-3306	CP-3800



Note: use with 3" nominal guide bars



NOTE:
WALL OR ACCESS FRAME MOUNTED
MATERIAL: 316 STAINLESS STEEL

TYP. 2 PLACES
@ BOTH ENDS

P/N 1400000591022

FLYGT®

ITT FLYGT CORPORATION, NORWALK, CONNECTICUT 06856

PUMP AND FLOAT CABLE RACK

	DATE	BY	REF.	NUMBER	REV.
DRAWN	1/5/06	D.B.		43293	
APVD.	1/5/06	LSS	SCALE 1/4"=1"		

ITT Flygt Grip-Eye System

The normal method of lowering and raising a CP pump in and out of a lift station is by use of a chain or cable attached to the pump. The length of the chain or cable is dependent on the depth of the station. The average length would probably be between 18 to 20 ft. and in certain cases may be much longer. In many cases, depending on the lifting device (usually a hoist), the operator may have to take a second or third bite on the pump chain in order to lift the pump clear of the station.

An added accessory to the ITT Flygt line is the pattented ITT Flygt Grip-Eye System which consists of 33 ft. of nylon line; a short length of high tensile strength galvanized chain and a forged "Grip-Eye" of wrought alloy steel.

The operation of this positive recovery system is as follows:

1. Connect the small eye of the grip-eye to the end of the hoist cable.
2. Slip the end of the nylon line through the large eye of the grip-eye. The nylon line simply acts as a guide for the grip-eye on its way down to the short length of the pump lifting chain.
3. While keeping the nylon line (guide line) taut, proceed to lower the grip-eye until it is well positioned over the pump lifting chain.
4. Release the tension on the nylon guide line. The lifting chain will now take a position to become engaged in the grip-eye.
5. Gradually take up tension on the hoist cable and the grip-eye will make a positive grip on the pump lifting chain. Continue hoisting until the pump is clear of the station.

Caution: The Grip-Eyes may only be used with the corresponding special ITT Flygt Chain Sling Units.

Grip-Eyes are not warrantied if other chains are used.

Refer to the following pages for pump models and correct assembly.

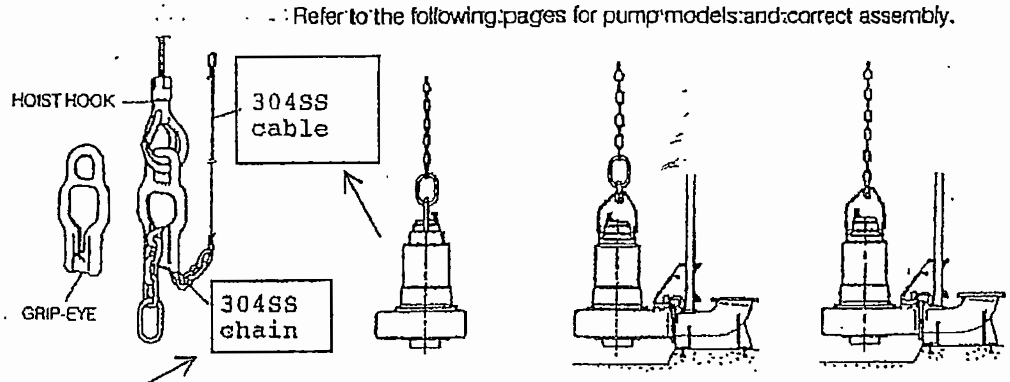


FIG. 1
(Standard) The end ring of the Chain Sling is slipped over the pump lifting handle

FIG. 2
(Customer to supply extra shackle) A shackle can be used in conjunction with the standard ring should customer choose not to remove and replace pump handle.

FIG. 3
(Standard) This type comes with a shackle as part of the Chain Sling for connecting to pump lifting handle.

316SS

AC100 Plus™ *Epoxy Acrylate Adhesive Anchoring System*

PRODUCT DESCRIPTION

The AC100 Plus epoxy acrylate adhesive system is a two-component, structural adhesive which is packaged in engineered plastic cartridges. It is used with either a manual, pneumatic or power-operated injection tool and proportionally mixed through a static-element mixing nozzle. AC100 Plus has been vigorously tested to meet or exceed required standards as an anchoring adhesive. This all-weather adhesive can be used effectively in temperatures as low as -4°F (-20°C).

AC100 Plus is designed for use in anchoring threaded rods, bolts, reinforcing bars, and smooth dowels into concrete and masonry base materials. The system can also be used to anchor into hollow masonry materials using rod and rebar with screen tubes. The AC100 Plus adhesive is a 100% solids, low odor, moisture insensitive formulation which does not contain volatile organic compounds (VOC's) and is free of styrene and solvents.

GENERAL APPLICATIONS AND USES

- Heavy duty anchoring such as rebar, threaded anchor rods, and threaded bolts in solid concrete, grout filled block, stone, etc.
- Used in wet environments, a wide range of temperatures and whenever solvent or styrene fumes are not acceptable
- Anchoring with screen tubes in hollow block or brick
- Repair and retrofit projects

FEATURES AND BENEFITS

- Listed and approved to resist dead loads, live loads, and short-term loads such as those resulting from wind or earthquake
- Superior dispensing speed and fast cure even in low temperatures
- All-weather material is ideal for cold and moderate environment applications
- 100% solids, styrene-free, anchoring mortar with no VOC's
- Available in five cartridge sizes to match project and application
- Non-flammable, does not contain hazardous methyl-methacrylate like other "acrylic" formulas
- Virtually odorless for indoor and outdoor applications
- Meets the requirements of ASTM C881, Types I and IV, Grade 3, Class A, B and C
- Optimal for use in diamond cored holes
- Suitable for dry, damp or water-filled holes
- Meets current building code and DOT requirements
- High load capacities in concrete and masonry
- Excellent chemical resistance
- Independently tested and qualified to ASTM E1512 and AC58 Criteria, including creep resistance, freeze-thaw cycling and simulated seismic/wind conditions

APPROVALS AND LISTINGS

International Code Council, Evaluation Service (ICC-ES) ESR-1686
City of Los Angeles (COLA) Research Report LARR-25579
Miami-Dade County Notice of Acceptance (NOA) 04-0820.02
Meets ASTM C881 and AASHTO M235
Various North American Departments of Transportation (DOT) – See www.powers.com

GUIDE SPECIFICATIONS

CSI Divisions: *03151-Concrete Anchoring, 04081-Masonry Anchorage* and *05090-Metal Fastenings.* Adhesive anchoring system shall be AC100 Plus as supplied by Powers Fasteners, Inc., New Rochelle, NY.

SECTION CONTENTS Page No.

ADHESIVES

AC100 Plus Coaxial Cartridge

AC100 Plus Dual Cartridge

PACKAGING

Coaxial Cartridge
5.5 fl. oz. (160 ml or 9.9 in³)
10 fl. oz. (295 ml or 18.0 in³)

Dual (Side-by-Side) Cartridge
8 fl. oz. (235 ml or 14.4 in³)
12 fl. oz. (355 ml or 21.6 in³)
30 fl. oz. (890 ml or 54.0 in³)

ANCHOR SIZE RANGE (TYP.)

3/8" to 1-1/4" diameter rod
No.3 to No.11 reinforcing bar
3/8" to 1-1/4" smooth dowel bar
1/2" to 3/4" internally threaded inserts

SUITABLE BASE MATERIALS

Normal-weight Concrete
Structural Lightweight Concrete
Grouted Concrete Masonry
Hollow CMU
Brick Masonry
Stone

MATERIAL AND INSTALLATION SPECIFICATIONS

Physical Properties of Adhesive

Shelf Life	18 months from date of manufacture
Storage Conditions	14°F (-10°C) to 86°F (30°C)
Injection Temperature	-4°F (-20°C) or greater
Color	Component A (Resin) – White Component B (Hardener) – Black
Mixing Ratio	10:1 by volume
Consistency	Uniform, non-sag gray mortar
Shore Hardness (ASTM D2240)	90
Compressive Strength (ASTM D 695)	10,100 psi, 7 days
Tensile Strength (ASTM D 638)	2,100 psi
Flexural Strength (ASTM D 790)	3,670 psi
Slant Shear Strength (ASTM D732)	4,590 psi
Water Absorption (ASTM D 570)	Less than 1% (0.11%)
Bond Strength (ASTM C 882)	1,380 psi, 2 Day Cure 1,760 psi, 2 Day Cure
Shrinkage (ASTM D 2566)	0.004 in/in
Heat Deflection (ASTM D 648)	176°F (80°C)

Setting Times

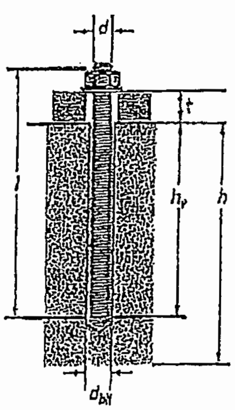
Base Material Temperature	Maximum Gel Time[1]	Minimum Curing Time[2]
-4°F (-20°C)	12 hours	72 hours
5°F (-15°C)	8 hours	24 hours
14°F (-10°C)	4 hours	12 hours
23°F (-5°C)	2 hours	6 hours
32°F (0°C)	40 minutes	4 hours
41°F (5°C)	20 minutes	2 hours
50°F (10°C)	15 minutes	60 minutes
59°F (15°C)	10 minutes	45 minutes
68°F (20°C)	7 minutes	30 minutes
86°F (30°C)	4 minutes	25 minutes
104°F (40°C)	2 minutes	20 minutes

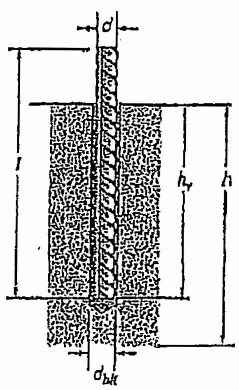
1. The gel time is the maximum time during which the adhesive can be dispensed before it begins to set. Do not disturb the anchors between the maximum gel time and the minimum cure time.
2. The minimum cure time is the time required before structural items can be connected to the anchors, and the adhesive achieves its load capacities. Anchors may not be tightened until the full curing time has elapsed.

Installation Specifications

Property		Rod Diameter, d (in.)						
		3/8	1/2	5/8	3/4	7/8	1	1 1/4
A_{nom} = Nominal area of threaded rod (inch²)		0.1105	0.1963	0.3068	0.4418	0.6013	0.7854	1.2272
A_{se} = Tensile stress area of rod (inch²)		0.0775	0.1419	0.2260	0.3345	0.4617	0.6057	0.9691
d_{bit} = Nominal bit diameter (inch)		7/16	9/16	11/16	13/16	15/16 or 1	1 1/16	1 3/8
T_{max} = Max. tightening torque range (ft.-lbs.)	$4d \leq h_v < 8d$	5-6	10-12	20-22	35-40	55-60	75-85	135-150
	$h_v \geq 8d$	15-17	30-35	50-60	100-110	140-155	210-230	400-450

Property	Reinforcing Bar Sizes, d								
	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11
d = Nominal bar diameter (inch)	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8
d_d = Effective anchor diameter (inch)	0.375	0.500	0.625	0.750	0.875	1.000	1.128	1.270	1.410
A_{sr} = Nominal area of reinforcing bar (inch²)	0.110	0.200	0.310	0.440	0.600	0.790	1.000	1.270	1.560
d_{bit} = Nominal bit diameter (inch)	7/16	9/16	11/16	7/8	1	1 1/8	1 1/4	1 1/2	1 5/8





Nomenclature

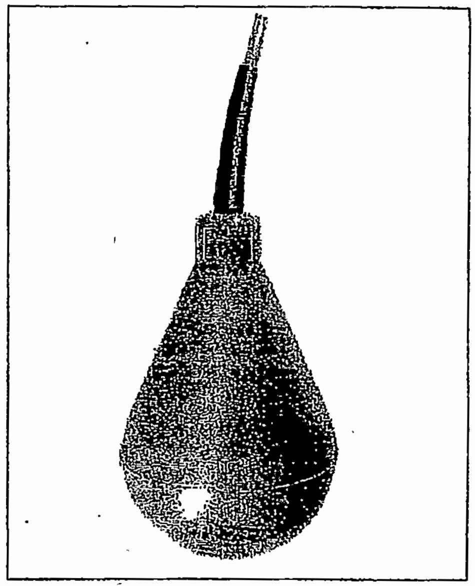
d = Diameter of rod or rebar
d_{bit} = Diameter of drill bit
h = Base material thickness. The minimum value of h should be $1.5h_v$
h_v = Minimum embedment depth
l = Overall length of rod or rebar
t = Fixture thickness
T_{max} = Maximum tightening torque (Only possible after full cure)

Flygt Monitoring Devices

ENM-10 Liquid Level Sensors

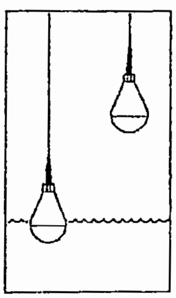
FLYGT | **Controls** | Issued: 6/94 | Supersedes: 6/90

The simplest possible method for level control!
A mechanical micro switch in a plastic casing, freely suspended at the desired height from its own cable. When the liquid level reaches the regulator, the casing will tilt and the mechanical switch will close or break the circuit, thereby starting or stopping a pump or actuating an alarm device. No wear, no maintenance! Use in sewage pumping stations, for ground water and drainage pumping - in fact, for most level control applications - the ENM-10 is the ideal solution.

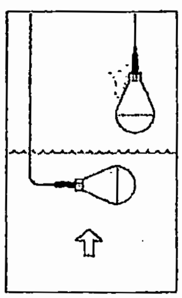


The regulator casing is made of polypropylene and the cable is sheathed with a special PVC compound. The plastic components are welded and screwed together - adhesive is never used. Impurities and deposits will not adhere to the smooth casing.

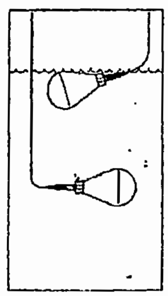
This level regulator is available in different versions, depending upon the medium in which it is to be used. The standard model can be obtained with 20, 43 or 66 feet of cable for liquids with specific gravities between 0.95 and 1.10. For other specific gravities, the regulator is only available with 66 feet of cable. The regulator can withstand temperatures of 32°F to 140°F.



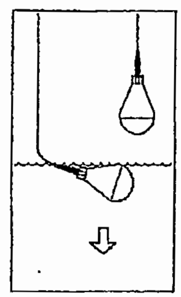
When the level drops, the micro switch is activated....



pumping stops and the level begins to rise....



When it reaches the highest permissible point, the second regulator reacts,...



and pumping resumes.

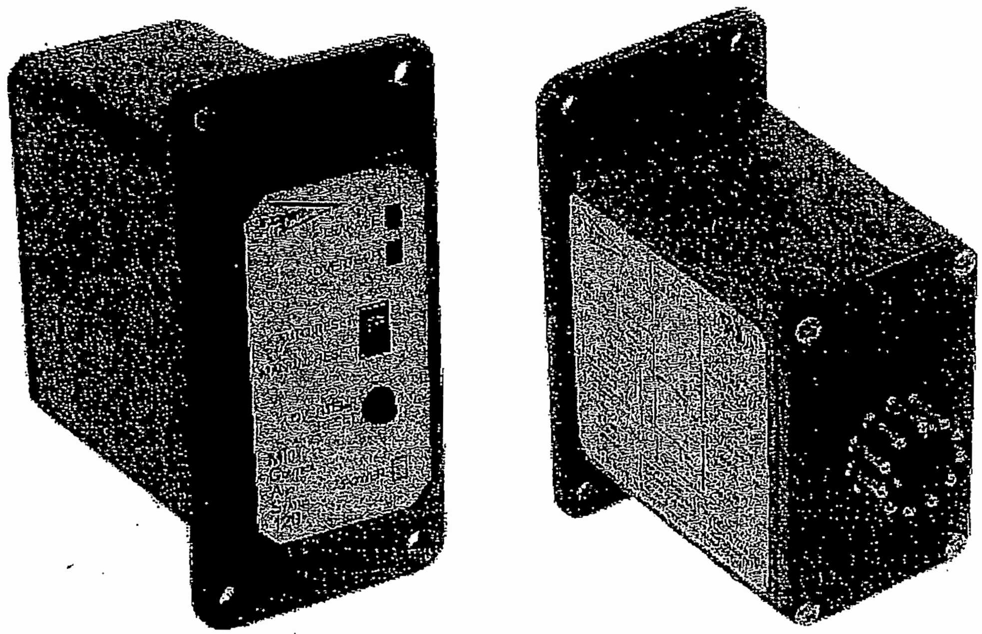
Specific Gravity of Liquid	Cable Length	ENM-10 Part Number
0.65 - 0.80	66'	582 88 27
0.80 - 0.95	66'	582 88 28
0.95 - 1.10	20'	582 88 29
→ 0.95 - 1.10	43'	582 88 30
0.95 - 1.10	66'	582 88 31
1.05 - 1.20	66'	582 88 32
1.20 - 1.30	66'	582 88 33
1.40	66'	582 88 34
1.50	66'	582 88 35

ENM-10 Sensor Specifications

Min. oper. temp.	32°F (0°C)
Max. oper. temp.	140°F (60°C)
Max. applied voltage	250VAC/30VDC
Elec. cable size	AWG 18/3
Max. amperage -	16A @ 250VAC
Resistive load -	16A @ 250VAC
	5A @ 30VDC
Inductive load -	4A @ 250VAC
Max. angular displacement	60°
Operating point - rising	37°
Operating point - descending	17°

Mini–CAS 120

PART NO. 14-407129



Features:

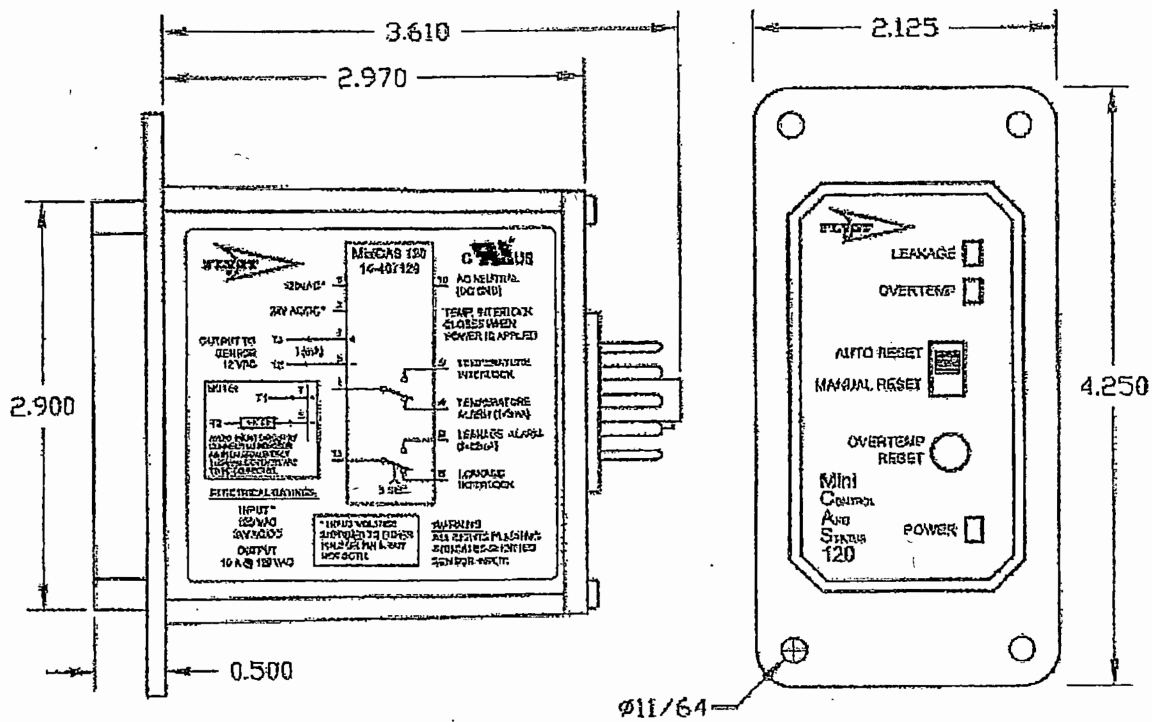
- Plug in replacement for existing MiniCAS / FUS unit
- 120 VAC, 24 VAC, or 24 VDC powered
- Durable plastic enclosure with flange for mounting on door of pump control enclosure
- Highly visible red LEDs for indication of Leakage and Temperature alarms
- Green LED for indication power is applied
- Temperature alarm reset mode select switch, for selection of Manual or Auto reset modes
- Temperature alarm reset push-button on front of unit
- Input power transient protected
- Sensor input circuit transient protected
- Sensor input circuit short circuit protected
- Noise Filter on Sensor Input
- Sensor circuit supply voltage regulated to 12 VDC
- Detailed connection diagram on side of unit

FLYGT

ITT FLYGT CORPORATION
35 Nutmeg Drive
Trunbull, Connecticut 06611
Phone (203) 380-4700
FAX (203) 380-4705

Mini–CAS 120

PART NO. 14-407129



Specifications:

- Input Power: 120 VAC ±10%, 7.0 VA max
  24 VAC ±10%, 3.5 VA max
  24 VDC ±10%, 125 mA max
- Input Power Transient Protection: Metal Oxide Varistor
- Sensor Input Transient Protection: Metal Oxide Varistor
- Relay Contact Rating: 10A @ 250 VAC
- Relay Contact Material: Silver Cadmium Oxide (AgCdO)
- Ambient Operating Temperature: –20°C to +65°C (–4°F to +149°F)
- Agency Approvals: UL 508, CAN/CSA (Pending)
- Alarm Indicators: Super Bright Red LED
- Power On Indicator: Green LED
- Enclosure: Blue Lexan (141R) or Noryl (PX9406)
- Faceplate Overlay: Silver Lexan with Black Text
- Side Label: Silver Lexan with Black Text
- Sensor Circuit Supply Voltage: Regulated 12 VDC ±10%,
- Weight 11.75 oz (334 grams)
- Temperature Alarm Trip Point: Sensor Current ≤3 mA ±5%
- Leak Alarm Trip Point: Sensor Current ≥22 mA ±5%

FLYGT

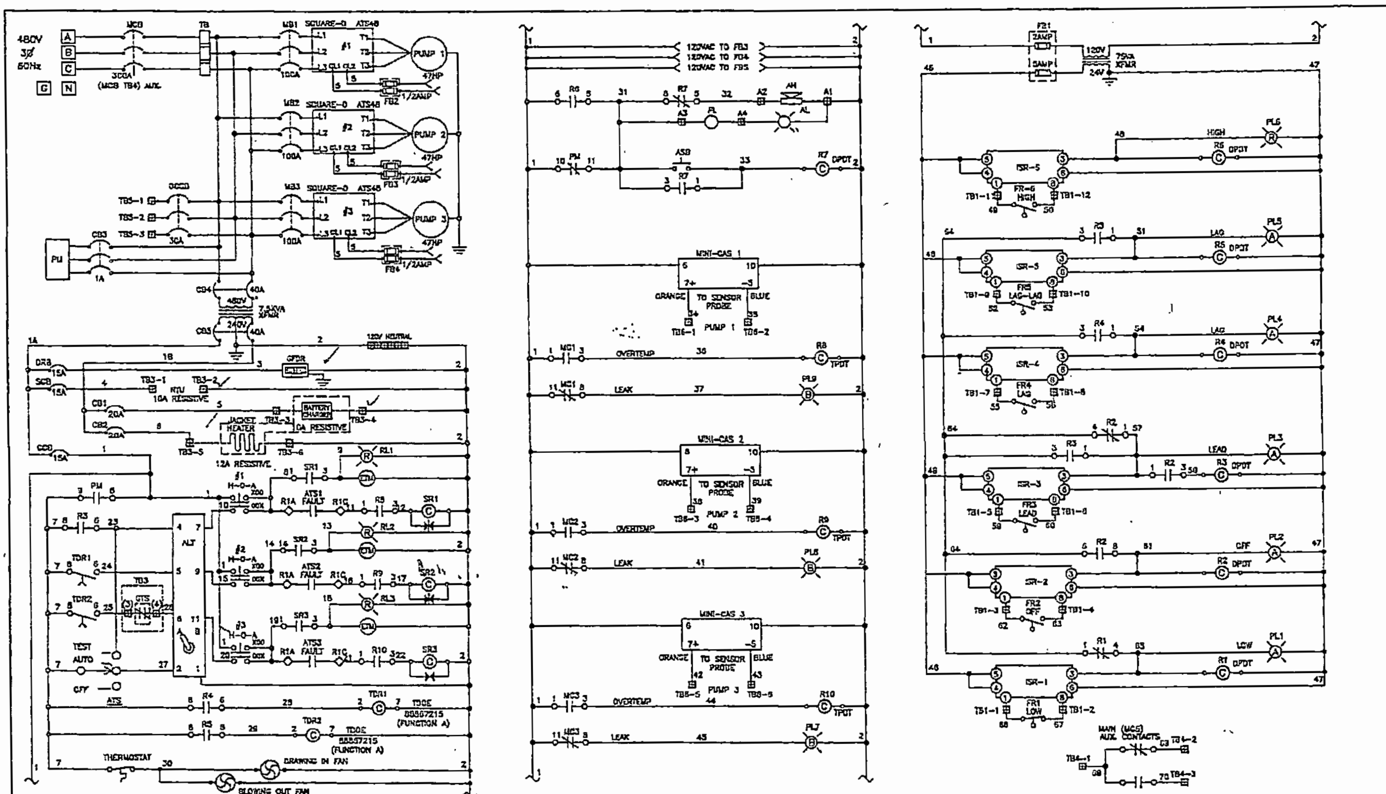
ITT
Engineered for life

ITT FLYGT

CONTROL PANEL
STORAGE RECOMMENDATIONS

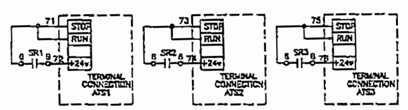
The following procedure is recommended when a control panel is stored over extended periods of time.

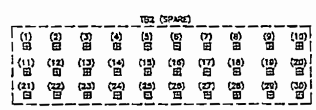
- Since the moisture content of the air can be extremely high, it is recommended that the controls be stored in a controlled atmosphere.
- The corrosion inhibitor should be replaced yearly
- Ensure the enclosure door is tightened.

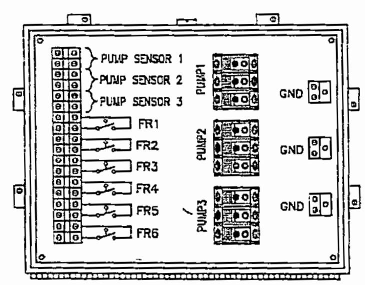


CAD_FILE	PROJECT	DESIGN BY	APPROVED BY	NO.	DATE	REVISION	BY	NO.	DATE	REVISION	BY
F680803	FLAMINGO CROSSING PH 1 PB1-2-RCID 480V/3PH/47HP	RA	AG								
SHEET NO		DWG REF NO: F600036 R1	DRAWN BY: NO								
1 OF 2		SCALE: NTS	DATE: 05/02/08								

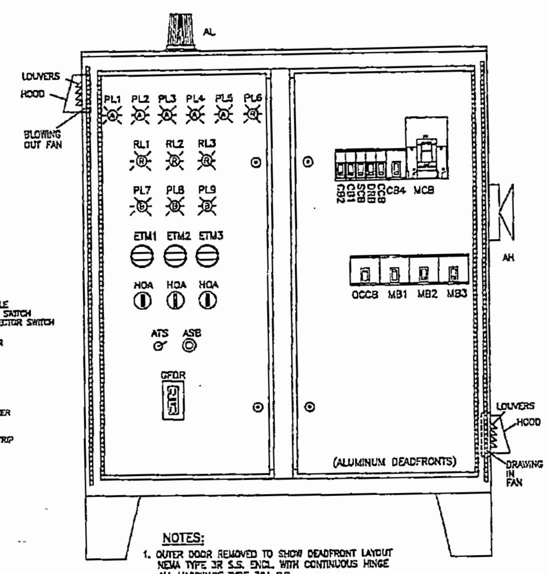
ITT WATER & WASTEWATER USA INC.
CONTROL PANEL GROUP
2152 SPRINT BOULEVARD
APOPKA, FL 32703







JUNCTION BOX, NEMA 4X S.S.
DOOR REMOVED TO SHOW INSIDE LAYOUT
ENCLOSURE DIMENSIONS: 20"H X 16"W X 6"D



LEGEND

AH	ALARM HORN	GR	GENERATOR RECEPTACLE
AL	ALARM LIGHT	GTS	GENERATOR TRANSFER SWITCH
ASB	ALARM SILENCE BUTTON	HOA	HAND-OFF-AUTO SELECTOR SWITCH
ATS	ALTERNATOR TEST SWITCH	MB	MOTOR BREAKER
CCB	CONTROL CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
DPDT	DOUBLE POLE DOUBLE THROW	MS	MOTOR STARTER
DRB	DUPLEX RECEPTACLE BREAKER	OL	OVERLOAD
ECB	EMERGENCY CIRCUIT BREAKER	PL	PILOT LIGHT
ETM	ELAPSED TIME METER	PM	PHASE MONITOR
F	FUSE	R	RELAY
FB	FUSE BLOCK	RL	RUNNING LIGHT
FR	FLOAT REGULATOR	SCB	SCADA CIRCUIT BREAKER
FMB	FLOW METER BREAKER	TB	TERMINAL BLOCK
GFDR	GROUND FAULT DUPLEX RECEPTACLE	TDR	TIME DELAY RELAY
GFI	GROUND FAULT INTERRUPTER	TTS	THERMAL TERMINAL STRIP
		XFMR	TRANSFORMER

NOTES:

1. OUTER DOOR REMOVED TO SHOW DEADFRONT LAYOUT NEMA TYPE 3R S.S. ENCL. WITH CONTINUOUS HINGE ALL HARDWARE TYPE 304 S.S.
2. ALL CONTROL WIRE TO BE #14 AWG MINIMUM
3. U.L. LABEL
4. 30 SPARE TERMINALS.
5. N.C. CONTACT FROM GENERATOR TRANSFER SWITCH WILL ALLOW ONLY 2 PUMPS TO RUN UNDER GENERATOR POWER.
6. ENCLOSURE DIMENSIONS: 60"Hx60"Wx14"D

CAD_FILE	PROJECT	DESIGN BY	APPROVED BY	NO.	DATE	REVISION	BY	NO.	DATE	REVISION	BY
F680803	FLAMINGO CROSSING PH 1 PB1-2-RCID 480V/3PH/47HP	RA	AG								
SHEET NO		DWG REF NO	DRAWN BY								
2 OF 2		F600036 R1	NO								
		SCALE	DATE								
		NTS	05/02/08								

ITT
ITT WATER & WASTEWATER USA INC.
CONTROL PANEL GROUP
2152 SPRINT BOULEVARD
APOPKA, FL 32703

Appendix I. Gravity Districts - REMOVED

Appendix J. Approved Landuse Plan

APPROVED
December 6, 2017
February 6, 2018
APPROVED

FLAMINGO CROSSINGS PD

LUP-16-04-147

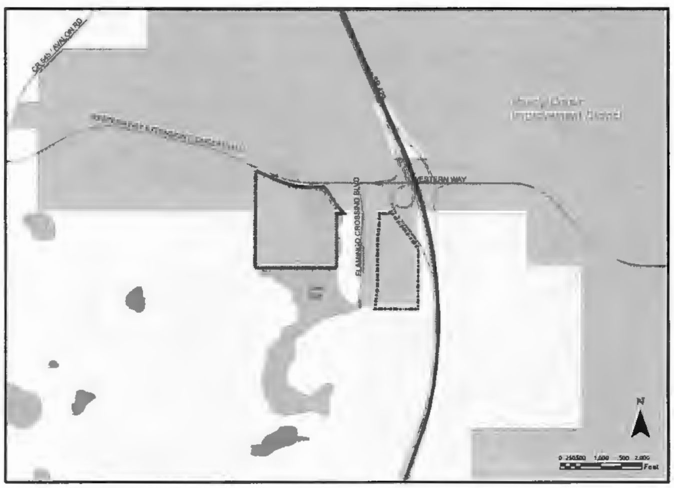
FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FL

21-24-27-0000-00-005 (portion); 28-24-27-0000-00-001;
21-24-27-0000-00-003 (portion); 28-24-27-0000-00-021

PROPERTY OWNER(S)

Flamingo Crossings, LLC
C/O: Todd Rimmer, WDI
PO Box 10321
Lake Buena Vista, FL 32830
Phone: 407-580-5032

Reedy Creek Improvement District
John Classe, District Administrator
PO Box 10170
Lake Buena Vista, FL 32830
Phone: 407-934-7480



CIVIL ENGINEER

Atkins
Brian Forster, P.E.
482 South Keller Road
Orlando, FL 32810
Phone: 407-647-7275

SURVEYOR

Atkins
Vance Carper, PSM
482 South Keller Road
Orlando, FL 32810
Phone: 407-647-7275

PLANNING CONSULTANT

Poulos & Bennett, LLC
Kathy Hattaway, AICP
2602 E. Livingston Street
Orlando, FL 32803
Phone: 407-487-2594

SHEET #	SHEET TITLE
1	Cover Page
2	Survey - East Property
3	Survey - West Property
4	Zoning, FLU, Soils & Flood Plain Designations
5	Land Use Plan
6	Site Data & Notes

RECEIVED
By DRC OFFICE at 4:15 pm, Dec 06, 2017

Poulos & Bennett, LLC

REVISIONS

#	DATE	COMMENTS
1	06-07-16	Add Case #
2	08-15-17	
3	08-21-17	
4	09-27-17	
5	11-15-17	
6	12-06-17	

FLAMINGO CROSSINGS PD
FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FL

COVER PAGE

Original Date: 04/05/16
Drawn By: L Ghioto

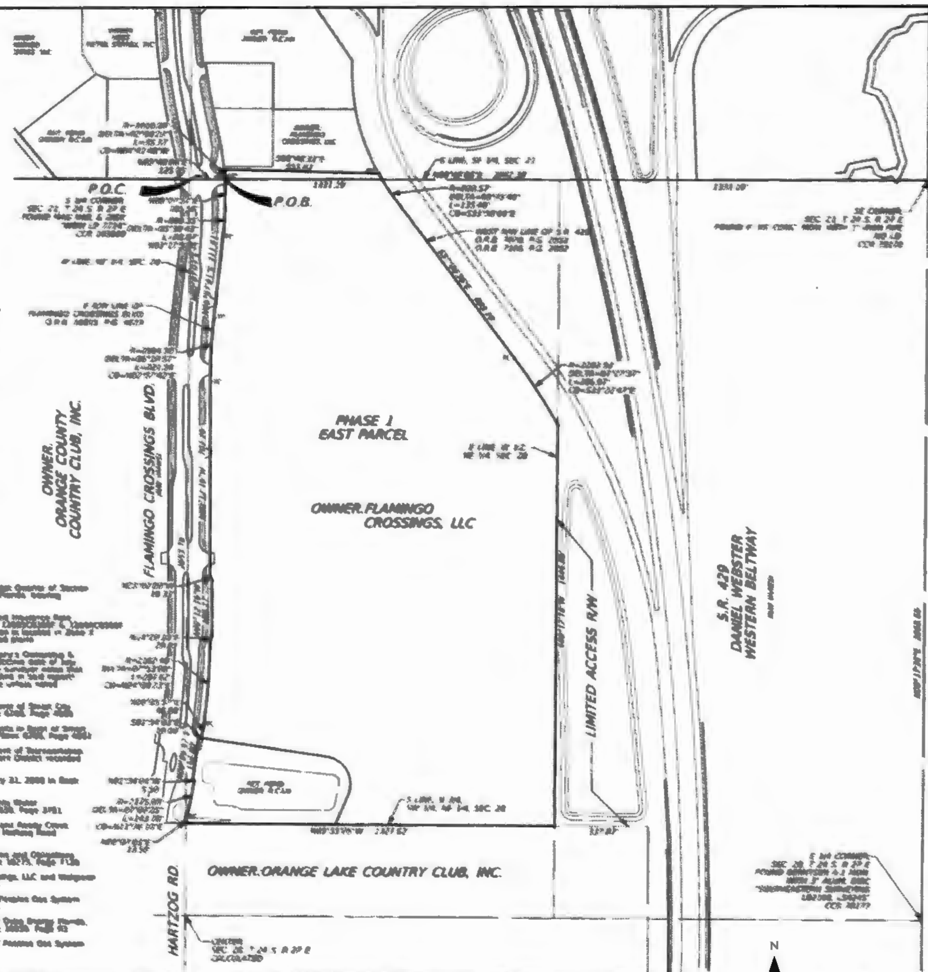
LEGAL DESCRIPTION - EAST PARCEL

A portion of Parcel 5 as described in the Special Warranty Deed recorded in Official Records Book (OR) 10274, Page (PG) 4901 of the public records of Orange County Florida, together with a parcel recorded in OR 10170, PG 4303 of said records, all being in Sections 21 and 28 of Township 24 South, Range 27 East in Orange County, Florida, and being more particularly described as follows:

Commence at the South Quarter Corner of said Section 21; thence N 89° 48' 06" E along the South line of the Southeast quarter of Section 21 for a distance of 125.95 feet to a point along the East line of the Right-of-Way for Flamingo Crossings Boulevard as described in OR 10815, PG 4619 of the aforesaid public records of Orange County, Florida, said point also being on a non- tangent curve to the left being concave to the West and having a radius of 1010.00 feet and a chord bearing of N 04°41'48"W, said point also being the Point of Beginning; thence Northerly along said East line and along the arc of said curve through a central angle of 02° 00' 23" for a distance of 35.37 feet; thence departing said East line run S 88° 46' 31" E for a distance of 555.61 feet to a point along the West line of the right- of-way for State Road 429 as described in OR 7070, PG 2553 and OR 7106, PG 2802 of said public records, said point also being on a non-tangent curve to the left being concave to the Northeast and having a radius of 808.57 feet and a chord bearing of S 33° 50' 00" E; thence Southerly along said West line for the following four (4) courses run Southerly along the arc of said curve through a central angle of 09° 35' 40" for a distance of 135.40 feet; thence S 37° 06' 36" E for a distance of 690.19 feet to the point of curvature of a curve to the right being concave Southeast and having a radius of 2,203.93 feet; thence Southerly along the arc of said curve through a central angle of 07° 27' 37" for a distance of 286.97 feet; thence S 00° 12' 18" W for a distance of 1,445.86 feet to the South line of the North three quarters of the Southwest Quarter of the aforesaid Northeast Quarter of Section 28; thence departing said West line of the right- of-way for SR 429, run N 89° 56' 05" W for a distance of 1,327.62 feet to a point along the East line of the right-of-way for Flamingo Crossings Boulevard as described in OR 10274, PG 4901 of the aforesaid public records; thence Northerly along said East line for the following four (4) courses: run N 00° 07' 03" E for a distance of 13.58 feet to a point on a non-tangent curve to the left being concave Northwest and having a radius of 1,175.00 feet and a chord bearing of N 11° 36' 10" E; thence Northerly along the arc of said curve through a central angle of 07° 00' 25" for a distance of 143.70 feet,

thence N 81° 54' 04" W for a distance of 5.50; thence N 08° 05' 57" E for a distance of 154.80 feet; thence S 81°54'03"E for a distance of 10.00 feet to a point on the aforesaid East line of the Right-of-Way for Flamingo Crossings Boulevard as described in OR 10815, PG 4619; thence Northerly along said East line for the following ten (10) courses: run N 08° 05' 57" E for 46.88 feet to the point of curvature of a curve to the left being concave West and having a radius of 2,162.49 and a chord bearing of N 04°09'23"E, thence Northerly along the arc of said curve through a central angle of 07° 53' 08" for a distance of 297.62 feet; thence N 14° 29' 10" E for a distance of 29.81 feet; thence N 00° 12' 18" W for a distance of 198.27 feet; thence N 23° 02' 00" W for a distance of 19.33 feet; thence N 00° 12' 18" W for a distance of 702.26 feet to the point curvature of a curve to the right being concave East and having a radius of 2,004.50 feet; thence Northerly along the arc of said curve through a central angle of 06° 19' 57" for a distance of 221.54 feet to the point of tangency; thence N 06° 07' 41" E for a distance of 311.81 feet to the point of curvature of a curve to the left and being concave to the West and having a radius of 899.35 feet; thence Northerly along the arc of said curve through a central angle of 05° 39' 43" for a distance of 88.87 feet thence N 00°27'57"E for a distance of 105.56 feet to the Point of Beginning.

Containing 80.77 acres more or less.



NOTES

REVISIONS

# - DATE - COMMENTS		
1	06-07-18	Add Case #
2	08-15-17	
3	08-21-17	
4	09-27-17	
5	11-16-17	
6	12-06-17	

Surveyed By

ATKINS

482 South Keller Road
Orlando, FL 32810
Phone. 407-647-7275

FLAMINGO CROSSINGS PD
FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FL

SURVEY & LEGAL DESCRIPTION EAST PARCEL

Original Date 04/05/16

Drawn By L Ghiotto

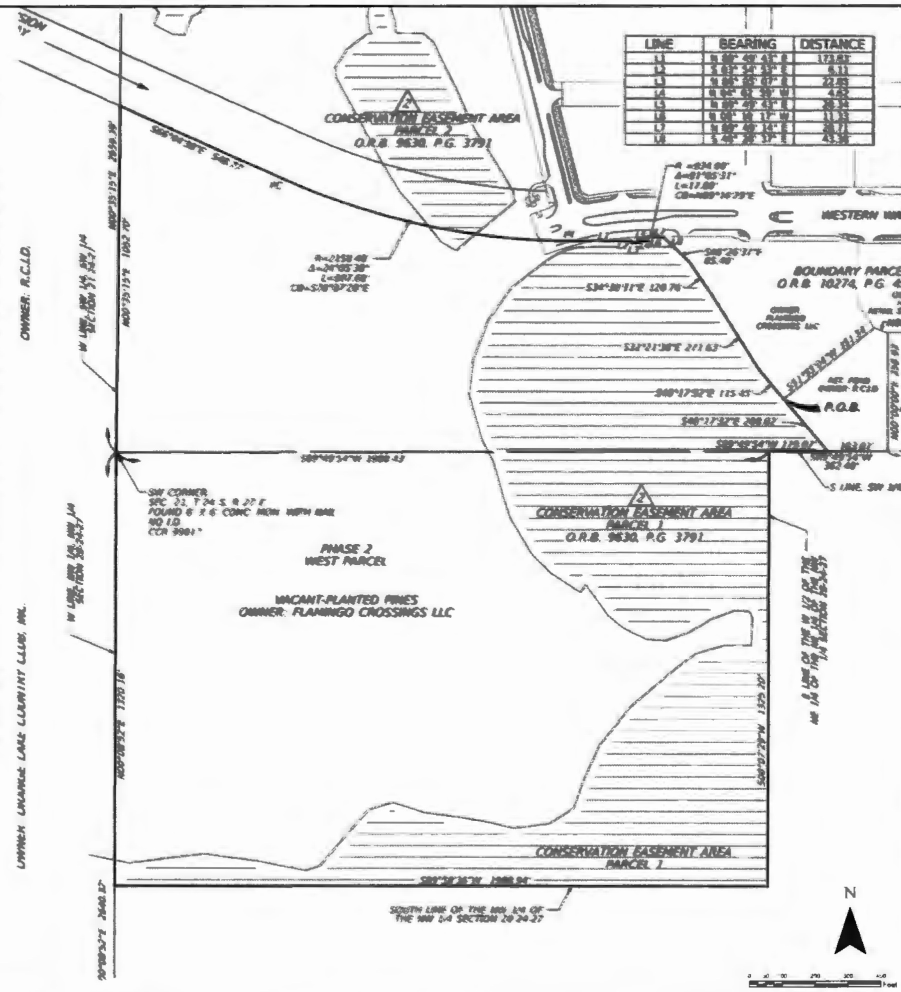
Sheet No

2 of 6

LEGAL DESCRIPTION - WEST PARCEL

A portion of Parcel 1 as described in the Special Warranty Deed recorded in Official Records Book (OR) 10274, Page (PG) 4901 of the public records of Orange County Florida, together with a portion of the Right-of Way for Western Way as recorded in OR 9657, PG 2398 and OR 9836, PG 4845 of said records, all being in Sections 21 and 28 of Township 24 South, Range 27 East in Orange County, Florida, and being more particularly described as follows:

Commence at the South Quarter Corner of said Section 21; thence S89°49'54"W along the South line of the Southwest Quarter of said Section 21 for a distance of 39.31 feet to a point along the boundary of aforesaid Parcel 1; thence along said boundary for the following four (4) courses: continue S89°49'54"W for a distance of 261.02 feet; thence N00°00'00"E for a distance of 358.93 feet; thence N68°45'46"W for a distance of 44.23 feet: thence S51°55'04"W for a distance of 351.54 feet to the Point of Beginning; thence run S40°17'32"E along said boundary of Parcel 1 for a distance of 208.02 feet to a point along the aforesaid South line of the Southwest Quarter of Section 21; thence S89°49'54"W along said South line for a distance of 179.07 feet to a point on the East line of the West ½ of the Northeast ¼ of the Northeast ¼ of the Northwest ¼ of aforesaid Section 28; thence S00°07'29"W along said East line for a distance of 1,325.20 feet to a point on the South line of the Northwest ¼ of the Northwest ¼ of said Section 28; thence S89°58'36"W along said South line for a distance of 1,988.94 feet to a point on the West line of the Northwest ¼ of the Northwest ¼ of said Section 28: thence N00°08'52"E along said West line for a distance of 1320.16 feet to the Southwest Corner of aforesaid Section 21; thence N00°35'15"E along the West line of the Southwest ¼ of the Southwest ¼ of said Section 21 for a distance of 1052.70 feet to a point on the South line of the proposed right-of way for the extension of Western Way; thence S66°04'38"E along the said South line for a distance of 548.77 feet to the point of curvature a curve to the left being concave to the Northeast and having a radius of 2,158.48 feet; thence Easterly along said South line and along the arc of said curve through a central angle of 24°05'38" for a distance of 907.88 feet to the point of tangency; thence N69°49'43"E along said South line for a distance of 173.83 feet to a point along the South line of the existing right-of way for Western Way as described in OR 9657, PG 2398, OR 9836, PG 4845, OR 10170, PG 4299 and OR 10815, PG 4619 of aforesaid public records; thence Easterly along said South line for the following three (3) courses: run S03°54'53"E for a distance of 6.11 feet; thence N86°05'07"E for a distance of 22.85 feet; thence N04°02'59"W for a distance of 4.62 feet to a point along the said South line of the proposed right-of way for Western Way; thence N89°49'43"E along said South line of the proposed right-of way, for a distance of 28.34 feet; thence N00°10'17"W along said South line of the proposed right-of way for a distance of 11.33 feet to a point along the South line of said existing right-of way for Western Way, said point also being on a non-tangent curve to the right being concave to the South and having a radius of 934.00 feet and a chord bearing of N89°18'29"E; thence Easterly along said South line and the arc of said curve, through a central angle of 01°05'31" for a distance of 17.80 feet to the point of tangency; thence N89°49'14"E along said South line, for a distance of 28.71 feet; thence departing said South line run S46°26'37"E for a distance of 43.38 feet to a point along the boundary of Parcel 1 of a Conservation Easement described in OR 9630, PG 3791 of the aforesaid public records; thence along said boundary of the Easement for the following four (4) courses; continue S46°26'37"E for a distance of 65.40 feet; thence S34°30'31"E for a distance of 120.76 feet; thence S32°21'38"E for a distance of 271.63 feet; thence S40°17'32"E for a distance of 115.45 feet to the Point of Beginning.



REVISIONS

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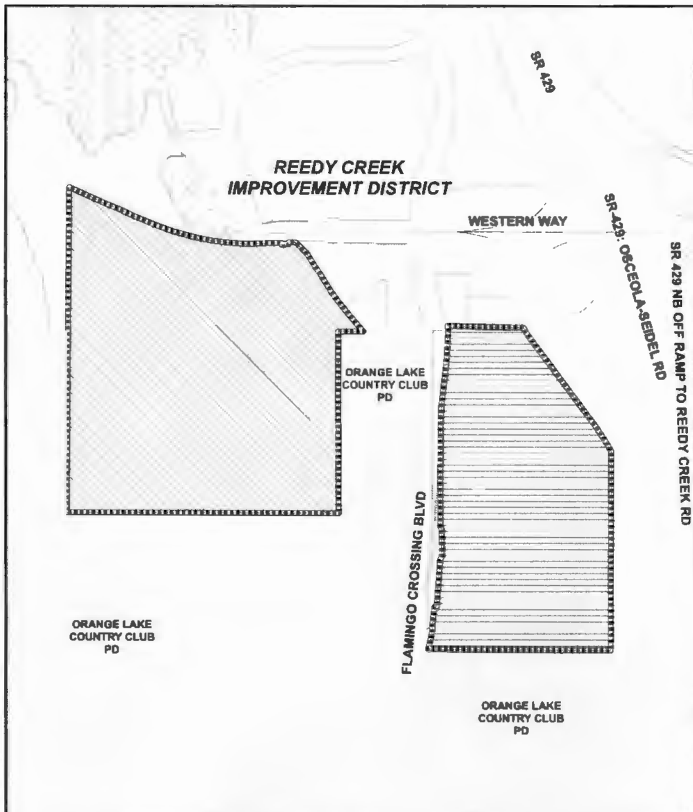
1	06-07-16	Add Case #
2	08-15-17	
3	08-21-17	
4	09-27-17	
5	11-15-17	
6	12-06-17	

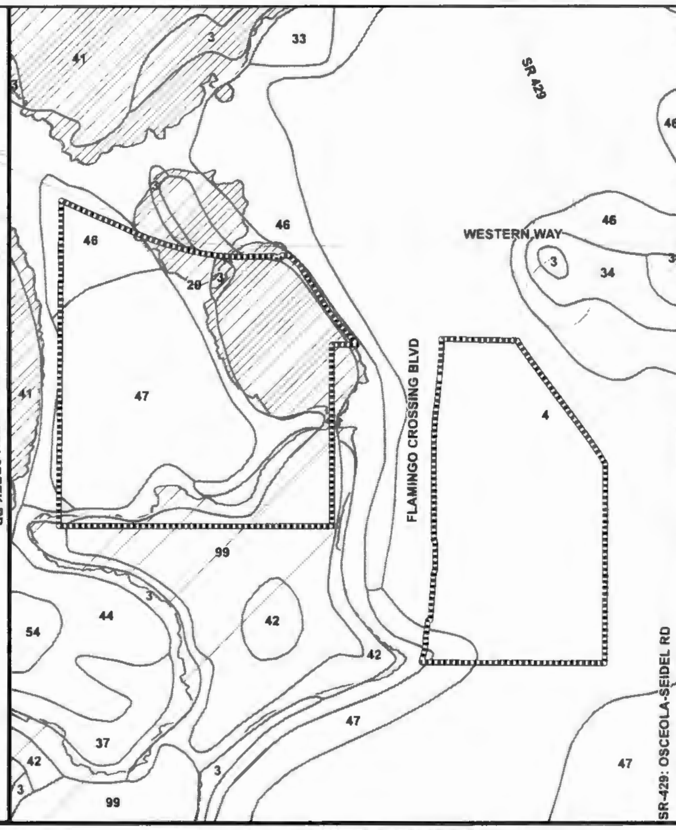
Surveyed By
ATKINS
482 South Keller Road
Orlando, FL 32810
Phone. 407-647-7275

Project Name
FLAMINGO CROSSINGS PD
FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FL

Sheet Title
SURVEY & LEGAL DESCRIPTION WEST PARCEL

Original Date 04/05/16
Drawn By L Ghioto
Sheet No
3 of 6





Poulos & Bennett, LLC

REVISIONS

#	DATE	COMMENTS
1	08-07-16	Add Case #
2	08-16-17	
3	08-21-17	
4	08-27-17	
5	11-16-17	
6	12-08-17	

Project Name:

FLAMINGO CROSSINGS PD

FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FLORIDA

EXISTING ZONING & FUTURE LAND USE

Notes:

1. Subject Property does not presently have a zoning designation, as it is being annexed into Orange County jurisdiction from RCID, which does not utilize zoning districts.
2. FLU designations on Flamingo Crossings properties are proposed under CPA#2017-2-A-1-2 and are subject to Orange County BCC approval.

Future Land Use - Orange County

Tourist Commercial (Growth Center)

Future Land Use - RCID

Conservation

Mixed Use

Resource Management

GC - Commercial/HDR

GC - Commercial/HDR/Cons.

SOIL & FLOOD PLAIN CLASSIFICATIONS

3 Basinger Fine Sand, depressional, 0 to 1 percent slopes
4 Candler fine sand, 0 to 5 percent slopes
20 Immokalee Fine sand
46 Tavares fine sand, 0 to 5 percent slopes
47 Tavares - Millhopper fine sands, 0 to 5 percent slopes
99 Water

Designated FEMA Flood Zones

Orange County Soil Contours

N

0 112.5 225 450 675 900 Feet

Sheet Title: ZONING, FUTURE LAND USE, SOILS & FLOOD PLAIN MAPS

Original Date: 01/21/16

Drawn By: L Ghiotto

Sheet No: 4 of 6

SITE DATA

Total Project Area: 154.08 Acres
Net Developable Area: 121.32 Acres
Existing Zoning: Not Applicable (RCID)
Proposed Zoning: PD (Planned Development) - Commercial/Multi-Family Residential /Conservation

Proposed Future Land Use: East Parcel: Reedy Creek Improvement District (RCID)- Mixed Use to Growth Center-Planned Development-Commercial/High Density Residential (Temporary Employee Housing) (GC-PD-C/HDR [Temporary Employee Housing])

West Parcel: Reedy Creek Improvement District (RCID)- Mixed Use/Conservation to Growth Center-Planned Development-Commercial/High Density Residential (Temporary Employee Housing)/Conservation (GC-PD-C/HDR [Temporary Employee Housing]/CONS)

PARCEL LAND SUMMARY TABLE

East Parcel

Parcel ID#	Owner	Total (Acre)	Upland (Acre)	Wetlands (Acre)
21-24-27-0000-00-005 (portion)	Flamingo Crossings LLC	0.35	0.35	0.00
28-24-27-0000-00-001	F amingo Crossings LLC	57.00	57.00	0.00
28-24-27-0000-00-021	Reedy Creek Imp. Dist.	3.42	3.42	0.00
Total		60.77	60.77	0.00

West Parcel

Parcel ID#	Owner	Total (Acre)	Upland (Acre)	Wetlands (Acre)
21-24-27-0000-00-003 (portion)	Flamingo Crossings LLC	93.31	60.55	32.76
Total		93.31	60.55	32.76

PROPOSED DENSITY

LAND USE	MAX INTENSITY
Commercial	FAR 3.0
Multi-Family Residential	32 DU/Acre

PROPOSED DEVELOPMENT PROGRAM

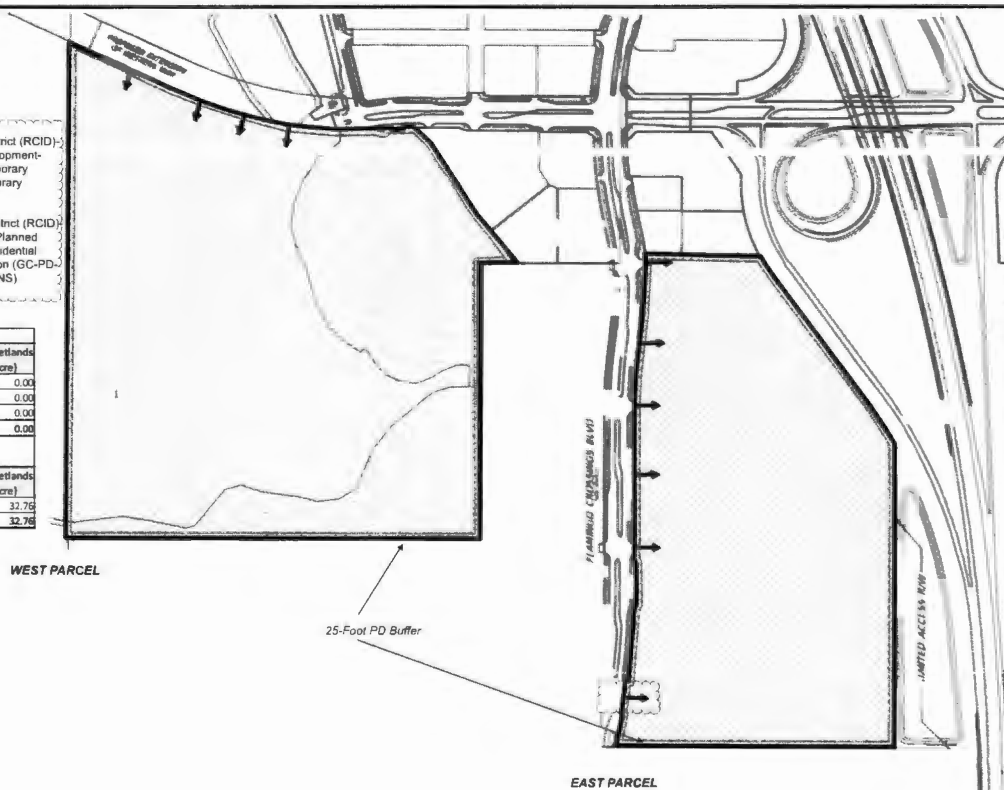
LAND USE	MAX INTENSITY
Commercial	150,000 SQ FT
Multi-Family Residential	2,600 DU

LAND USE CONVERSION MATRIX

From \ To	Multifamily (DU)	Retail (KSF)	PM PK Rate*
Multifamily (DU)	--	0.14	0 58
Retail (KSF)	7.04	--	4.09

** Based on the ITE Trip Generation Manual, 9th Edition All land use conversions are based on PM peak hour new trips Retail calculated at 75 KSF and Apartment calculated at 1,300 Units*

Note: The equivalency matrix may be applied at the time of DP to allow for a deviation from those land use maximums outlined in the proposed development program, provided that the maximum FAR and residential density established by the Future Land Use designation are maintained.



ACCESS NOTES:

1. Western Way and Flamingo Crossings Blvd. are owned and maintained by RCID. Improvements to both rights of way, including the extension of Western Way to CR545/ Avalon Road will be completed by RCID prior to the phase of development which requires these improvements for access.
2. The northernmost access point on the east parcel is to be shared with the parcel to the north. Appropriate cross-access agreement(s) will be executed between the two parcels.

LEGEND

Project Access
Mixed Use
Conservation

N

0 80 160 320 480 640 Feet

Poulos & Bennett, LLC

REVISIONS

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6	12-08-17	

Project Name

FLAMINGO CROSSINGS

FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FLORIDA

Sheet Title

LAND USE PLAN

Original Date 04/05/16
Drawn By: L Ghioto
Sheet No

PERMITTED USES

Commercial Areas:

1. Those uses Permitted within the C-1 (Retail Commercial) District, and the following Special Exception Use. colleges and universities

Residential Areas:

1. Multi-family housing, primarily for the Disney College and International Program Participants for the duration of their internships of 3-15 months, and the on-site operator of such multi-family units ("Participants"). Under Disney and on-site operator's control, any remaining units may be leased for a maximum of 12 months to Walt Disney World employees and or employees of Walt Disney World Operating Participant businesses ("Employees"). Residential units for Participants and Employees shall be separated by building. There shall be no co-mingling of Participants and Employees within the same multi-family building The developer (or Disney) shall report on an annual basis the number of buildings leased to Employees during the previous year, or portion of a previous year, and the number of buildings anticipated to be needed for Employees in the up-coming year (it is understood that during a given year, the occupancy forecast might be revised and the number of buildings deployed for the Employees may vary)

2. Accessory Uses/Structures, including administration/resident classrooms, greeting center, recreation facilities, maintenance facilities and community meeting rooms, to be used for education and training of residents only.

DEVELOPMENT STANDARDS

Minimum Lot Width:	
Major Streets:	80 Feet
All Other Streets:	80 Feet
Minimum Lot Size:	6,000 SQ FT
Maximum Building Height**:	
Multi-Family:	60 Feet*
Commercial:	50 Feet 35 Feet within 100 Feet of Residential
Minimum Building Setbacks:	
From PD Boundary:	25 Feet*
From Flamingo Crossings Blvd.:	30 Feet (Commercial)/35 Feet (MF)
From Western Way:	40 Feet (Commercial)/50 Feet (MF)
From SR 429:	30 Feet*
Comm. Adjacent to MF:	25 Feet
Comm. Adjacent to Comm:	10 Feet
From Internal Right of Way Tract:	10 Feet
Minimum Residential Living Area/DU:	500 SQ FT

* See Waivers section for related waivers.

** Maximum building height does not include architectural design features that may extend beyond the top of the roof line.

PHASING

The project will be constructed in multiple phases. Each phase will contain adequate infrastructure to stand on its own.

OPEN SPACE & IMPERVIOUS AREA (OVERALL PD)

Minimum Open Space Required:	
Multi-Family:	25%
Commercial:	20%

Individual tracts or phases may not meet the open space criteria, but the overall PD will meet the open space requirement. A master Open Space chart shall be provided on the first PSP, with updates added on each subsequent PSP or DP.

Maximum Impervious Area/Lot Coverage:	
Multi-Family:	30% (Buildings only)
Commercial:	70% (3.0 FAR)

RECREATION

Active and Passive recreational amenities will be provided at a ratio of 2.5 Acres per 1,000 residents, in accordance with Section 38-1253(b) of the Orange County Code of Ordinances. Locations and types of amenities to be provided at time of Development Plan.

TRAFFIC DATA

Trip Generation Calculation

Land Use	ITE Code	Size	Trip Gen Rate Daily	Trip Gen Rate PM Pk	Daily Traffic	Peak Hour Total
Proposed Development-Request FLU (GC-HDR/C/Conservation)						
Retail	820	150 KSF	58.93	5.24	8,840	786
Apartments	220	2,600 Units	6.11	0.56	15,886	1,456
				Internal Trips	1,831	166
				Retail Pass	2,701	240
				Total New Trips Generated	22,025	2,002

Notes: Trip Generation & Internal Capture Analysis based on 9th Edition of ITE Trip Generation Report Pass-by and Non-Primary Trips were obtained from Orange County Transportation Impact Fee Study

Table Excerpted from the Transportation Facilities Analysis conducted for Flamingo Crossings by Traffic & Mobility Consultants in conjunction with CPA-2017-2-A-1-2.

SCHOOL DEMAND

The applicant is working with the Orange County School District to determine the public school impact of the proposed residential program.

UTILITIES

1. Water, sanitary sewer, and reclaimed water services shall be provided by Orange County Utilities. A detailed flow analysis will be submitted during the Master Utility Plan review process.

2. Development within the project shall maintain minimum fire flows in accordance with Orange County requirements.

3. Other services, such as cable and electrical will be provided in accordance with the appropriate territorial agreements.

STORMWATER MANAGEMENT

The Reedy Creek Improvement District (RCID) has constructed and maintains a Master Stormwater System for the entire RCID district, which includes the Flamingo Crossings PD. Design and Maintenance of stormwater facilities will be in accordance with the Interlocal Agreement between Orange County and RCID, excecuted on ________, 2017.

Stormwater pond locations will be determined at PSP and the final design will be submitted during the construction plan approval process.

WETLANDS DATA

A total of 32.76 acres of Class I wetlands is located on the West Parcel. The wetland areas within the West Parcel are subject to the following environmental permits:

1. U.S. Army Corps of Engineers permit (Permit No. SAJ-1991-01901 (SP-TSD)) issued on November 16, 2015.
2. South Florida Water Management District Conceptual permit 48-00714-P modified on October 19, 2015.

Note: An Orange County Conservation Area Determination (CAD) for the subject wetland area must be approved prior to PSP or DP approval.

PARKING

The multi-family commercial uses will meet the parking requirements of Orange County Land Development Code Article XI. On-street parking located within internal rights-of-way may be used to meet the parking requirements of residential and/or commercial uses. On street parking shall be identified and documented on the Development Plan.

SIGNAGE

Signage within the PD shall meet the requirements of Orange County Land Development Code Article II

WAIVERS REQUESTED

1. A waiver from Orange County Code Section 38-1230(a) to allow vehicle parking areas to be located within seven hundred fifty (750) feet of the uses they serve, in lieu of the one hundred fifty (150) feet requirement.

Justification: The design intent of the project is to create a neighborhood environment of buildings to foster community among the residents, rather than separated buildings, each surrounded by parking. The parking areas will be segregated from the building areas to promote interaction among the residents of the different buildings.

2. A waiver from, Orange County Code Section 38-1254(1) to maintain a minimum PD perimeter building setback of twenty-five (25) feet for all structures, in lieu of an increased setback for structures in excess of two (2) stories.

Justification: The east and west parcel are located a significant distance from any nearby low density residential uses and are visually buffered by significant wetlands. A reduction in the buffer will create no adverse impact for adjacent uses.

3. A waiver from Orange County Code Section 38-1254(2)(d) to allow a minimum expressway setback of thirty (30) feet, in lieu of seventy-five (75) feet.

Justification: The eastern most point of the project is over 250-feet from the nearest primary travel lane on SR 429, creating a significant buffer that includes a retention area, further buffering the project from the roadway.

4. A waiver from Orange County Code Section 38-1258(d) to allow a maximum building height for multi-family residential structures of five (5) stories/sixty (60) feet, in lieu of three (3) stories/forty (40) feet.

Justification: In order to design a compact, urban form, additional height is necessary. The east and west parcel are located a significant distance from any nearby low density residential uses and are visually buffered by significant wetlands.

5. A waiver from Orange County Code Section 38-1258(j) to allow for a minimum building separation of twenty (20) feet, in lieu of the required increased separation based on building stories.

Justification: A larger building separation would prohibit the design of a compact, urban site development. The 20-foot buffer would ensure proper fire separation and buffering between uses while accommodating this design.

6. A waiver from Orange County Code Section 24-4(a)(2)a-b to allow a 0-foot paving setback between internal lot lines within the development. in lieu of providing a landscape buffer a minimum of seven (7) feet in width.

Justification: This reduction would allow for the consolidation of infrastructure internal to the site, while enhancing the ability to provide significant open space and landscaping elsewhere in the development to buffer the development from other uses and enhance the overall aesthetics of the project.

7. A waiver from Orange County Code Section 24-5(a)(3) to allow a Type C, opaque buffer to be a minimum of three (3) feet in height and a minimum of five (5) feet wide, in lieu of a height of at least six (6) feet and a minimum of fifteen (15) feet wide.

Justification: High hedges or walls in this area would violate CEPTD principles and prohibit the mix of uses being integrated and walkable in order to serve the tenants of the multi-family area of the PD.

NOTES

1. In accordance with Section 38-1227, any variations from County Code minimum standards represented on this plan that have not been expressly approved by the BCC are invalid.

Poulos & Bennett, LLC

REVISIONS

#	DATE	COMMENTS
1	06-07-16	Add Case #
2	08-15-17	
3	08-21-17	
4	09-27-17	
5	11-16-17	
6	12-06-17	

Project Name:

FLAMINGO CROSSINGS

FLAMINGO CROSSINGS BLVD & WESTERN WAY
ORANGE COUNTY, FLORIDA

Sheet Title:

SITE DATA & NOTES

Original Date: 04/05/16

Drawn By: L Ghioto

Sheet No.

Appendix K. Wholesale Meter Specification

ULTRA MAG®

UltraLiner

Ultra Mag And SIGNAL CONVERTER

MODEL UM06 AND UM08
ULTRA MAG® ELECTROMAGNETIC FLOW METER
150 PSI FLANGED TUBE METER, SIZES 2" thru 48"
300 PSI FLANGED TUBE METER, SIZES 2" thru 48"

DESCRIPTION

MODELS UM06 AND UM08 FLANGED TUBE ULTRA MAG meters are manufactured to the highest standard available for magmeters. They incorporate microprocessor technology to offer very low flows and broad range ability. The flanged end tube design permits use in a wide range of applications with up to 300 PSI working pressure. Flanged ends are:

- Steel AWWA Class "D" flat face flanges (150 PSI) for UM06
- Steel AWWA Class "F" raised face flanges (300 PSI) for UM08 (2", 3", and ≥14")
- Steel ANSI 300 lb. Raised Face Flanges for UM08 (4" - 12")

The fabricated tube is stainless steel with steel or stainless steel flanges and is lined with UltraLiner™, an NSF approved, fusion bonded epoxy material.

INSTALLATION is made similar to placing a short length of flanged end pipe in the line. The meter can be installed vertically, horizontally, or inclined on suction or discharge lines. The meter must have a full pipe of liquid for proper operation. Fluid must be grounded to the downstream flange of the sensor either via internal grounding electrodes (4 - 12") or using McCrometer 316 SS Grounding Rings. For best performance, grounding rings are recommended for all sizes. Any 90 or 45 degree elbows, valves, partially opened valves, etc. should not be placed closer than one pipe diameters upstream and zero pipe diameters downstream. All blending and chemical injection should be done early enough so the flow media is thoroughly mixed prior to entering the measurement area.

SIGNAL CONVERTER: The signal converter is the reporting, input and output control device for the sensor. The converter allows the measurements, functional programming, control of the sensor and data recording to be communicated through the display and inputs/outputs. The microprocessor-based signal converter has a curve-fitting algorithm to improve accuracy, dual 4-20mA analog outputs, an optional RS485 communication port, an 8 line graphical backlit LCD display with 3-key touch programming, and a rugged enclosure that meets IP67. In addition to a menu-driven self-diagnostic test mode, the converter continually monitors the microprocessor's functionality. The converter will output rate of flow and total volume. The converter also comes standard with password protection and many more features.

ISOLATED POWER AND SIGNAL: The power and signal between the converter and sensor are isolated and placed in separate cables giving superior resistance to electrical signal noise compared to single cable designs. An added benefit from the dual cable design is a maximum cable length of up to 500ft.

OPTIONAL:

DC powered converter (10-35 VDC, 21 W)
Meter mounted converter
Extended warranty
Hastelloy® electrodes
ANSI or DIN flanges
Quick Connect cable fittings
Special lay lengths, including ISO standard lay lengths
Converter sun shield
Modbus Protocol RS485 converter; HART® Converter; Profibus Converter (No Dual 4-20mA on HART & Profibus); Smart Output™ (Sensus or Itron compatible); Panel mount converter (Not CSA approved); Battery or battery-solar powered converter (Not CSA approved, ±1% accuracy)

SPECIFICATIONS

WARRANTY: 2 Years

ACCURACY TESTS: 5-point wet flow calibration of every complete flow tube with its signal converter. If desired, the tests can be witnessed by the customer. The McCrometer test facilities are traceable to the National Institute of Standards & Technology. Uncertainty relative to flow is ±0.15%

ACCURACY: Plus or minus 0.5% of actual flow (battery powered is ±1% of flow)

IMPORTANT NOTICE ON FLOW METER ACCURACY: The flow meter, the cable and the electronics are factory calibrated for accuracy as a single unit. Changing the cable length with the Splice Kit changes the accuracy of the meter and invalidates the calibration certificate.

REPEATABILITY: ±0.05% or ±.0008ft/s (±0.25mm/s), whichever is greater

HEAD LOSS: None. No obstruction in line and no moving parts

PRESSURE RANGE: 150 PSI maximum working pressure (UM06); 300 PSI maximum working pressure (UM08)

TEMPERATURE RANGE: Sensor Operating: -10 to 77°C (14 to 140°F)
Sensor Storage: -15 to 77°C (5 to 140° F)
Electronics: Operating and storage temperature:
-4° to 140° F (-20° to 60° C)

VELOCITY RANGE: .2 to 32 FPS

BI-DIRECTIONAL FLOW: Forward and reverse flow indication and forward, reverse, net totalization are standard with all meters

CONDUCTIVITY: 5 µs/cm

LINER: UltraLiner NSF approved, fusion bonded epoxy

ELECTRODES: Type 316 stainless steel, others optional

POWER SUPPLY: AC: 100-240VAC/45-66 Hz (20W/25VA), DC: 10-35VDC (21W), battery (four lithium D cell batteries), five-year estimated life, solar (5W panel). AC, DC, battery, or battery & solar must be specified at time of ordering.

OUTPUTS: Dual 4-20mA Outputs (Not available for Profibus, HART, or battery converters): Galvanically isolated and fully programmable for zero and full scale (0-22mA).

Four separate digital programmable outputs: open collector transistor usable for pulse, frequency, or alarm settings.

- Volumetric Pulse
- Flow Rate (Frequency)
- Directional Indication
- High/Low Flow Alarms
- Hardware Alarm
- Empty Pipe
- Range Indication

SENSOR CABLE:
Standard: 25' McCrometer supplied submersible cable with each remote mount unit.
Optional: Up to 500 feet, or 50 feet max for battery powered.
Quick connect: Available in standard cable lengths: 25', 50', 75', 100', 125', 150', 175, 200', and 500'. Custom cable lengths at additional cost.

CONVERTER/SENSOR SEPARATION: ≤ 500 feet; for longer lengths consult factory

EMPTY PIPE SENSING: Zero return when electrodes are uncovered

ALARMS: Programmable alarm outputs

DIGITAL TOTALIZER: Cubic Meter; Cubic Centimeter; Milliliter; Liter; Cubic Decimeter; Decaliter; Hectoliter; Cubic Inches; US Gallons; Imperial Gallons; Cubic Feet; Kilo Cubic Feet; Standard Barrel; Oil Barrel; US Kilogallon; Ten Thousands of Gallons; Imperial Kilogallon; Acre Feet; Megagallon; Imperial Megagallon; Hundred Cubic Feet, Megaliters

RATINGS: Metering Tube: NEMA 6P/IP68 with remote converter; submersible with a standard quick-connect cable to 6 ft. and optional strain relief at 30 ft. Die cast aluminum converter: IP67; Panel mount converter: IP65

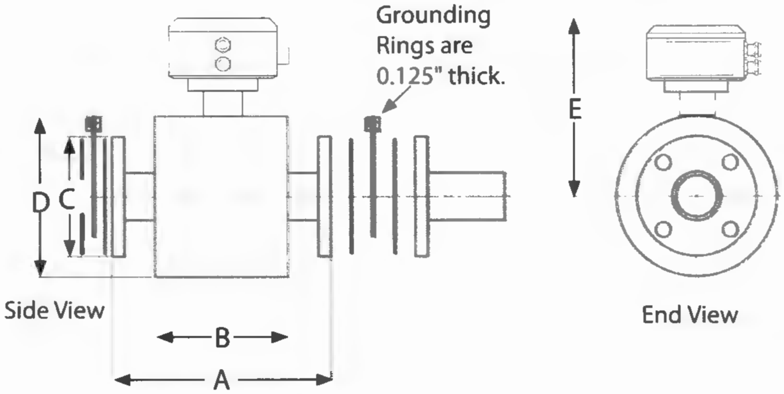
CERTIFICATIONS:

- CE Certified (Converter only)
- Listed by CSA to 61010-1: Certified by CSA to UL 61010-1 and CSA C22.2 No.61010-1-04
- ISO 9001:2015 certified quality management system

ULTRA MAG

MODEL UM06 AND UM08

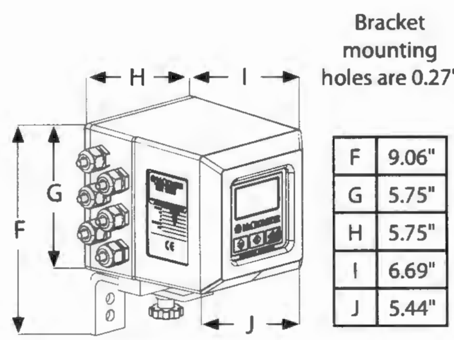
ELECTROMAGNETIC FLOW METER



Side View

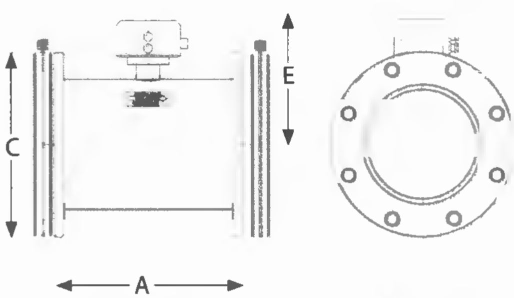
End View

2" and 3" Models Body Style



F	9.06"
G	5.75"
H	5.75"
I	6.69"
J	5.44"

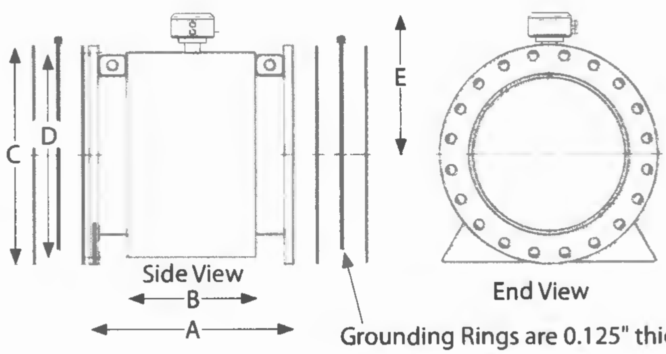
Converter Dimensions



Side View

End View

4" to 12" Models Body Style



Side View

End View

Grounding Rings are 0.125" thick.

14+" Models Body Style

Pipe Size (Nominal)	Meter Pipe ID	Flow Ranges GPM Standard .2 to 32 FPS Min - Max	DIMENSIONS (Lay Lengths) A*		B	C		D	E	Estimated Shipping Weight (lbs.)	
			UM06	UM08		UM06	UM08			UM06	UM08
2"	2.117	2 - 340	11.00	11.00	6.70	6.00	6.50	7.90	9.26	93	107
3"	3.220	5 - 730	13.40	13.40	6.70	7.50	8.25	9.40	10.01	97	111
4"	3.720	8 - 1,140	[illegible]	[illegible]	[illegible]	[illegible]	10.00	n/a	8.06	78	108
6"	5.692	19 - 2,660	[illegible]	[illegible]	[illegible]	[illegible]	12.50	n/a	9.06	82	138
8"	7.692	33 - 4,870	16.10	17.25	n/a	13.50	15.00	n/a	10.06	115	195
10"	9.682	52 - 7,670	18.50	18.50	n/a	16.00	17.50	n/a	10.46	144	247
12"	11.682	74 - 11,180	19.70	19.70	n/a	19.00	20.50	n/a	12.31	193	342
14"	13.440	90 - 16,070	21.70	22.75	12.00	21.00	23.00	20.30	15.46	321	476
16"	15.440	118 - 20,900	23.60	25.25	14.20	23.50	25.50	21.10	16.21	390	645
18"	17.440	150 - 26,480	23.60	25.25	14.20	25.00	28.00	21.10	17.21	446	750
20"	19.440	185 - 32,720	25.60	28.25	16.20	27.50	30.50	24.80	18.26	588	874
24"	23.440	270 - 47,180	30.70	35.75	21.70	32.00	36.00	29.60	20.11	769	1,568
30"	29.190	420 - 73,62[illegible]	[illegible]	[illegible]	[illegible]	38.75	43.00	35.90	23.26	1,261	2,317
36"	35.190	610 - 105,93[illegible]	[illegible]	[illegible]	[illegible]	46.00	50.00	42.70	26.66	1,696	2,915
42"	41.190	830 - 144,370	48.05	**	32.10	52.75	**	48.35	29.99	**	**
48"	47.190	1,080 - 188,430	50.00	**	36.00	59.50	**	54.00	33.31	**	**

12" Reclaimed Meter

16" Potable Water Meter

* Laying lengths for meters with ANSI Class 150 Flanges are equal to UM08 laying lengths

** Consult factory

McCROMETER

3255 WEST STETSON AVENUE • HEMET, CALIFORNIA 92545 USA

TEL: 951-652-6811 • 800-220-2279 • FAX: 951-652-3078

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Appendix L. RCID HGL Approval Letter

Machlus, Kimberly A

From: Doan, Matt <Matt.Doan@disney.com>
Sent: Friday, October 19, 2018 10:53 AM
To: Machlus, Kimberly A
Subject: RE: Disney MUP RCID HGL Potable, Reclaimed and Wastewater

RCID is able to provide the HGLs noted below for the short-term condition with the designed water and reclaimed water booster pump stations for the scenarios modeled in the MUP with the associated assumptions.

The Interim Construction Scenario (ICS) HGL if for the ICS demand assumptions and does not include the designed booster pump station or new pipes with the exception of pipes needed to make connections via extensions when no pipes currently physically exist.

Matt Doan, P.E.
Principal Civil Engineer, Planning & Engineering
Reedy Creek Energy Services

From: Machlus, Kimberly A <Kimberly.Machlus@atkinsglobal.com>
Sent: Friday, October 19, 2018 10:51 AM
To: Doan, Matt <Matt.Doan@disney.com>
Subject: RE: Disney MUP RCID HGL Potable, Reclaimed and Wastewater

Matt,

OCU has requested clarification regarding the HGL data utilized for the potable, reclaimed, and wastewater models. The Potable HGL values were updated to reflect the PHF and MDF + Fire Flow scenarios. Reclaimed water and wastewater was updated to reflect the PHF scenario.

Please see the HGL information for the short-term scenarios below:

Potable Short-term HGL

Short-Term Potable	HGL (Location: model junction J64)
PHF	210 feet (114 feet elevation and 42 psi
MDF + FF	223 feet (114 feet elevation and 47 psi
Interim Construction Scenario	242 feet (114 feet elevation and 55 psi

The reclaimed water interconnect HGL (Location at model junction J74) is:

- Reclaimed Water Interconnect HGL - 238 feet (114 feet elevation and 54 psi).

The wastewater interconnect HGL is as follows:

- Wastewater Interconnect HGL – The proposed manhole invert elevation outside of LS-91 is 103 feet.

Please confirm RCID approval of the HGL information used in the short term models.

Thank you,

Kimberly Krutski Machlus
Project Director

Engineering, Design, and Project Management

407.8064132 814.360.4982

482 South Keller Road Orlando, FL 32810

Company

Atkins
482 South Keller Road
Orlando, FL 32810-6101

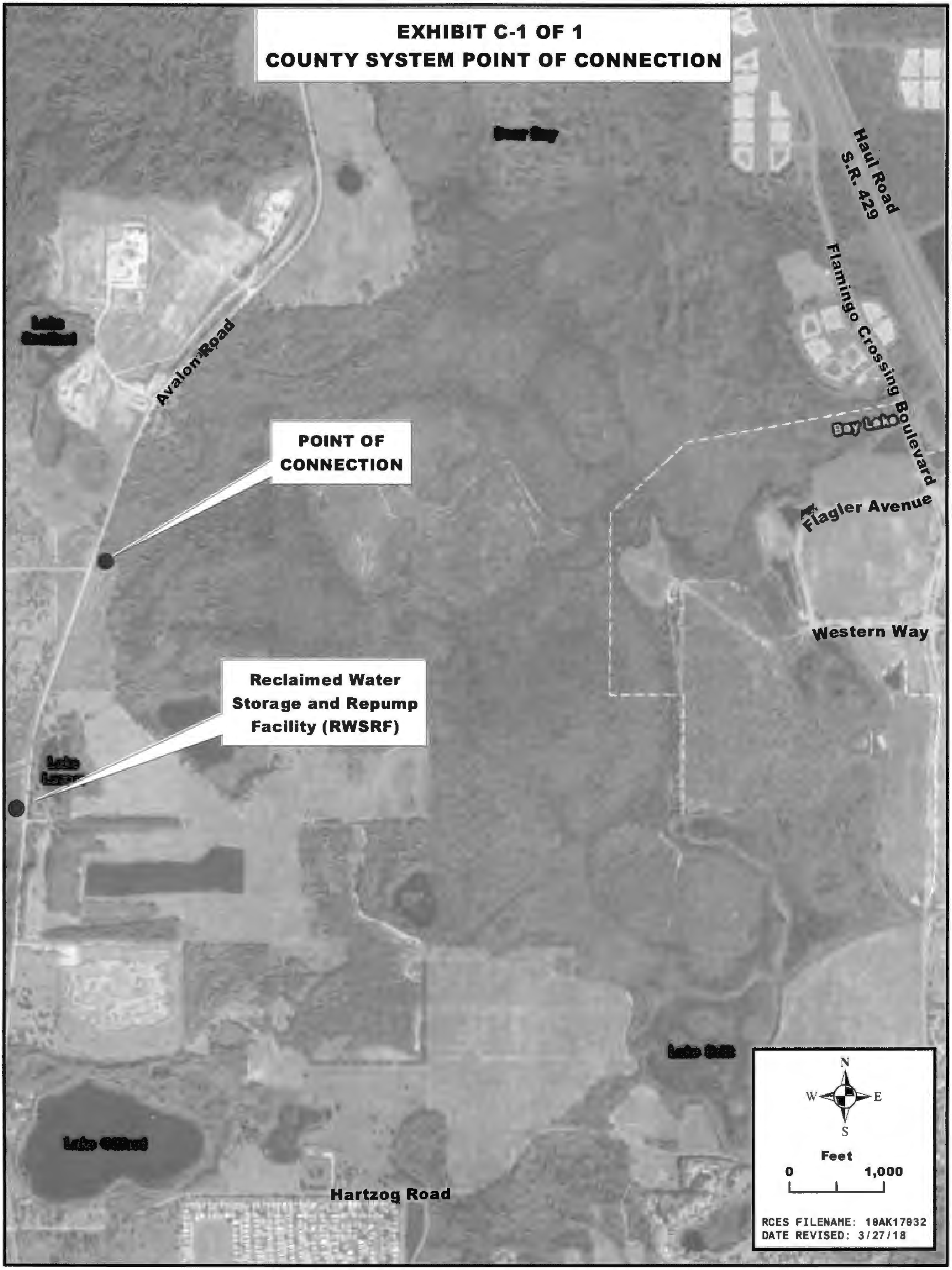


EXHIBIT C-1 OF 1
COUNTY SYSTEM POINT OF CONNECTION

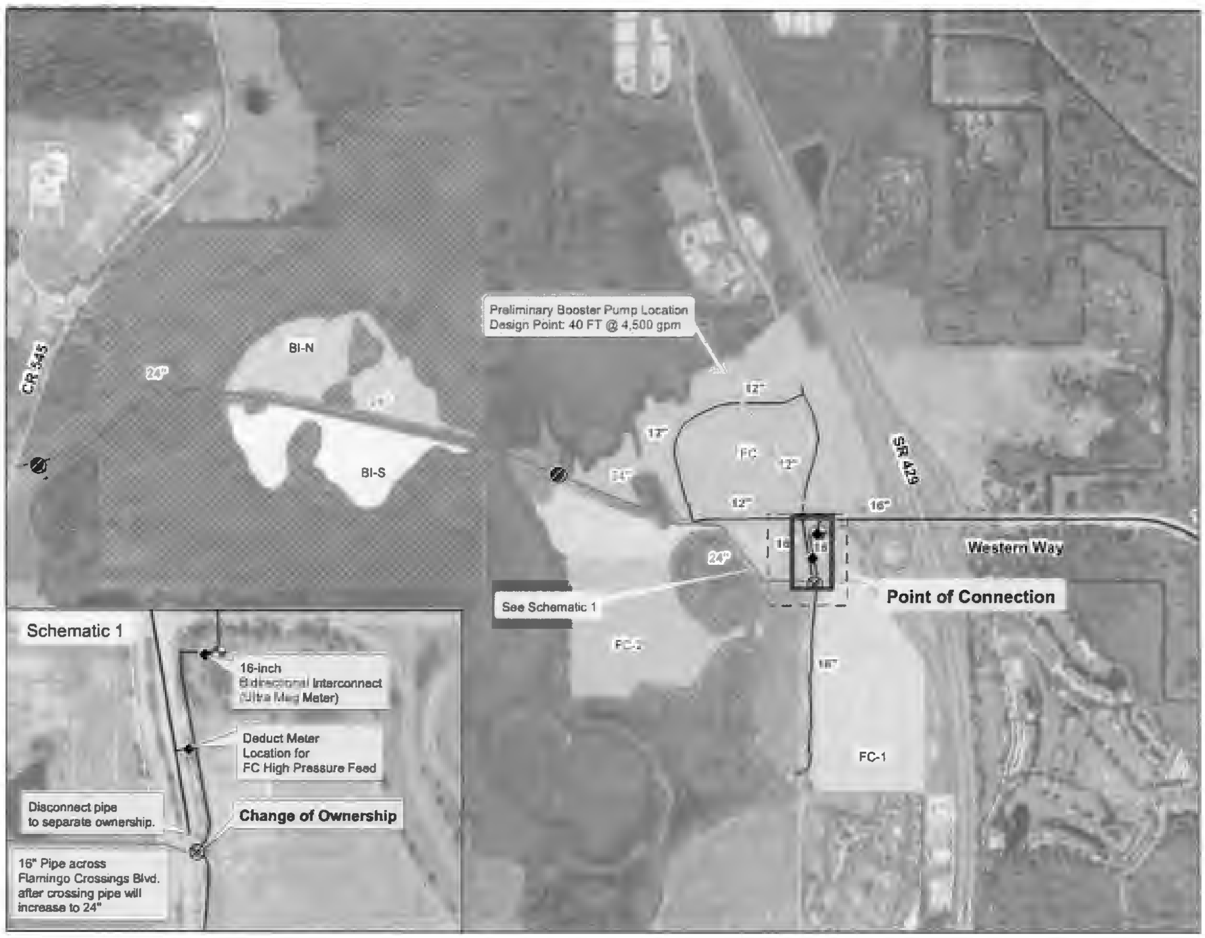


Exhibit D-1 of 3
Potable Water System Infrastructure Point of Connection

Legend

Potable Water Valves

- Gate Valve (Closed)
- Gate Valve (Open)
- Interconnect Assembly/Meters (Open)
- RCID-Owned Booster Pump Location
- Potable Proposed (RCID)
- Potable Existing (RCID transfer to OCU)
- Potable Proposed (OCU)
- Potable Existing (RCID)
- OCU Utility Service Area
- OCU Proposed Utility Service Area

N

1 inch = 1,034 feet

ATKINS

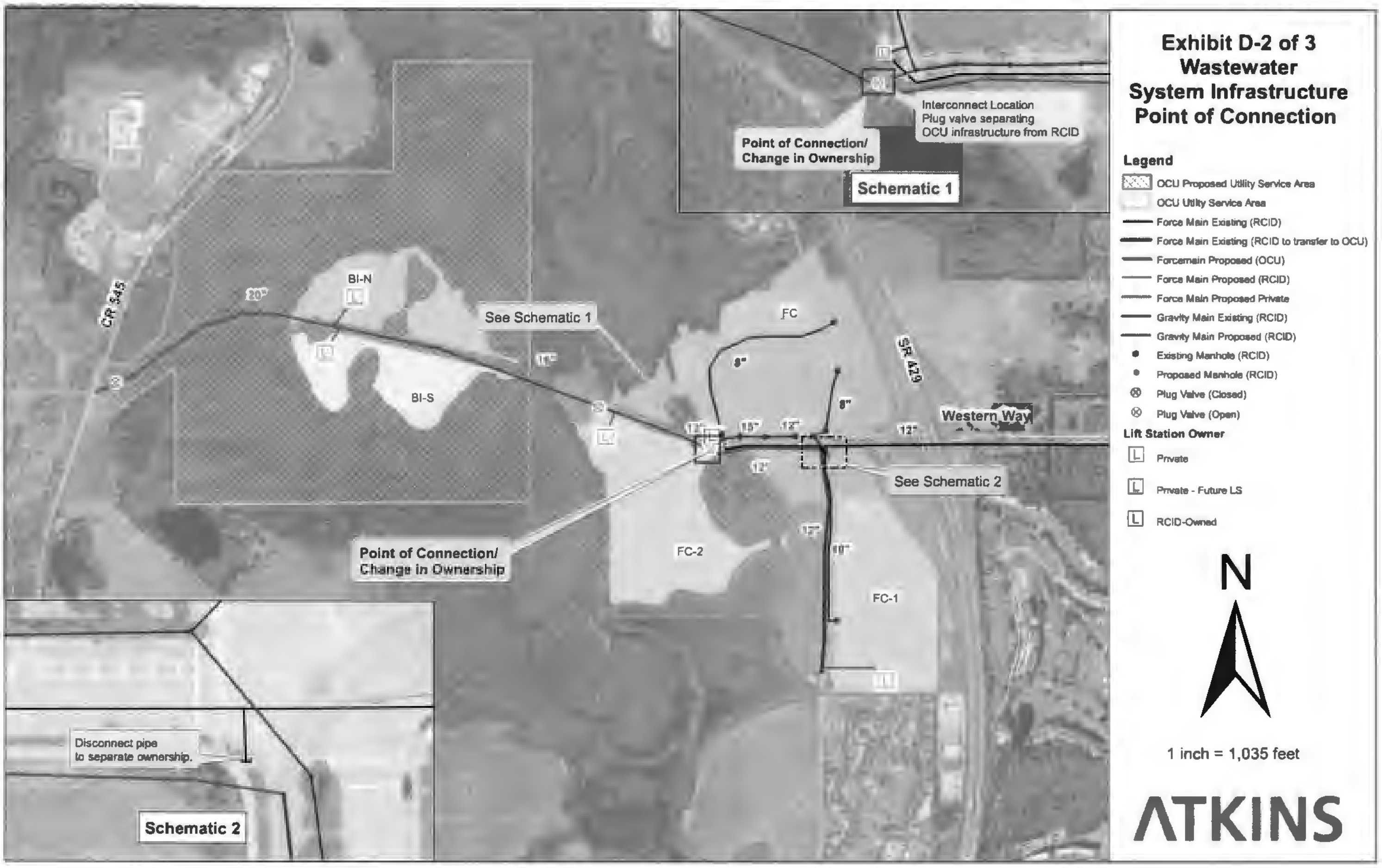


Exhibit D-2 of 3
Wastewater
System Infrastructure
Point of Connection
Legend
OCU Proposed Utility Service Area
OCU Utility Service Area
Force Main Existing (RCID)
Force Main Existing (RCID to transfer to OCU)
Forcemain Proposed (OCU)
Force Main Proposed (RCID)
Force Main Proposed Private
Gravity Main Existing (RCID)
Gravity Main Proposed (RCID)
Existing Manhole (RCID)
Proposed Manhole (RCID)
Plug Valve (Closed)
Plug Valve (Open)
Lift Station Owner
Private
Private - Future LS
RCID-Owned
N
1 inch = 1,035 feet
ATKINS
Interconnect Location
Plug valve separating
OCU infrastructure from RCID
Point of Connection/
Change in Ownership
Schematic 1
CR 545
20"
BI-N
BI-S
See Schematic 1
FC
8"
SR 429
Western Way
12"
15"
See Schematic 2
FC-2
FC-1
10"
Point of Connection/
Change in Ownership
Disconnect pipe
to separate ownership.
Schematic 2

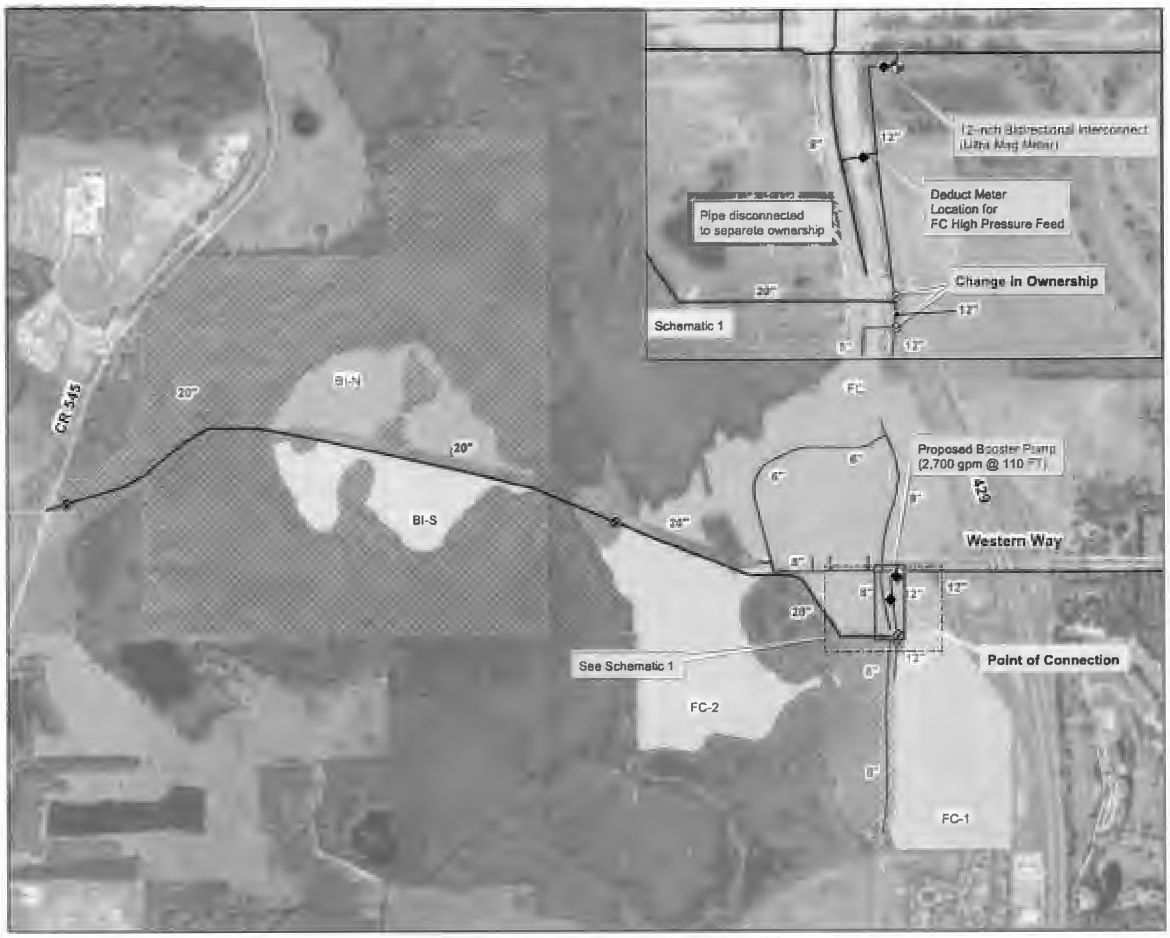


Exhibit D-3 of 3
Reclaimed Water System Infrastructure Point of Connection

Legend

- RCID-Owned Booster Pump Location
- Interconnect Assembly/Meters (Open)

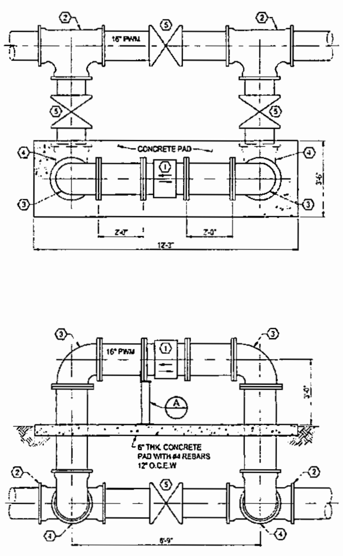
Reclaimed Valves

- Gate Valve (Closed)
- Gate Valve (Open)
- Reclaimed Existing (RCID)
- Reclaimed Existing (RCID to transfer to OCU)
- Reclaimed Proposed (RCID)
- Reclaimed Proposed (OCU)
- Reclaimed Proposed (Private)
- OCU Service Area
- OCU Proposed Utility Service Area

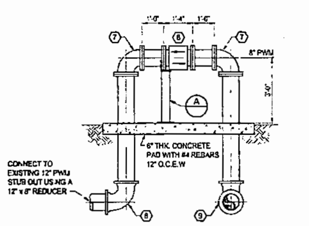
N

1 inch = 980 feet

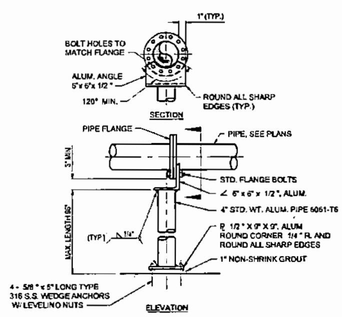
ATKINS



1 POTABLE WATER INTERCONNECT ASSEMBLY
NTS



2 POTABLE WATER DEDUCT METER ASSEMBLY
NTS



NOTES:
1. POWDER COAT ENTIRE SUPPORT AFTER FABRICATION.
2. ALL BOLT HOLES SHALL SHOP BE DRILLED PRIOR TO COATING.
3. PIPE SUPPORT SUITABLE FOR PIPE SIZES FROM 3" UP TO 30".

A PIPE SUPPORT
NTS

EQUIPMENT AND FITTING SCHEDULE

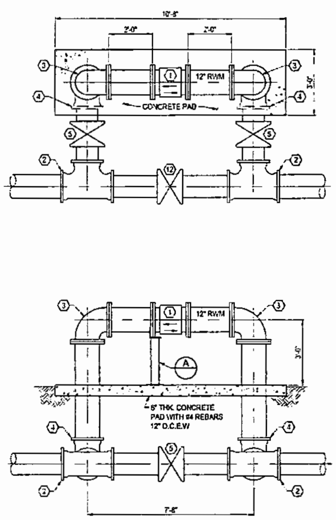
1. 16" MAG METER, BATTERY OPERATED WITH DIRECT-MOUNT TRANSMITTER, WATER SPECIALTIES MODEL: UM06. METER SHALL INDICATE AND TOTALIZE BI-DIRECTIONAL FLOW
2. 16" MJ DIP TEE (RJ)
3. 16" 90° FLG'D BEND
4. 16" 90° MJ DIP BEND (RJ)
5. 16" GATE VALVE W/VALVE BOX (RJ)
6. 8" MAG METER, BATTERY OPERATED WITH DIRECT-MOUNT TRANSMITTER, WATER SPECILITIES MODEL: UM06. METER SHALL INDICATE AND TOTALIZE FLOW.
7. 8" 90° FLG'D BEND
8. 8" 90° MJ DIP BEND (RJ)
9. 16" x 8" MJ DIP TEE (RJ)

Reedy Creek

PROJECT AREA

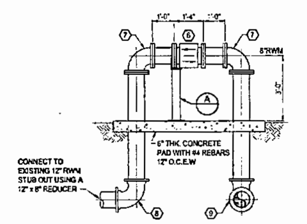
E-1 OF 2
SHEET NO.

EXHIBIT E
DOCUMENT NO.



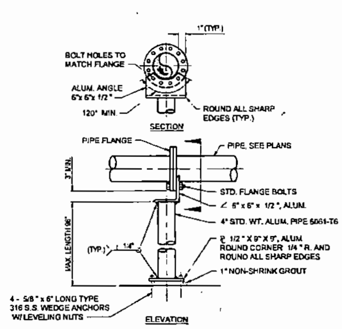
RECLAIM WATER INTERCONNECT ASSEMBLY

NTS



RECLAIM WATER DEDUCT METER ASSEMBLY

NTS



NOTES:

1. POWDER COAT ENTIRE SUPPORT AFTER FABRICATION.
2. ALL BOLT HOLES SHALL SHOP BE DRILLED PRIOR TO COATING.
3. PIPE SUPPORT SUITABLE FOR PIPE SIZES FROM 3" UP TO 30".

PIPE SUPPORT

NTS

EQUIPMENT AND FITTING SCHEDULE

1. 12" MAG METER, BATTERY OPERATED WITH DIRECT-MOUNT TRANSMITTER, WATER SPECIALTIES MODEL. UM06. METER SHALL INDICATE AND TOTALIZE BI-DIRECTIONAL FLOW
2. 12" MJ DIP TEE (RJ)
3. 12" 90° FLG'D BEND
4. 12" 90° MJ DIP BEND (RJ)
5. 12" GATE VALVE W/VALVE BOX (RJ)
6. 8" MAG METER, BATTERY OPERATED WITH DIRECT-MOUNT TRANSMITTER, WATER SPECILITIES MODEL: UM06. METER SHALL INDICATE AND TOTALIZE FLOW.
7. 8" 90° FLG'D BEND
8. 8" 90° MJ DIP BEND (RJ)
9. 16" x 8" MJ DIP TEE (RJ)

NOTICE

Reedy Creek

PROJECT AREA

E-2 OF 2

D

EXHIBIT E